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28 August 2015

Ms. Aimee Reynolds
Project Officer, Remediation Division
Montana Department of Environmental Quality
1225 Cedar Street
Helena, Montana 59601

Subject: Quarterly Status Report No. 40 (May, June, July 2015)
Burlington Northern Livingston Shop Complex - Livingston, Montana
BNSF Railway Company
K/J 1596021.16

Dear Ms. Reynolds:

On behalf of BNSF Railway Company (BNSF), Kennedy/Jenks Consultants is pleased to submit Quarterly Status Report No. 40 for Burlington Northern Livingston Shop Complex, Livingston, Montana. This document has been prepared in accordance with Section 5.1.19, Subtask 19: Communications, of the *Statement of Work for Spring 2005 Activities, BNSF Livingston Shop Complex, Park County, Montana* (Spring 2005 SOW). The quarterly status reporting requirement became effective upon finalization of the Spring 2005 SOW. The Montana Department of Environmental Quality (DEQ) notified BNSF that the Spring 2005 SOW became final on 9 August 2005. This quarterly status report covers Spring 2005 SOW activities conducted between 1 May 2015 and 31 July 2015.

Activities associated with Task D/E, Task M, and other activities, which are not covered by the Spring 2005 SOW, are being reported to DEQ under separate cover.

Please contact me at (415) 243-2448 or email me at ToddMiller@KennedyJenks.com if you have questions regarding this submittal.

Very truly yours,

KENNEDY/JENKS CONSULTANTS

Todd Miller

Todd Miller
Project Manager

Enclosures

cc: Dave Smith, BNSF (PDF)
Yueh Chuang, BNSF (PDF)
Brooke Kuhl, BNSF (PDF)
Katherine Haque-Hausrath, DEQ Legal (PDF on CD)
Mark Hills, CDM Smith (PDF)
Michelle Uberuaga, PCEC (PDF)
Mark Johnson, RTI, Inc. (PDF)

Spring 2005 Statement of Work Quarterly Status Report No. 40 (May, June, July 2015)

Burlington Northern Livingston Shop Complex
Livingston, Montana

BNSF Railway Company

K/J 1596021.16
August 2015

Kennedy/Jenks Consultants

SPRING 2005 STATEMENT OF WORK
QUARTERLY STATUS REPORT NO. 40
(MAY, JUNE, JULY 2015)
Burlington Northern Livingston Shop Complex
Livingston, Montana

Prepared for

BNSF RAILWAY COMPANY

Prepared by

KENNEDY/JENKS CONSULTANTS
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K/J 1596021.16

August 2015

Task C

Cinder Pile Capping

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

TASK C: CINDER PILE CAPPING

WORK PERFORMED

During the 2014 cinder pile inspection, a small strip of bare ground was observed along the southern fence line of the cinder pile. It is believed that this bare ground was the result of weed control over-spraying conducted by Montana Rail Link (MRL) personnel in 2013, as documented in Quarterly Status Report No. 32. During the 2014 annual cinder pile inspection Mr. Williams (Park County Weed Inspector) recommended broadcasting seeding with crested wheatgrass in this area in spring (2015) to help re-establish vegetation. The broadcast seeding along the southern fence line was conducted on 21 May 2015.

On 8 June 2015, Kennedy/Jenks Consultants conducted the 2015 annual cinder pile inspection on behalf of BNSF Railway Company (BNSF). Mr. Clay Williams (Park County Weed Inspector) and Mr. Ben Simpson (CDM Smith) were present during the inspection. The cinder pile was walked with Mr. Williams and Mr. Simpson. Mr. Williams stated the cinder pile surface cover was “completely vegetated and coverage was as good as it gets.” Mr. Williams took no exceptions to the plants that were present on the cinder pile. No listed noxious weeds were found; however, Mr. Williams recommended a follow up weed patrol be conducted around the perimeter of the cinder pile. Mr. Williams also recommended the cinder pile <u>not</u> be mowed this year.

An additional investigation of the soils and groundwater beneath the cinder pile was conducted by Water & Environmental Technologies, Inc. (WET) on behalf of the Livingston Restoration Group (LRG) in September 2014. Investigation activities performed by WET are not part of Task C as defined in the *Statement of Work for Spring 2005 Activities, BNSF Livingston Shop Complex, Park County, Montana* (Spring 2005 SOW) (DEQ 2005) and are being reported to DEQ under separate cover. The *Cinder Pile Remedial Design Report* prepared by WET, summarizing the September 2014 field activities, was submitted to DEQ for review and approval on 15 July 2015.

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FIELD LOGS (ATTACHED)

A copy of the Cinder Pile Inspection Form, associated photographs, and Weed Inspection Form are attached to this section.

ANALYTICAL DATA (ATTACHED)

None.

OTHER DATA OBTAINED IN FIELD

None.

UNUSUAL/UNANTICIPATED RESULTS

None.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

At the recommendation of Mr. Clay Williams (County Weed Inspector), the cinder pile will not be mowed in 2015. Mr. Ron Burke of Kennedy/Jenks Consultants (a licensed Montana Pesticide Applicator – Agricultural Plant Pest Control) will perform the follow up weed patrol in August/September 2015 (next reporting period).

POTENTIAL IMPACTS TO SCHEDULE

None.

Future cinder pile inspections are currently scheduled to occur on an annual basis (or other frequency determined by DEQ) with the next inspection tentatively scheduled for June/July 2016, unless otherwise directed by DEQ.

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TASK C
Cinder Pile Inspection Forms

CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

PERIMETER FENCE INSPECTION

Walk entire perimeter of fence line, and indicated gaps, damage, loose tension, or poor condition by perimeter location.

Wooden Braces and Corner Posts:

Wooden braces and corner posts appeared intact and in good condition.

Barb Wire "Fabric":

Barbed wire fence appeared in good condition.

Warning Sings along fence (place ~ every 350 feet):

All signs intact and in good condition.

Gate Condition and Security:

Both gates appeared intact, secured, and in good condition.

Signs of Intrusion:

There were no signs of intrusion.

VEGETATIVE COVER INSPECTION

Walk the surface of the Cinder Pile along at least three transects and walk the perimeter paying attention to the following:

Vegetative Bare Spots:

The Park County Weed Inspector (Mr. Clay Williams) said the pile cover surface was "completely vegetated and coverage was as good as it gets".

Weed Infestation:

Mr. Clay Williams took no exceptions to the plants that were present on the cinder pile. No listed noxious weeds were found.

Ron Burke will do a follow up weed patrol around the perimeter.

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

EROSION INSPECTION

This inspection can be part of the two inspections listed above. Describe location and severity of any cap damage.

Surface depressions that could accumulate water:

None observed.

Excessive Erosion:

Rills and gullies > 2 inches of penetration (include location and degree, i.e., penetration depth):

None observed.

Sloughing slopes:

None observed.

Undermined plant roots:

None observed.

PHOTOGRAPH LOG

Photo Number	Photo Direction	General Location	Comments
1	E	West slope	Shows gate
2	ESE	South slope	
3	E	Top of cap	
4	ENE	North slope	
5	E	Power pole within cap	
6	NE	Northeastern corner	
7	SE	Southeastern corner	
8	W	South slope	
9	W	Top of cap	

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

<u>GENERAL COMMENTS</u> (together with any resolutions):

The cap vegetation will not be mowed in 2015 at the recommendation of Mr. Williams.

<u>INSPECTED BY</u>:

Ron Burke (on behalf of BNSF)

INSPECTION DATE:

8 June 2015

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

Photo 1: View east. West slope with locked gate and sign.

Photo 2: View east-southeast. South slope.

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

Photo 3: View east. Top of cap.

Photo 4: View east-northeast. North slope.

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

Photo 5: View east. Power pole within cap.

Photo 6: View northeast toward northeastern corner.

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

Photo 7: View southeast toward southeastern corner.

Photo 8: View west. South slope.

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CINDER PILE INSPECTION – 2015
Burlington Northern Livingston Shop Complex

Photo 9: View west. Top of cap.

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CINDER PILE INSPECTION – 2015
WEED INSPECTION FORM
Burlington Northern Livingston Shop Complex

Date Inspected: 8 June 2015

I. OWNERSHIP AND LOCATION:

A. Name: *Burlington Northern Livingston Shop Complex – Cinder Pile*

Address: *208 Miles Lane South, Livingston, Montana 59047*

Phone: *Dave Smith (BNSF Railway Company) (406) 447-2307*

B. Location: Legal Description: *The cinder pile lies in the southeast quarter of Section 12, Township 2 South, Range 10, east of the Montana Principal Meridian.*

C. Map identifying the cinder pile: *See attached.*

II. NOXIOUS WEED DATA

A. Types of Noxious Weeds and Acres of Infestation by Weed Species (use data key at end of form)

LOCATION	WEED SPECIES	ACRES
1. _None_		
2.		
3.		
4.		

PLEASE LOCATE THE ABOVE INFESTATIONS ON YOUR MAP BY NUMBER

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CINDER PILE INSPECTION – 2015
WEED INSPECTION FORM
Burlington Northern Livingston Shop Complex

III. CONTROL ACTIVITIES

A. Chemical Control: Chemical Per Acre Rate

1. _____ _____
2. _____
3. _____

B. Control Methods:

1. Handgun: _____
2. Ground Boom:_____
3. Aerial Application: _____
4. Other: _____

C. Who will conduct the control activity? (applicator):

1. Self: _____
2. Commercial Applicator: _____
3. Other: _____

IV. OTHER PLANS FOR PRESENT AND FUTURE CONTROL: (Time of control, Herbicides used and application rates, monitoring, etc.)

Next annual cinder pile inspection tentatively scheduled for June 2016.

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CINDER PILE INSPECTION – 2015
WEED INSPECTION FORM
Burlington Northern Livingston Shop Complex

NOXIOUS WEED DATA KEY

1. Leafy Spurge
2. Spotted Knapweed
3. Diffused Knapweed
4. Houndstongue
5. Canada Thistle
6. White Top
7. Dyer's Woad
8. Sulfur Cinquefoil
9. Dalmation Toadflax
10. Field Bindweed
11. Russian Knapweed
12. Ox-eye Daisy
13. Common Tansy
14. Purple Loosestrife
15. St. Johnswort
16. Tamarisk
17. Orange Hawkweed
18. Yellow Starthistle
19. Tansy Ragwort
20. Common Crupina
21. Rush Skeleton Weed
22. Tall Buttercup
23. Meadow Hawkweed
24. Mullein

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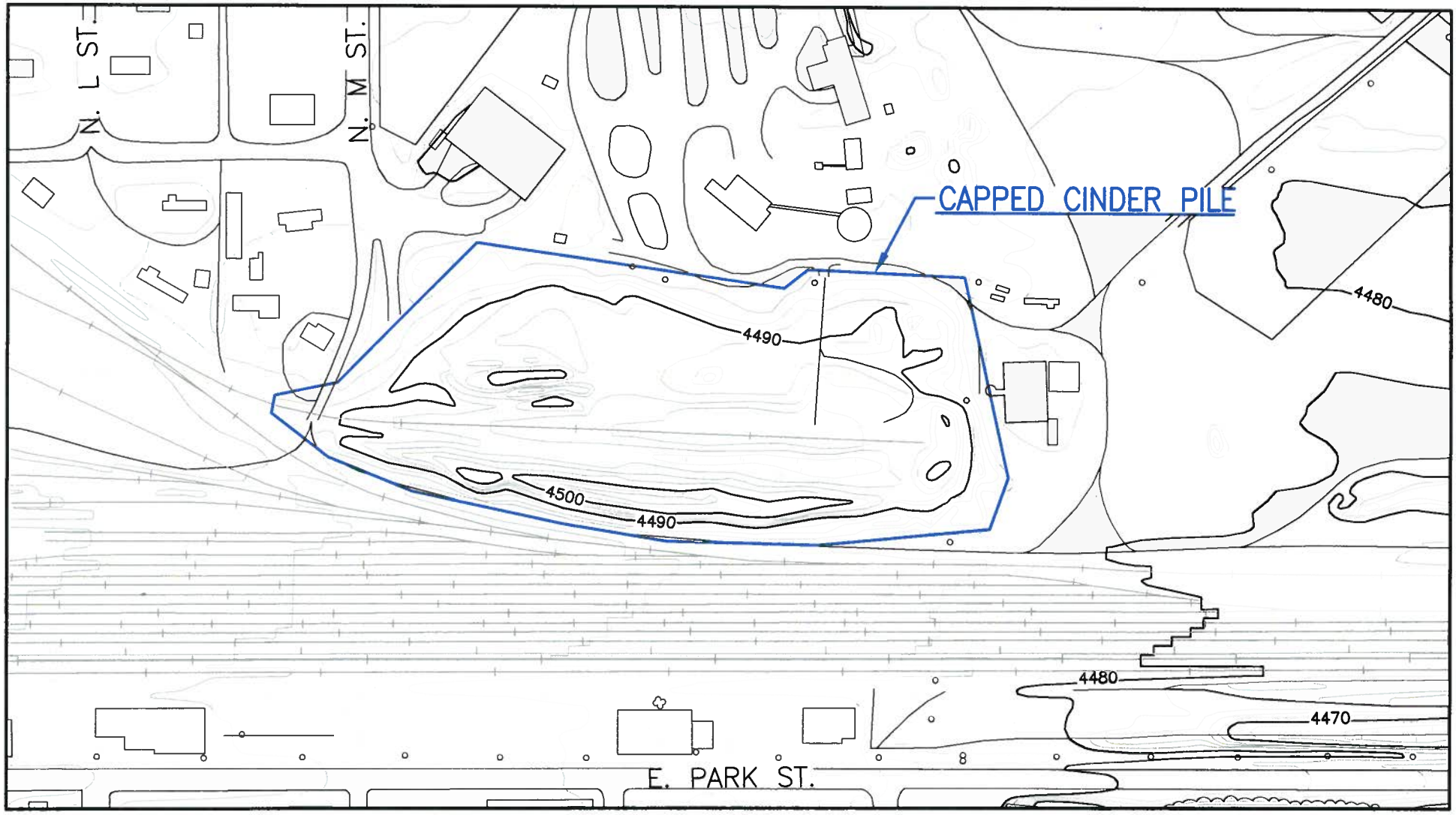

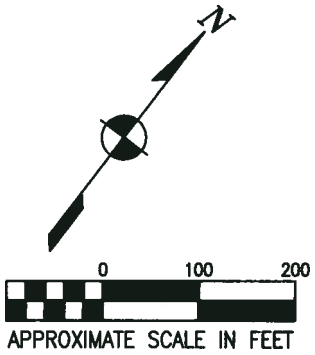

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BURLINGTON NORTHERN LIVINGSTON SHOP COMPLEX – LIVINGSTON, MT

CINDER PILE LOCATION

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1196021.16/Task C/P11SK001

8/11

FIGURE 1

Task F

Alluvial Aquifer Groundwater VOC Cleanup

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

TASK F: ALLUVIAL AQUIFER GROUNDWATER VOC CLEANUP

WORK PERFORMED

Task F Stage I – Part 1

Task F Stage I – Part 1 annual sampling of private wells located within a DEQ-defined sampling boundary was conducted in June 2015. The DEQ-defined sampling boundary is "the estimated area where PCE is expected to be present above the DEQ-7 required reporting limit of 0.5 µg/L" as determined by DEQ. Since approval and implementation of the *Task F Stage I – Part 1 Remedial Action Plan for VOC-Containing Alluvial Aquifer Groundwater* [Task F SI-P1 RAP (DEQ Version)] in 2007, DEQ has revised "the estimated area where PCE is expected to be present above the DEQ-7 required reporting limit of 0.5 µg/L" as additional information regarding the extent of tetrachloroethene (PCE) in the alluvial aquifer at the Facility has become available. As a result, the private well sampling boundary has been revised several times (October 2009, August 2010, and May 2011). As documented in previous quarterly status reports and annual monitoring and maintenance reports, each modification of the boundary has resulted in some peripheral private wells either being added or removed from the private well monitoring program in accordance with Table 7 of the Task F SI-P1 RAP (DEQ Version).

The number of wells in the Task F SI-P1 private well monitoring program was revised prior to the June 2015 sampling event to reflect DEQ's latest "estimated area where PCE is expected to be present above the DEQ-7 required reporting limit of 0.5 µg/L", as depicted by the first and second quarter "Petroleum Free-Product and Dissolved Tetrachloroethene (PCE) Plume - 2014" maps prepared by CDM Smith and posted on DEQ's website. (Note: The June 2015 private well sampling boundary represents an amalgamation of the two maps.) A total of 31 private wells were identified as being located within (or potentially located within) the June 2015 private well sampling boundary. Ten wells located within the previous (May 2011) DEQ-defined sampling boundary were removed from the private well monitoring program as they are not

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located within the June 2015 sampling boundary. Two wells (7L04 and 7M01), not previously part of the private well monitoring program, were included as potentially being inside the June 2015 sampling boundary. A field reconnaissance during the June 2015 sampling event confirmed the wells are located outside the June 2015 sampling boundary and the wells will be removed from the private well monitoring program in the future. Two other wells (18C01 and 18C07), confirmed outside the previous (May 2011) DEQ-defined sampling boundary, were added back into the private well monitoring program as they are located within the June 2015 sampling boundary; these wells were part of the private well monitoring program until 2011. Table F-1 (attached) summarizes the status of the private well monitoring program in 2015.

According to the Task F SI-P1 RAP – DEQ Version, "wells that do not have operational pumping systems will not be sampled. Private wells that do not have an operational pumping system, however, will be checked at least annually to confirm an operational pumping system is not present." Private well owners were contacted to 1) confirm the operational status of wells and 2) grant access, as necessary, to conduct the sampling. Wells with operational pumping systems, and where access was granted, were sampled between 8 and 11 June 2015. Samples were collected from four private wells (7L01, 7P10, 7Q01, and 18D04) with operational pumping systems in June 2015 (see Tables F-1 and F-2 attached). Private well water samples were submitted to Energy Laboratories in Billings, Montana, (Energy) under chain-of-custody protocol for analysis of volatile organic compounds (VOCs) in accordance with the Task F SI-P1 RAP – DEQ Version.

The *Task F Stage I – Part 1 Remedial Action Report* (Task F Stage I – Part 1 RA Report) was submitted to DEQ on 4 February 2010 for review and approval. No comments were received from DEQ on the Task F Stage I – Part 1 RA Report. On 4 May 2011, BNSF received a letter from DEQ stating "DEQ is currently evaluating the groundwater sampling requirements to determine whether any changes are necessary." In December 2012, DEQ combined the Task F (alluvial) and Task L (bedrock) groundwater monitoring programs. Quarterly/semiannual groundwater sampling of alluvial aquifer and bedrock wells was conducted in June 2015 under DEQ's Revised Groundwater Monitoring Directive No. 2 (GWMD-2R) (see **Groundwater Monitoring**).

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Task F Stage I – Part 2 (Pilot Tests) – *In Situ* Chemical Oxidation (ISCO)

On 22 July 2013, the *Revised Task F Stage I – Part 2: Comprehensive Chemical Testing Report* (Revised Comprehensive Report) was submitted to DEQ for review and approval. No comments were received from DEQ this reporting period.

Task F Stage I – Part 2 (Pilot Tests) – Soil Vapor Extraction (SVE)

Former Electric Shop SVE: Activities pertaining to soil vapor at the Former Electric Shop are now being undertaken by WET/LRG and are being reported to DEQ by WET under separate cover. The *Sub-Slab Depressurization and Expansion of the Soil Vapor Extraction Report – Former Electric Shop* prepared by WET was submitted to DEQ on 10 July 2015. No comments were received from DEQ this reporting period.

Other Pilot Test(s) - Air Sparging/Soil Vapor Extraction (AS/SVE)

DEQ has agreed to pilot testing an AS/SVE system to evaluate its ability to remove volatile organic compounds (VOCs) from the alluvial aquifer at the Facility. This work is being conducted by WET/LRG in conjunction with BNSF and will be reported to DEQ under separate cover. An *AS/SVE Pilot Test Work Plan* prepared by WET was submitted to DEQ for review and approval on 4 August 2015 (next reporting period).

FIELD LOGS (ATTACHED)

The following field forms/logs are attached to this section:

- Task F Stage I – Part 1 Annual Private Well Monitoring - Domestic Water Sampling Records (June 2015)
- Task F Stage I – Part 1 Annual Private Well Monitoring – Consent for Access to Sample Forms and Third Party Sample Receipts.

ANALYTICAL DATA (ATTACHED)

The following analytical laboratory reports are attached to this section:

- Task F Stage I – Part 1 Annual Private Well Monitoring – Water samples (June 2015).

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Preliminary private well water samples results are summarized in Table F-2. (Note: Data validations have not been performed on the preliminary analytical results.)

As required by DEQ, the copy of the quarterly status report submitted to DEQ contains hard copies of the analytical laboratory reports. Also as required by DEQ, the CD in DEQ's copy contains electronic data deliverables (EDDs) of the analytical results, when provided by the analytical laboratory.

UNUSUAL/UNANTICIPATED RESULTS

None.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

POTENTIAL IMPACTS TO SCHEDULE

None.

WET is expected to take over operation of the Former Electric Shop SVE system in consultation with DEQ.

As indicated above, the *AS/SVE Pilot Test Work Plan* is currently pending DEQ review and approval. It is anticipated the AS/SVE pilot test will be implemented during the next reporting period, upon receiving approval from DEQ.

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TASK F STAGE I - PART 1: PRIVATE WELL MONITORING PROGRAM - 2015
Burlington Northern Livingston Shop Complex

Well Designation	Annual Private Well Monitoring Event[a]	Analyses	Comments
	June 2015	VOCs (524.2)[b]	
SUMMARY OF TASK F STAGE I - PART 1 PRIVATE WELLS IN CURRENT (JUNE 2015) PRIVATE WELL SAMPLING PROGRAM			
Private Wells Identified In Task F SI-P1 RAP (DEQ Version) dated April 2007. Wells confirmed inside April 2007 DEQ-defined sampling boundary and subsequent boundaries including current (June 2015) boundary[a].			
7L01	**X**	●	**Sampled 10 June 2015.**
7L02	X --- ns	●	"ns" - no sample collected in June 2015. Well could not be located during field reconnaissance of property. Well reportedly destroyed during building construction activities. In June 2012, POTW representative indicated the well was closed (i.e., filled with concrete) prior to paving.
7L03	X --- ns	●	"ns" - no sample collected in June 2015. Well was operational and operating a sprinkler system in 2007 when private well monitoring program was initiated. No sample was collected in 2007 as no spigot was available to collect a representative sample. Since that time, the well was reported as "destroyed during construction activities at City of Livingston POTW". In June 2012, the well was located and found to be again operating a sprinkler system. No sample was collected in June 2015, well not operational at time of sampling.
7L07	X --- ns	●	"ns" - no sample collected in June 2015. BNSF property. Well could not be located during field reconnaissance of property.
7L08	X --- ns	●	"ns" - no sample collected in June 2015. BNSF property. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
7M11	X --- ns	●	"ns" - no sample collected in June 2015. BNSF property. Well could not be located during field reconnaissance of property.
7M12	X --- ns	●	"ns" - no sample collected in June 2015. BNSF property. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
7N01	X --- ns	●	"ns" - no sample collected in June 2015. MRL property. Well could not be located during field reconnaissance of property.
7N02	X --- ns	●	"ns" - no sample collected in June 2015. MRL property. Well could not be located during field reconnaissance of property.
7P09	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F S-P1 RAP (DEQ Version).
7P10	**X**	●	**Sampled 11 June 2015.**
7P11	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
7P12	X --- ns	●	"ns" - no sample collected in June 2015. Well could not be located during field reconnaissance of property.
7P13	X --- ns	●	"ns" - no sample collected in June 2015. Well could not be located during field reconnaissance of property.
7Q01	**X**	●	**Sampled 8 June 2015.**
18D01	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
18D02	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
18D04	**X**	●	**Sampled 10 June 2015.**
18D05	X --- ns	●	"ns" - no sample collected in June 2015. Unable to contact property owner. Well historically non-operational.
Private Wells Added To Private Well Monitoring Program in 2007 - Per Table 7 of Task F SI-P1 RAP (DEQ Version). Wells confirmed inside April 2007 DEQ-defined private well sampling boundary and subsequent boundaries including current (June 2015) boundary[a].			
7P17	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable during sampling event - no sample required per Task F SI-P1 RAP (DEQ Version).
18C05	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
Private Wells Added To Private Well Monitoring Program in 2010 - Based on information obtained from 2009/2010 private well survey and/or property owners' legal representative. Wells Confirmed inside October 2009 DEQ-defined sampling boundary and subsequent boundaries including current (June 2015) boundary[a].			
7P18	X --- ns	●	"ns" - no sample collected in June 2015. Well could not be located during field reconnaissance of property.
7P19	X --- ns	●	"ns" - no sample collected in June 2015. Well could not be located during field reconnaissance of property.
18C06	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
18C08	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
18D12	X --- ns	●	"ns" - no sample collected in June 2015. Unable to contact property owner. Well historically non-operational.
18D13	X --- ns	●	"ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
Private Well Added Back into Private Well Monitoring Program in 2015. Wells confirmed inside current (June 2015) DEQ-defined private well sampling boundary[a].			
18C01	X --- ns	●	Well removed from the program in 2011 - located outside previous (May 2011) DEQ-defined sampling boundary. Well added back into the program in 2015 - located inside current (June 2015) DEQ-defined sampling boundary. "ns" - no sample collected in June 2015. Well confirmed inoperable - no sample required per Task F SI-P1 RAP (DEQ Version).
18C07	X --- ns	●	Well added to the program in 2010 based on information obtained from 2009/2010 private well survey and/or property owners' legal representative. Well removed from program in 2011 - located outside previous (May 2011) DEQ-defined sampling boundary. Well added back into the program in 2015 - located inside current (June 2015) DEQ-defined sampling boundary. "ns" - no sample collected in June 2015. Unable to contact property owner. Well historically non-operational.
Private Well Added to Private Well Monitoring Program in 2015. Wells confirmed outside current (2015) DEQ-defined private well sampling boundary[a]. These wells will not be included in the private well monitoring program in the future.			
7L04	NA		Well added to the program in 2015. Well potentially located within current (June 2015) DEQ-defined sampling boundary. Well confirmed outside boundary during field reconnaissance.
7M01	NA		Well added to the program in 2015. Well potentially located within current (June 2015) DEQ-defined sampling boundary. Well confirmed outside boundary during field reconnaissance.

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TASK F STAGE I - PART 1: PRIVATE WELL MONITORING PROGRAM - 2015
Burlington Northern Livingston Shop Complex

Well Designation	Annual Private Well Monitoring Event[a]	Analyses	Comments
	June 2015	VOCs (524.2)[b]	
SUMMARY OF TASK F STAGE I - PART 1 PRIVATE WELLS NO LONGER PART OF THE PRIVATE WELL SAMPLING PROGRAM			
Private Well removed from private well monitoring program - Per Table 7 of Task F SI-P1 RAP (DEQ Version). Well confirmed outside current (June 2015) DEQ-defined private well sampling boundary[a].			
12R02	NA		Well removed from the program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary. Well was located within previous DEQ-defined sampling boundaries (April 2007, October 2009, August 2010, and May 2011).
12R06	NA		Well added to the program in 2011 - located inside previous (May 2011) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
18C03	NA		Well was removed from the program in 2007 - located outside previous (April 2007) DEQ-defined sampling boundary. Well was added back into the progran in 2010 - located inside the previous (October 2009) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
18D03	NA		Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary. Well was located within previous DEQ-defined sampling boundaries (April 2007, October 2009, August 2010, and May 2011).
18D06	NA		Well added to the program in 2010 - located inside previous (October 2009) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
18D08	NA		Well added to the program in 2010 - located inside previous (October 2009) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
18D10	NA		Well added to the program in 2010 - located inside previous (October 2009) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
18D11	NA		Well added to the program in 2010 - located inside previous (October 2009) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
5P01	NA		Well removed from the program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary. Well was located within previous DEQ-defined sampling boundaries (April 2007, October 2009, August 2010, and May 2011).
8C01	NA		Well added to the program in 2011 - located inside previous (May 2011) DEQ-defined sampling boundary. Well removed from program in 2015 - located outside current (June 2015) DEQ-defined sampling boundary.
Private Well Identified in Task F SI-P1 RAP (DEQ Version). Removed from private well monitoring program - Per Table 7 of Task F SI-P1 RAP (DEQ Version). Well confirmed outside previous and current (June 2015) DEQ-defined private well sampling boundary[a].			
7L06	NA		Well removed from the program in 2012 - located outside May 2011 and current (June 2015) DEQ-defined sampling boundary. Well was located within previous DEQ-defined sampling boundaries (April 2007, October 2009, and August 2010).
18C02	NA		Well removed from the program in 2007 - located outside April 2007, October 2009, May 2011, and June 2015 DEQ-defined sampling boundaries. Well was located within August 2010 DEQ-defined sampling boundary [as defined in the Task L SI Work Plan (DEQ Version]; this boundary was superseded by the May 2011 boundary.
13B01 (formerly identified as 12Q01)	NA		Well removed from the program in 2010 - located outside October 2009, August 2010, May 2011, and current (June 2015) DEQ-defined sampling boundaries.
12Q02	NA		Well removed from the program in 2010. Well is also located outside October 2009, August 2010, May 2011, and current (June 2015) DEQ-defined sampling boundaries.
Private Well Identified in Task L Supplemental Investigation Work Plan for Bedrock Aquifer(s) - DEQ Version (August 2010). Removed From Private Well Monitoring Program - Per Table 7 of Task F SI-P1 RAP - DEQ Version. Well Confirmed Outside May 2011 and current (June 2015) DEQ-Defined Sampling Boundary[a].			
18C04	NA		Well removed from the program in 2011 - located outside May 2011 and current (June 2015) DEQ-defined sampling boundary.
18D09	NA		Well removed from the program in 2011 - located outside May 2011 and current (June 2015) DEQ-defined sampling boundary.
Private Well Identified In Task F SI-P1 RAP (DEQ Version). Wells properly abandoned and removed from private well monitoring program.			
7P01	NA		Formerly Rainbow Motel. Well abandoned by a Montana licensed well driller on 23 February 2010.
12R07	NA		One well (02S/09E 12R07) previously identified as serving the property at 416 North K Street was removed from the well inventory based on additional information obtained in 2010. No well exists at this property. The well that previously served this property has been accounted for in the well inventory and is designated 02S/09E 12R03. Well 02S/09E 12R03 was abandoned by a licensed well drilling contractor in 2007.
12R03	NA		Well abandoned by a Montana licensed well driller on 8 October 2007.

Notes:

(a) Annual private well monitoring event conducted in accordance with Table 7 of Task F Stage I - Part 1 Remedial Action Plan for VOC-Containing Alluvial Aquifer Groundwater [Task F SI-P1 RAP (DEQ Version)] dated April 2007.
The private well sampling boundary identified in the Task F SI-P1 RAP (DEQ Version) has been modified by DEQ in 2009, 2010, and 2011 (see below).
The DEQ-defined private well sampling boundaries are as follows:
- April 2007 boundary - as defined in Task F SI-P1 RAP (DEQ Version) dated April 2007. This boundary was used for annual private well sampling events in 2007, 2008, and 2009.
- October 2009 boundary - as defined by the "Limit of Detected Tetrachloroethene (PCE) Dissolved in Groundwater" identified on the Petroleum Free-Product Plume and Dissolved Tetrachloroethylene (PCE) Plume 2009 map posted on DEQ's website dated October 2009. DEQ required this boundary be used in its email to Kennedy/Jenks Consultants dated 21 May 2010. This boundary was used for the annual private well sampling event in July 2010.
- August 2010 boundary - as defined in Task L Supplemental Investigation Work Plan for Bedrock Aquifer(s) - DEQ Version [Task L SI Work Plan (DEQ Version)] dated August 2010. DEQ required that the annual private well monitoring program be updated to reflect DEQ's "<0.5 micrograms per liter Tetrachloroethene Plume (PCE)" boundary as depicted on DEQ-provided Figure 3 in Task L SI Work Plan (DEQ Version). This boundary was subsequently superseded by the May 2011 boundary.
- May 2011 boundary - as defined in the Private and Public Well Inventory (Revision No. 5) dated January 2011 (updated May 2011) using DEQ's "estimated area where PCE is expected to be present above the DEQ-7 required reporting limit of 0.5 ug/L" as depicted on DEQ-provided Figure 2 in the updated well inventory. This boundary was used for the annual private well sampling event in June 2011, June 2012, and June/July 2013.
- June 2015 boundary - compilation of the first and second quarter "Petroleum Free-Product and Dissolved Tetrachloroethene (PCE) Plume - 2014" maps posted on DEQ's website.

(b) Samples were analyzed for VOCs using EPA Method 524.2.
(c) "X" denotes well is scheduled to be included in the monitoring event. "X---ns" denotes no sample collected for the reason stated in the comments section.
(d) "●" denotes samples scheduled to be analyzed for indicated analytes.

	Private well identified as part of the the private well monitoring program in the Task F SI-P1 RAP (DEQ Version) in 2007.
	Private well added or removed since 2007, based on revisions to the DEQ-defined private well sampling boundary.

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TABLE F-2

TASK F STAGE I - PART 1: PRIVATE WELL PRELIMINARY ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well/Sample ID Well Water Usage Date	ROD Cleanup Level (µg/L)[a]	DEQ-7 Standard (µg/L)[b]	7L01 Maintenance/ Washing 10-Jun-15	7P10 Irrigation 11-Jun-15	7Q01 Irrigation 8-Jun-15	18D04 Irrigation 10-Jun-15
Volatile Organic Compounds (VOCs) (µg/L)[c]						
Benzene	--[d]	5	<0.50[e]	<0.50	<0.50	<0.50
Bromobenzene	--	--	<0.50	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<0.50	**0.96**	<0.50	<0.50
Bromoform	--	80	<0.50	<0.50	<0.50	<0.50
Bromomethane	--	10	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	100		<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<0.50	<0.50	<0.50	<0.50
Chloroethane	--	--	<0.50	<0.50	<0.50	<0.50
Chloroform	--	70	<0.50	**1.6**	**0.13J**[f]	<0.50
Chloromethane	--	30	<0.50	<0.50	<0.50	<0.50
2-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50
Dibromomethane	--	--	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<0.30	<0.30	<0.30	<0.30
1,1-Dichloroethene	--	7	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	--	100	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<0.50	<0.50	<0.50	<0.50
Methylene chloride	--	5	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<0.50	<0.50	<0.50	<0.50
Styrene	--	100	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		**14**	**0.62**	**0.87**	**0.71**
Toluene	--	1,000	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5.0		**0.71**	<0.50	<0.50	<0.50
Trichlorofluoromethane	--	10,000	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.15[g]		<0.40	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<0.50	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	<0.50	<0.50

Notes:

(a) Cleanup levels from *Record of Decision* (ROD) [Montana Department of Environmental Quality (DEQ) 2001].
ROD cleanup levels based on *Circular WQB-7, Montana Numeric Water Quality Standards* (WQB-7 standards) dated September 1999, now called DEQ-7 standards.

(b) DEQ-7 standards dated October 2012.

(c) Samples were analyzed for volatile organic compounds (VOCs) using EPA Method 524.2.

(d) "--" denotes ROD cleanup level/DEQ-7 standard not established.

(e) "<" denotes analyte was not detected at the indicated method reporting limit.

(f) "J" indicates estimated value. The analyte is present but at a concentration less than the limit of quantitation.

(g) The required reporting limit of 0.4 µg/L will be used for vinyl chloride during remedial design/remedial action (RD/RA) work.

Reported values shown in bold

µg/L - micrograms per liter

PRELIMINARY DATA HAVE NOT BEEN VALIDATED

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TASK F STAGE I – PART 1
PRIVATE WELL SAMPLING
JUNE 2015
Domestic Water Sampling Records

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/15 Well Designation: **02S/10E-7L01**

Project Number: **1596021.16**

Physical Property Address: **330 North Bennett St.**

Sample Location: Inside Outside Other:

Explicit Sample Location:

Type of Treatment System (if any): NONE

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: C. LaRose

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15 0730	Type	Sample ID	Time
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7L01_06105	3	VOA	Hcl	40 ml	N	524.2 + MTBE	1040

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 (5) gallons / 20 sec. (minutes)

Flow Rate = 15 (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe 300 (gal)

1017 Time	1022	1025	1028	1031	1034	1037		
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)	13.12	12.32	11.85	11.62	11.51	11.43		
pH	7.09	7.07	7.02	7.01	7.01	7.01		
Sp. Conductance (uS/cm)	820	834	846	853	856	859		
DO (mg/L)	2.76	2.86	2.91	2.93	2.95	2.98		
ORP (mV)	63.4	64.8	68.4	70.2	70.7	71.8		
Turbidity / Color	18.73	14.42	8.67	6.53	6.41	5.95		
Odor	NONE	NOTICE						

Notes:

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/10/2015** Well Designation: **02S/10E-7L02**

Project Number: **1596021.16**

Physical Property Address: **330 North Bennett St.** **"Not sampled - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7L02_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Not sampled, well reportedly closed"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/2015 Well Designation: **02S/10E-7L03**

Project Number: 1596021.16

Physical Property Address: 330 North Bennett St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other:

Explicit Sample Location:

Type of Treatment System (if any):

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7L03_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / (minutes)

Flow Rate = (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Irrigation well operating but unable to sample (No Tap)"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/2015 Well Designation: **02S/10E-7L04**

Project Number: 1596021.16

Physical Property Address: 105 Miller St. "Not sampled - Well confirmed outside June 2015 Sampling Boundary"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7L04_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: "Not sampled - Based on reconnaissance, well confirmed outside June 2015 Sampling Boundary"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/2015 Well Designation: **02S/10E-7L07**

Project Number: 1596021.16

Physical Property Address: **"Well not found - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7L07_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not found - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/2015 Well Designation: **02S/10E-7L08**

Project Number: 1596021.16

Physical Property Address: 331 North Bennett St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7L08_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/10/2015** Well Designation: **02S/10E-7M01**

Project Number: **1596021.16**

Physical Property Address: **1505 E. Gallatin St.** **"Not sampled - Well confirmed outside June 2015 Sampling Boundary"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556		Type	Sample ID	Time
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7M01_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: "Not sampled - Based on reconnaissance, well confirmed outside June 2015 Sampling Boundary"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/15 Well Designation: **02S/10E-7M11**

Project Number: **1596021.16**

Physical Property Address: **Gallatin St.** **"Well not found - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7M11_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not found - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/24/2015** Well Designation: **02S/10E-7M12**

Project Number: **1596021.16**

Physical Property Address: **Gallatin St.** **"Not sampled - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7M12_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - : Not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/2015 Well Designation: **02S/09E-7N01**

Project Number: **1596021.16**

Physical Property Address: **208 Miles Ln.** **"Well not found - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7N01_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not found - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/2015 Well Designation: **02S/09E-7N02**

Project Number: 1596021.16

Physical Property Address: Gallatin St. "Well not found - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7N02_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not found - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/8/2015** Well Designation: **02S/10E-7P09**

Project Number: **1596021.16**

Physical Property Address: **1 Harris Pl.** **"Not sampled - Inoperative"**

Sample Location: Inside **Outside** Other:

Explicit Sample Location:

Type of Treatment System (if any):

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P09_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / (minutes)

Flow Rate = (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record — **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/11/15 Well Designation: **02S/10E-7P10**

Project Number: **1596021.16**

Physical Property Address: **1500 E. Callendar St.**

Sample Location: Inside Outside Other:

Explicit Sample Location: HOSE BIB OUTSIDE PUMP HOUSE

Type of Treatment System (if any): NONE

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: C. LADOSE

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0930			
Turbidity:	Micro TPW	3/9/15	SPLIT	7P10_061115	1540
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P10_061115	3	VOA	Hcl	40 ml	N	524.2 + MTBE	1540

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 (5) **gallons /** 0.5 **(minutes)**

Flow Rate = 10 (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe 200 (gal)

1518 Time	1523	1526	1529	1532	1535	1538		
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)	10.55	10.55	10.56	10.55	10.58	10.58		
pH	7.17	7.11	7.11	7.10	7.09	7.09		
Sp. Conductance (uS/cm)	547	548	548	548	548	549		
DO (mg/L)	3.90	3.81	3.80	3.77	3.75	3.76		
ORP (mV)	156.2	142.2	132.7	124.8	118.9	116.0		
Turbidity / Color CLEAR	4.03	3.33	1.75	1.89	2.52	1.38		
Odor	NONE	NOT (#)						

Notes:

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/11/2015 Well Designation: **02S/10E-7P11**

Project Number: 1596021.16

Physical Property Address: 1500 E. Callendar St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P11_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/11/2015** Well Designation: **02S/10E-7P12**

Project Number: **1596021.16**

Physical Property Address: **1500 E. Callendar St.** **"Well Not Found - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P12_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to locate"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/11/2015 Well Designation: **02S/10E-7P13**

Project Number: **1596021.16**

Physical Property Address: **1500 E. Callendar St.** **"Well Not Found - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P13_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to locate"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/8/15 Well Designation: **02S/10E-7P17**

Project Number: **1596021.16**

Physical Property Address: **1 Harris Pl.** NOT SAMPLED "INOPERATIVE"

Sample Location: Inside **Outside** Other:

Explicit Sample Location:

Type of Treatment System (if any):

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P17_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / (minutes)

Flow Rate = (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes:

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/11/2015 Well Designation: **02S/10E-7P18**

Project Number: 1596021.16

Physical Property Address: 1500 E. Callendar St. "Well Not Found - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P18_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to locate"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/11/2015 Well Designation: **02S/10E-7P19**

Project Number: 1596021.16

Physical Property Address: 1500 E. Callendar St. "Well Not Found - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7P19_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to locate"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/8/15 Well Designation: **02S/10E-7Q01**

Project Number: **1596021.16**

Physical Property Address: **2 Harris Pl.**

Sample Location: Inside **Outside** Other:

Explicit Sample Location: HOSE BIB @ PUMP DISCHARGE

Type of Treatment System (if any): NONE

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: C. LAZOSE

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15 0730			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
7Q01_060815	3	VOA	Hcl	40 ml	N	524.2 + MTBE	1330

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 (5) **gallons /** 0.5 **(minutes)**

Flow Rate = 10 (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush 200 (gal)

1309 Time	1314	1317	1320	1323	1326	1329		
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)	10.90	10.91	10.92	10.92	10.92	10.93		
pH	7.90	7.85	7.37	7.13	6.88	6.73		
Sp. Conductance (uS/cm)	560	560	560	560	559	560		
DO (mg/L)	3.32	3.30	3.29	3.28	3.31	3.28		
ORP (mV)	42.4	39.3	45.0	50.4	59.8	65.8		
Turbidity / Color	1.58 CLEAR	1.47	0.55	0.00	1.61	1.29		
Odor	NONE	NOTICED					✓	

Notes:

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/24/2015** Well Designation: **02S/10E-18C01**

Project Number: **1596021.16**

Physical Property Address: **City of Livingston** **"Not sampled - Inoperative"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556		Type	Sample ID	Time
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18C01_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18C05**

Project Number: 1596021.16

Physical Property Address: 112 South Q St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18C05_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18C06**

Project Number: 1596021.16

Physical Property Address: 1424 E. Callendar St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18C06_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18C07**

Project Number: 1596021.16

Physical Property Address: 1424 E. Callendar St. "Not sampled - Unable to contact owner"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18C07_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18C08**

Project Number: 1596021.16

Physical Property Address: 122 South P St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18C08_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush(_____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18D01**

Project Number: 1596021.16

Physical Property Address: 110 North N St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18D01_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18D02**

Project Number: 1596021.16

Physical Property Address: 110 North N St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18D02_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Inoperative"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/10/15 Well Designation: **02S/10E-18D04**

Project Number: **1596021.16**

Physical Property Address: **110 North O St.**

Sample Location: Inside Outside Other:

Explicit Sample Location: HOSE BIB AT WELL PUMP

Type of Treatment System (if any): NONE

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: C. LaRose

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15 0730			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18D04_ 061015	3	VOA	Hcl	40 ml	N	524.2 + MTBE	0955

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 (5) **gallons /** ~~14~~ 75 **(minutes)**

Flow Rate = 7 (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flushe 140 (gal)

0932 Time	0937	0940	0943	0946	0949	0952		
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)	10.69	10.70	10.71	10.73	10.74	10.75		
pH	7.26	7.18	7.17	7.14	7.12	7.11		
Sp. Conductance (uS/cm)	669	668	671	670	671	670		
DO (mg/L)	6.29	6.01	6.75	6.88	6.83	6.90		
ORP (mV)	57.8	60.6	58.9	60.0	61.3	62.0		
Turbidity / Color	2.81	3.01	3.35	5.48	3.87	5.23		
Odor	NONE	NOTICED						

Notes:

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18D05**

Project Number: 1596021.16

Physical Property Address: 117 South N St. "No access"

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556		Type	Sample ID	Time
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18D05_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to contact owner"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: **6/24/2015** Well Designation: **02S/10E-18D12**

Project Number: **1596021.16**

Physical Property Address: **117 South N St.** **"No access"**

Sample Location: Inside Outside Other: _____

Explicit Sample Location: _____

Type of Treatment System (if any): _____

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel: _____

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18D12_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / _____ (minutes)

Flow Rate = _____ (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush _____ (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to contact owner"

Domestic Water Sampling Record | **Kennedy/Jenks Consultants**

Project Information: BN Livingston Shop Complex, June 2015 Sampling Event

Date: 6/24/2015 Well Designation: **02S/10E-18D13**

Project Number: 1596021.16

Physical Property Address: 110 North O St. "Not sampled - Inoperative"

Sample Location: Inside Outside Other:

Explicit Sample Location:

Type of Treatment System (if any):

Location of Sample in Relation to Treatment: Upstream Downstream

Location of Sample in Relation to Pressure Tank: Upstream Downstream

Sampling Personnel:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	Sample Time
	No.	Type	Pres.	Vol.			
18D13_	3	VOA	Hcl	40 ml	N	524.2 + MTBE	

Flow Rate = Container volume (gallons) / time to fill container (minutes)

Flow Rate = 1 5 gallons / (minutes)

Flow Rate = (gpm)

Total Volume Flushed = Elapsed Time (minutes) x Flow Rate (gpm)

Total Volume Flush (gal)

Time								
Time Elpased (minutes)	5 min.	8 min.	11 min.	14 min.	17 min.	20 min.	min	min
Temperature (Celsius)								
pH								
Sp. Conductance (uS/cm)								
DO (mg/L)								
ORP (mV)								
Turbidity / Color								
Odor								

NOT SAMPLED

Notes: June 2014 - "Well not sampled - Unable to contact owner"

TASK F STAGE I – PART 1
PRIVATE WELL SAMPLING
JUNE 2015
Consent to Access Forms and Third Party Sample Receipts

Kennedy/Jenks Consultants
116 Lupfer Avenue, Suite B
Whitefish, Montana 59937
(406) 730-1343

Receipt for Samples

On behalf of BNSF Railway Company, Kennedy/Jenks Consultants is acquiring the sample(s) listed below in accordance with Montana Department of Environmental Quality (DEQ) directives associated with the Burlington Northern Livingston Shop Complex. This work is being conducted as part of the remedial design/remedial action (RD/RA) activities at the Burlington Northern Livingston Shop Complex Facility in Livingston, Montana, which is being performed in accordance with Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA).

Property Owner/Operator Information

Name ERLYNN HARRIS
Physical Address of Property Sampled 2 HARRIS PL., LIVINGSTON, MT
Mailing Address SAA
Phone (optional) (406) 222-3539

The following samples have collected from this property:

Date	Media	Sample ID Number	Analysis to be Performed
6/8/15	WATER	LQ01_060815	52A + MTBE

The above referenced samples have been collected in accordance with DEQ requirements:

☒ Without variation, or ☐ With the following variations from the plan:

The property owner/operator was offered a portion of the sample taken (split sample) at the person's cost. The property owner/operator elected to:

☐ Accept a split sample, or ☒ Decline a split sample.

The DEQ will mail the sampling results to the person identified above when they become available. The DEQ project officer for this work is Ms. Aimee Reynolds, (406) 841-5065.

Copy of this receipt is provided to property owner/operator.

K/J Representative:

Signature

CHRIS LaROSE
Printed Name

Date: 6/8/15

CONSENT FOR ACCESS TO PROPERTY

FOR SAMPLING

Name: ERLYNN HARRIS Daytime Phone Number: (406) 222-3539

Address(es) of Property (ies): 2 HARRIS PL.
LIVINGSTON, MT

I consent to officers, employees, and authorized representatives of BNSF Railway Company (BNSF) and Montana Department of Environmental Quality (DEQ) and its representatives entering and having access to my property for the purpose of collecting the following:

Approximately 1 *(Number of samples)* WATER (524.2 + NTBE) *(Types of samples)*

I give this written permission voluntarily with knowledge of my right to refuse and without threats or promise of any kind. I understand that BNSF or authorized representatives of BNSF will contact me in advance before samples are collected. This agreement is only for the work indicated above and no other work.

Date: 6/8/15

☒ I grant access to my property ☐ I do not grant access to my property

Signature: Erlynn Harris

☐ I request a copy of the analytical results for samples collected from my property.

Kennedy/Jenks Consultants
116 Lupfer Avenue, Suite B
Whitefish, Montana 59937
(406) 730-1343

Receipt for Samples

On behalf of BNSF Railway Company, Kennedy/Jenks Consultants is acquiring the sample(s) listed below in accordance with Montana Department of Environmental Quality (DEQ) directives associated with the Burlington Northern Livingston Shop Complex. This work is being conducted as part of the remedial design/remedial action (RD/RA) activities at the Burlington Northern Livingston Shop Complex Facility in Livingston, Montana, which is being performed in accordance with Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA).

Property Owner/Operator Information

Name W.T. JONES (WILLIAM)
Physical Address of Property Sampled 110 N. O ST., LIVINGSTON, MT
Mailing Address SAME
Phone (optional)

The following samples have collected from this property:

Date	Media	Sample ID Number	Analysis to be Performed
6/10/15	WATER	18D04_061015	524.2 + MTBE

The above referenced samples have been collected in accordance with DEQ requirements:

☒ Without variation, or ☐ With the following variations from the plan:

The property owner/operator was offered a portion of the sample taken (split sample) at the person's cost. The property owner/operator elected to:

☒ Accept a split sample, or ☐ Decline a split sample.

The DEQ will mail the sampling results to the person identified above when they become available. The DEQ project officer for this work is Ms. Aimee Reynolds, (406) 841-5065.

Copy of this receipt is provided to property owner/operator.

K/J Representative:

Signature

CHRIS LAROSE
Printed Name

Date: 6/10/15

CONSENT FOR ACCESS TO PROPERTY

FOR SAMPLING

Name: WILLIAM JONES Daytime Phone Number: _____

Address(es) of Property (ies): 110 N. O ST.
LIVINGSTON, MT

I consent to officers, employees, and authorized representatives of BNSF Railway Company (BNSF) and Montana Department of Environmental Quality (DEQ) and its representatives entering and having access to my property for the purpose of collecting the following:

Approximately 1 (Number of samples) WATER (524.2 + MTBE) (Types of samples)

I give this written permission voluntarily with knowledge of my right to refuse and without threats or promise of any kind. I understand that BNSF or authorized representatives of BNSF will contact me in advance before samples are collected. This agreement is only for the work indicated above and no other work.

Date: 6/10/15

☒ I grant access to my property ☐ I do not grant access to my property

Signature: [signature]

☐ I request a copy of the analytical results for samples collected from my property.

Kennedy/Jenks Consultants
116 Lupfer Avenue, Suite B
Whitefish, Montana 59937
(406) 730-1343

Receipt for Samples

On behalf of BNSF Railway Company, Kennedy/Jenks Consultants is acquiring the sample(s) listed below in accordance with Montana Department of Environmental Quality (DEQ) directives associated with the Burlington Northern Livingston Shop Complex. This work is being conducted as part of the remedial design/remedial action (RD/RA) activities at the Burlington Northern Livingston Shop Complex Facility in Livingston, Montana, which is being performed in accordance with Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA).

Property Owner/Operator Information

Name DWAYNE FRELICH
Physical Address of Property Sampled 330 BENNETT ST., LIVINGSTON, MT
Mailing Address SAME
Phone (optional)

The following samples have collected from this property:

Date	Media	Sample ID Number	Analysis to be Performed
6/10/15	WATER	FL01_061015	524.2 + MTBE

The above referenced samples have been collected in accordance with DEQ requirements:

☒ Without variation, or ☐ With the following variations from the plan:

The property owner/operator was offered a portion of the sample taken (split sample) at the person's cost. The property owner/operator elected to:

☐ Accept a split sample, or ☒ Decline a split sample.

The DEQ will mail the sampling results to the person identified above when they become available. The DEQ project officer for this work is Ms. Aimee Reynolds, (406) 841-5065.

Copy of this receipt is provided to property owner/operator.

K/J Representative:

Signature

CHRIS LaROSE
Printed Name

Date: 6/10/15

CONSENT FOR ACCESS TO PROPERTY

FOR SAMPLING

Name: DWAYNE FRELICH Daytime Phone Number: _____

Address(es) of Property (ies): 330 BENNETT ST
LIVINGSTON, MT

I consent to officers, employees, and authorized representatives of BNSF Railway Company (BNSF) and Montana Department of Environmental Quality (DEQ) and its representatives entering and having access to my property for the purpose of collecting the following:

Approximately 1 (Number of samples) WATER (524.2 + MTBE) (Types of samples)

I give this written permission voluntarily with knowledge of my right to refuse and without threats or promise of any kind. I understand that BNSF or authorized representatives of BNSF will contact me in advance before samples are collected. This agreement is only for the work indicated above and no other work.

Date: 6/10/15

☒ I grant access to my property ☐ I do not grant access to my property

Signature: [signature]

☐ I request a copy of the analytical results for samples collected from my property.

Kennedy/Jenks Consultants
116 Lupfer Avenue, Suite B
Whitefish, Montana 59937
(406) 730-1343

Receipt for Samples

On behalf of BNSF Railway Company, Kennedy/Jenks Consultants is acquiring the sample(s) listed below in accordance with Montana Department of Environmental Quality (DEQ) directives associated with the Burlington Northern Livingston Shop Complex. This work is being conducted as part of the remedial design/remedial action (RD/RA) activities at the Burlington Northern Livingston Shop Complex Facility in Livingston, Montana, which is being performed in accordance with Montana's Comprehensive Environmental Cleanup and Responsibility Act (CECRA).

Property Owner/Operator Information

Name CHRIS BENDEN
Physical Address of Property Sampled 1500 E. CALLENDAR, LIVINGSTON, MT
Mailing Address
Phone (optional)

The following samples have collected from this property:

Date	Media	Sample ID Number	Analysis to be Performed
6/11/15	WATER	7P10_061115	524.2 + NITRATE

The above referenced samples have been collected in accordance with DEQ requirements:

☒ Without variation, or ☐ With the following variations from the plan:

The property owner/operator was offered a portion of the sample taken (split sample) at the person's cost. The property owner/operator elected to:

☒ Accept a split sample, or ☐ Decline a split sample.

The DEQ will mail the sampling results to the person identified above when they become available. The DEQ project officer for this work is Ms. Aimee Reynolds, (406) 841-5065.

Copy of this receipt is provided to property owner/operator.

K/J Representative:

Signature

CHRIS LaROSE
Printed Name

Date: 6/11/15

CONSENT FOR ACCESS TO PROPERTY

FOR SAMPLING

Name: CHRIS BENDEN Daytime Phone Number: _____

Address(es) of Property (ies): 1500 E. CALLENDAR
LIVINGSTON, MT

I consent to officers, employees, and authorized representatives of BNSF Railway Company (BNSF) and Montana Department of Environmental Quality (DEQ) and its representatives entering and having access to my property for the purpose of collecting the following:

Approximately 2 *(Number of samples)* WATER (524.2 + MTBE) *(Types of samples)*

I give this written permission voluntarily with knowledge of my right to refuse and without threats or promise of any kind. I understand that BNSF or authorized representatives of BNSF will contact me in advance before samples are collected. This agreement is only for the work indicated above and no other work.

Date: 6/11/15

☒ I grant access to my property ☐ I do not grant access to my property

Signature: Chris Benden

☐ I request a copy of the analytical results for samples collected from my property.

TASK F STAGE I – PART 1
PRIVATE WELL SAMPLING
JUNE 2015
Analytical Laboratory Reports
(also on CD at back of report)

ANALYTICAL SUMMARY REPORT

June 18, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061456 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - GWMD-2R

Energy Laboratories Inc Billings MT received the following 4 samples for Kennedy Jenks Consultants on 6/16/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061456-001	7Q01_060815	06/08/15 13:30	06/16/15	Aqueous	524-Purgeable Organics, SDWA
B15061456-002	18D04_061015	06/10/15 9:55	06/16/15	Aqueous	Same As Above
B15061456-003	7L01_061015	06/10/15 10:40	06/16/15	Aqueous	Same As Above
B15061456-004	7P10_061115	06/11/15 15:40	06/16/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

DATES REPORT

Work Order: B15061456

Client: Kennedy Jenks Consultants

Project: BNSF Livingston Shop Complex -

Report Date: 06/18/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061456-001A	7Q01_060815	6/8/2015 1:30:00 PM	Aqueous	524-Purgeable Organics, SDWA		NA	6/16/2015
B15061456-002A	18D04_061015	6/10/2015 9:55:00 AM	Aqueous	524-Purgeable Organics, SDWA		NA	6/16/2015
B15061456-003A	7L01_061015	6/10/2015 10:40:00 AM	Aqueous	524-Purgeable Organics, SDWA		NA	6/16/2015
B15061456-004A	7P10_061115	6/11/2015 3:40:00 PM	Aqueous	524-Purgeable Organics, SDWA		NA	6/16/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-001
Client Sample ID: 7Q01_060815

Report Date: 06/18/15
Collection Date: 06/08/15 13:30
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
Bromobenzene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Bromochloromethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Bromodichloromethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Bromoform	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Bromomethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
Chlorobenzene	ND	ug/L		0.50	100	E524.2	06/16/15 16:18 / nl
Chlorodibromomethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Chloroethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Chloroform	0.13	ug/L	J	0.50		E524.2	06/16/15 16:18 / nl
Chloromethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
2-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
4-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Dibromomethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50	600	E524.2	06/16/15 16:18 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50	75	E524.2	06/16/15 16:18 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,1-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
1,2-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
1,2-Dibromoethane	ND	ug/L		0.30	0.05	E524.2	06/16/15 16:18 / nl
1,1-Dichloroethene	ND	ug/L		0.50	7	E524.2	06/16/15 16:18 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50	70	E524.2	06/16/15 16:18 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50	100	E524.2	06/16/15 16:18 / nl
1,2-Dichloropropane	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
1,3-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
2,2-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,1-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		E524.2	06/16/15 16:18 / nl
Ethylbenzene	ND	ug/L		0.50	700	E524.2	06/16/15 16:18 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Methylene chloride	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
Naphthalene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Styrene	ND	ug/L		0.50	100	E524.2	06/16/15 16:18 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Tetrachloroethene	0.87	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
Toluene	ND	ug/L		0.50	1000	E524.2	06/16/15 16:18 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50	200	E524.2	06/16/15 16:18 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-001
Client Sample ID: 7Q01_060815

Report Date: 06/18/15
Collection Date: 06/08/15 13:30
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50	5	E524.2	06/16/15 16:18 / nl
Trichlorofluoromethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Vinyl chloride	ND	ug/L		0.40	2	E524.2	06/16/15 16:18 / nl
m+p-Xylenes	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
o-Xylene	ND	ug/L		0.50		E524.2	06/16/15 16:18 / nl
Xylenes, Total	ND	ug/L		0.50	10000	E524.2	06/16/15 16:18 / nl
Surr: p-Bromofluorobenzene	106	%REC		80-120		E524.2	06/16/15 16:18 / nl
Surr: 1,2-Dichloroethane-d4	92.0	%REC		74-127		E524.2	06/16/15 16:18 / nl
Surr: Toluene-d8	108	%REC		80-120		E524.2	06/16/15 16:18 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-002
Client Sample ID: 18D04_061015

Report Date: 06/18/15
Collection Date: 06/10/15 09:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
Bromobenzene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Bromochloromethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Bromodichloromethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Bromoform	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Bromomethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
Chlorobenzene	ND	ug/L		0.50	100	E524.2	06/16/15 16:48 / nl
Chlorodibromomethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Chloroethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Chloroform	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Chloromethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
2-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
4-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Dibromomethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50	600	E524.2	06/16/15 16:48 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50	75	E524.2	06/16/15 16:48 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,1-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
1,2-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
1,2-Dibromoethane	ND	ug/L		0.30	0.05	E524.2	06/16/15 16:48 / nl
1,1-Dichloroethene	ND	ug/L		0.50	7	E524.2	06/16/15 16:48 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50	70	E524.2	06/16/15 16:48 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50	100	E524.2	06/16/15 16:48 / nl
1,2-Dichloropropane	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
1,3-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
2,2-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,1-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		E524.2	06/16/15 16:48 / nl
Ethylbenzene	ND	ug/L		0.50	700	E524.2	06/16/15 16:48 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Methylene chloride	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
Naphthalene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Styrene	ND	ug/L		0.50	100	E524.2	06/16/15 16:48 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Tetrachloroethene	0.71	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
Toluene	ND	ug/L		0.50	1000	E524.2	06/16/15 16:48 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50	200	E524.2	06/16/15 16:48 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-002
Client Sample ID: 18D04_061015

Report Date: 06/18/15
Collection Date: 06/10/15 09:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50	5	E524.2	06/16/15 16:48 / nl
Trichlorofluoromethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Vinyl chloride	ND	ug/L		0.40	2	E524.2	06/16/15 16:48 / nl
m+p-Xylenes	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
o-Xylene	ND	ug/L		0.50		E524.2	06/16/15 16:48 / nl
Xylenes, Total	ND	ug/L		0.50	10000	E524.2	06/16/15 16:48 / nl
Surr: p-Bromofluorobenzene	107	%REC		80-120		E524.2	06/16/15 16:48 / nl
Surr: 1,2-Dichloroethane-d4	88.0	%REC		74-127		E524.2	06/16/15 16:48 / nl
Surr: Toluene-d8	114	%REC		80-120		E524.2	06/16/15 16:48 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-003
Client Sample ID: 7L01_061015

Report Date: 06/18/15
Collection Date: 06/10/15 10:40
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
Bromobenzene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Bromochloromethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Bromodichloromethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Bromoform	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Bromomethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
Chlorobenzene	ND	ug/L		0.50	100	E524.2	06/16/15 17:19 / nl
Chlorodibromomethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Chloroethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Chloroform	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Chloromethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
2-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
4-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Dibromomethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50	600	E524.2	06/16/15 17:19 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50	75	E524.2	06/16/15 17:19 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,1-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
1,2-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
1,2-Dibromoethane	ND	ug/L		0.30	0.05	E524.2	06/16/15 17:19 / nl
1,1-Dichloroethene	ND	ug/L		0.50	7	E524.2	06/16/15 17:19 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50	70	E524.2	06/16/15 17:19 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50	100	E524.2	06/16/15 17:19 / nl
1,2-Dichloropropane	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
1,3-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
2,2-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,1-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		E524.2	06/16/15 17:19 / nl
Ethylbenzene	ND	ug/L		0.50	700	E524.2	06/16/15 17:19 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Methylene chloride	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
Naphthalene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Styrene	ND	ug/L		0.50	100	E524.2	06/16/15 17:19 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Tetrachloroethene	14	ug/L	*	0.50	5	E524.2	06/16/15 17:19 / nl
Toluene	ND	ug/L		0.50	1000	E524.2	06/16/15 17:19 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50	200	E524.2	06/16/15 17:19 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-003
Client Sample ID: 7L01_061015

Report Date: 06/18/15
Collection Date: 06/10/15 10:40
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.71	ug/L		0.50	5	E524.2	06/16/15 17:19 / nl
Trichlorofluoromethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Vinyl chloride	ND	ug/L		0.40	2	E524.2	06/16/15 17:19 / nl
m+p-Xylenes	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
o-Xylene	ND	ug/L		0.50		E524.2	06/16/15 17:19 / nl
Xylenes, Total	ND	ug/L		0.50	10000	E524.2	06/16/15 17:19 / nl
Surr: p-Bromofluorobenzene	101	%REC		80-120		E524.2	06/16/15 17:19 / nl
Surr: 1,2-Dichloroethane-d4	92.0	%REC		74-127		E524.2	06/16/15 17:19 / nl
Surr: Toluene-d8	110	%REC		80-120		E524.2	06/16/15 17:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-004
Client Sample ID: 7P10_061115

Report Date: 06/18/15
Collection Date: 06/11/15 15:40
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
Bromobenzene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Bromochloromethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Bromodichloromethane	0.96	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Bromoform	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Bromomethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Carbon tetrachloride	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
Chlorobenzene	ND	ug/L		0.50	100	E524.2	06/16/15 17:49 / nl
Chlorodibromomethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Chloroethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Chloroform	1.6	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Chloromethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
2-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
4-Chlorotoluene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Dibromomethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50	600	E524.2	06/16/15 17:49 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50	75	E524.2	06/16/15 17:49 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,1-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
1,2-Dichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
1,2-Dibromoethane	ND	ug/L		0.30	0.05	E524.2	06/16/15 17:49 / nl
1,1-Dichloroethene	ND	ug/L		0.50	7	E524.2	06/16/15 17:49 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50	70	E524.2	06/16/15 17:49 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50	100	E524.2	06/16/15 17:49 / nl
1,2-Dichloropropane	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
1,3-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
2,2-Dichloropropane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,1-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		E524.2	06/16/15 17:49 / nl
Ethylbenzene	ND	ug/L		0.50	700	E524.2	06/16/15 17:49 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Methylene chloride	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
Naphthalene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Styrene	ND	ug/L		0.50	100	E524.2	06/16/15 17:49 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Tetrachloroethene	0.62	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
Toluene	ND	ug/L		0.50	1000	E524.2	06/16/15 17:49 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50	200	E524.2	06/16/15 17:49 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061456-004
Client Sample ID: 7P10_061115

Report Date: 06/18/15
Collection Date: 06/11/15 15:40
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50	5	E524.2	06/16/15 17:49 / nl
Trichlorofluoromethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Vinyl chloride	ND	ug/L		0.40	2	E524.2	06/16/15 17:49 / nl
m+p-Xylenes	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
o-Xylene	ND	ug/L		0.50		E524.2	06/16/15 17:49 / nl
Xylenes, Total	ND	ug/L		0.50	10000	E524.2	06/16/15 17:49 / nl
Surr: p-Bromofluorobenzene	107	%REC		80-120		E524.2	06/16/15 17:49 / nl
Surr: 1,2-Dichloroethane-d4	93.0	%REC		74-127		E524.2	06/16/15 17:49 / nl
Surr: Toluene-d8	108	%REC		80-120		E524.2	06/16/15 17:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/18/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061456

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E524.2									Analytical Run: R244585
Lab ID: CCV-061615	Continuing Calibration Verification Standard								06/16/15 10:42
Benzene	5.12	ug/L	0.50	102	70	130			
Bromobenzene	5.08	ug/L	0.50	102	70	130			
Bromochloromethane	4.80	ug/L	0.50	96	70	130			
Bromodichloromethane	4.88	ug/L	0.50	98	70	130			
Bromoform	5.16	ug/L	0.50	103	70	130			
Bromomethane	6.20	ug/L	0.50	124	70	130			
Carbon tetrachloride	6.24	ug/L	0.50	125	70	130			
Chlorobenzene	5.12	ug/L	0.50	102	70	130			
Chlorodibromomethane	4.96	ug/L	0.50	99	70	130			
Chloroethane	5.80	ug/L	0.50	116	70	130			
Chloroform	4.92	ug/L	0.50	98	70	130			
Chloromethane	6.24	ug/L	0.50	125	70	130			
2-Chlorotoluene	5.48	ug/L	0.50	110	70	130			
4-Chlorotoluene	5.52	ug/L	0.50	110	70	130			
Dibromomethane	5.00	ug/L	0.50	100	70	130			
1,2-Dichlorobenzene	5.20	ug/L	0.50	104	70	130			
1,3-Dichlorobenzene	5.28	ug/L	0.50	106	70	130			
1,4-Dichlorobenzene	5.20	ug/L	0.50	104	70	130			
Dichlorodifluoromethane	6.40	ug/L	0.50	128	70	130			
1,1-Dichloroethane	5.16	ug/L	0.50	103	70	130			
1,2-Dichloroethane	4.60	ug/L	0.50	92	70	130			
1,2-Dibromoethane	4.64	ug/L	0.50	93	70	130			
1,1-Dichloroethene	5.72	ug/L	0.50	114	70	130			
cis-1,2-Dichloroethene	4.80	ug/L	0.50	96	70	130			
trans-1,2-Dichloroethene	5.44	ug/L	0.50	109	70	130			
1,2-Dichloropropane	5.00	ug/L	0.50	100	70	130			
1,3-Dichloropropane	4.76	ug/L	0.50	95	70	130			
2,2-Dichloropropane	5.60	ug/L	0.50	112	70	130			
1,1-Dichloropropene	5.68	ug/L	0.50	114	70	130			
cis-1,3-Dichloropropene	4.88	ug/L	0.50	98	70	130			
trans-1,3-Dichloropropene	4.96	ug/L	0.50	99	70	130			
Ethylbenzene	5.80	ug/L	0.50	116	70	130			
Methyl tert-butyl ether (MTBE)	3.93	ug/L	0.50	79	70	130			
Methylene chloride	4.40	ug/L	0.50	88	70	130			
Naphthalene	5.00	ug/L	0.50	100	70	130			
Styrene	5.08	ug/L	0.50	102	70	130			
1,1,1,2-Tetrachloroethane	4.92	ug/L	0.50	98	70	130			
1,1,2,2-Tetrachloroethane	4.36	ug/L	0.50	87	70	130			
Tetrachloroethene	6.04	ug/L	0.50	121	70	130			
Toluene	5.48	ug/L	0.50	110	70	130			
1,1,1-Trichloroethane	5.52	ug/L	0.50	110	70	130			
1,1,2-Trichloroethane	4.64	ug/L	0.50	93	70	130			
Trichloroethene	5.48	ug/L	0.50	110	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/18/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061456

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E524.2									Analytical Run: R244585
Lab ID: CCV-061615	Continuing Calibration Verification Standard								06/16/15 10:42
Trichlorofluoromethane	5.88	ug/L	0.50	118	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.32	ug/L	1.0	126	70	130			
1,2,3-Trichloropropane	4.64	ug/L	0.50	93	70	130			
Vinyl chloride	5.84	ug/L	0.50	117	70	130			
m+p-Xylenes	10.9	ug/L	0.50	109	70	130			
o-Xylene	5.44	ug/L	0.50	109	70	130			
Xylenes, Total	16.4	ug/L	0.50	109	70	130			
Surr: p-Bromofluorobenzene			0.50	100	80	120			
Surr: 1,2-Dichloroethane-d4			0.50	87	74	127			
Surr: Toluene-d8			0.50	112	80	120			
Method: E524.2									Batch: R244585
Lab ID: LCS-061615	Laboratory Control Sample				Run: VOASATURN_150616A				06/16/15 11:12
Benzene	5.12	ug/L	0.50	102	70	130			
Bromobenzene	5.20	ug/L	0.50	104	70	130			
Bromochloromethane	4.56	ug/L	0.50	91	70	130			
Bromodichloromethane	5.44	ug/L	0.50	109	70	130			
Bromoform	5.20	ug/L	0.50	104	70	130			
Bromomethane	5.56	ug/L	0.50	111	70	130			
Carbon tetrachloride	6.16	ug/L	0.50	123	70	130			
Chlorobenzene	5.32	ug/L	0.50	106	70	130			
Chlorodibromomethane	5.32	ug/L	0.50	106	70	130			
Chloroethane	4.68	ug/L	0.50	94	70	130			
Chloroform	4.88	ug/L	0.50	98	70	130			
Chloromethane	4.88	ug/L	0.50	98	70	130			
2-Chlorotoluene	5.60	ug/L	0.50	112	70	130			
4-Chlorotoluene	5.44	ug/L	0.50	109	70	130			
Dibromomethane	4.96	ug/L	0.50	99	70	130			
1,2-Dichlorobenzene	5.24	ug/L	0.50	105	70	130			
1,3-Dichlorobenzene	5.60	ug/L	0.50	112	70	130			
1,4-Dichlorobenzene	5.40	ug/L	0.50	108	70	130			
Dichlorodifluoromethane	4.68	ug/L	0.50	94	70	130			
1,1-Dichloroethane	5.24	ug/L	0.50	105	70	130			
1,2-Dichloroethane	4.92	ug/L	0.50	98	70	130			
1,2-Dibromoethane	4.88	ug/L	0.50	98	70	130			
1,1-Dichloroethene	5.92	ug/L	0.50	118	70	130			
cis-1,2-Dichloroethene	4.92	ug/L	0.50	98	70	130			
trans-1,2-Dichloroethene	5.60	ug/L	0.50	112	70	130			
1,2-Dichloropropane	5.04	ug/L	0.50	101	70	130			
1,3-Dichloropropane	4.72	ug/L	0.50	94	70	130			
2,2-Dichloropropane	5.56	ug/L	0.50	111	70	130			
1,1-Dichloropropene	5.88	ug/L	0.50	118	70	130			
cis-1,3-Dichloropropene	5.20	ug/L	0.50	104	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/18/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061456

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E524.2									Batch: R244585
Lab ID: LCS-061615	Laboratory Control Sample				Run: VOASATURN_150616A				06/16/15 11:12
trans-1,3-Dichloropropene	5.52	ug/L	0.50	110	70	130			
Ethylbenzene	5.80	ug/L	0.50	116	70	130			
Methyl tert-butyl ether (MTBE)	3.91	ug/L	0.50	78	70	130			
Methylene chloride	4.52	ug/L	0.50	90	70	130			
Naphthalene	5.76	ug/L	0.50	115	70	130			
Styrene	5.52	ug/L	0.50	110	70	130			
1,1,1,2-Tetrachloroethane	5.24	ug/L	0.50	105	70	130			
1,1,2,2-Tetrachloroethane	4.76	ug/L	0.50	95	70	130			
Tetrachloroethene	6.16	ug/L	0.50	123	70	130			
Toluene	5.68	ug/L	0.50	114	70	130			
1,1,1-Trichloroethane	5.24	ug/L	0.50	105	70	130			
1,1,2-Trichloroethane	5.36	ug/L	0.50	107	70	130			
Trichloroethene	5.84	ug/L	0.50	117	70	130			
Trichlorofluoromethane	4.92	ug/L	0.50	98	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.24	ug/L	1.0	125	70	130			
1,2,3-Trichloropropane	5.16	ug/L	0.50	103	70	130			
Vinyl chloride	5.12	ug/L	0.50	102	70	130			
m+p-Xylenes	11.6	ug/L	0.50	116	70	130			
o-Xylene	5.28	ug/L	0.50	106	70	130			
Xylenes, Total	16.8	ug/L	0.50	112	70	130			
Surr: p-Bromofluorobenzene			0.50	100	80	120			
Surr: 1,2-Dichloroethane-d4			0.50	88	74	127			
Surr: Toluene-d8			0.50	114	80	120			
Lab ID: MB-061615	Method Blank				Run: VOASATURN_150616A				06/16/15 12:13
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
2-Chlorotoluene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/18/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061456

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E524.2									Batch: R244585
Lab ID: MB-061615	Method Blank				Run: VOASATURN_150616A				06/16/15 12:13
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	1.0						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: p-Bromofluorobenzene			0.50	106	80	120			
Surr: 1,2-Dichloroethane-d4			0.50	90	74	127			
Surr: Toluene-d8			0.50	111	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061456

Login completed by:	Randa Nees	Date Received:	6/16/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/16/2015	Carrier name:	Return-UPS Ground N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temp Blank temperature for Cooler 1 was 2.6°C and Cooler 2 was 1.5°C.

Per email from Amanda Aldersley these four samples to be logged in seperately.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	524.2 + MTBE	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH	
1	7Q01_060815	6/8/15	1330	3 - W	X										X		
2	18D04_061015	6/10/15	0955	3 - W	X										X		
3	7L01_061015	6/10/15	1040	3 - W	X										X		
4	7P10_061115	6/11/15	1540	3 -W	X										X		
5																	
6																	
7																	
8																	
9																	
10																	

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GRD RTN

Cooler ID(s): 1: 2.6 °C 2: 1.5 °C

Receipt Temp TB SEE ABOVE °C

On Ice: (Yes) No

Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

LABORATORY USE ONLY

1 B15061456-001
2 002
3 003
4 004

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00am	Signature: [signature]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp TB SEE ABOVE °C
On Ice: (Y) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
1	TB1_061015	6/10/15	0800	1 - W	X										X			Logged in sep-bw
2	RX_061015	6/10/15	1315	3 - W	X										X			
3	ISCO-7_061015	6/10/15	1350	6 - W	X	X	X	X	X	X	X				X			
4	89-9_061015	6/10/15	1445	3 - W	X										X			
5	MW-10_061015	6/10/15	1630	3 - W	X										X			
6	D1_061115	6/11/15	0800	3 - W	X										X			
7	D2_061115	6/11/15	0800	3 - W	X										X			
8	D3_061115	6/11/15	0800	3 - W	X										X			
9	RX_061115	6/11/15	0800	3 - W	X										X			
10	MW-5RR_061115	6/11/15	0840	3 - W	X										X			

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BENS. CARSON	6/15/15 15:00	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp TB SEE ABOVE °C
On Ice: Yes No
Custody Seal Y N C
Intact Y N
Signature Match Y N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	TB2_061015	6/10/15	0800	1 - W	X										X			Logged in sup hd
2	12-3_061015	6/10/15	1220	3 - W	X										X			
3	10-4_061015	6/10/15	1250	3 - W	X										X			
4	10-5_061015	6/10/15	1325	3 - W	X										X			
5	12-2_061015	6/10/15	1715	3 - W	X										X			
6	TB2_061115	6/11/15	0800	1 - W	X										X			
7	ISCO-24R_061115	6/11/15	1405	3 - W	X										X			
8	10-8_061115	6/11/15	1545	3 - W	X										X			
9	92-2_061115	6/11/15	1635	3 - W	X										X			
10	12-5_061115	6/11/15	1715	3 - W	X										X			

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp YB SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH		
1	90-3_061115	6/11/15	0935	3 - W	X										X			
2	89-1_061115	6/11/15	1010	3 - W	X										X			
3	12-4_061115	6/11/15	1110	3 - W	X										X			
4	89-2_061115	6/11/15	1155	3 - W	X										X			
5	13-1_061115	6/11/15	1255	3 - W	X										X			
6	13-8_061115	6/11/15	1335	3 - W	X										X			
7	13-2_061115	6/11/15	1420	3 - W	X										X			
8	13-3_061115	6/11/15	1635	3 - W	X										X			
9																		
10																		

LABORATORY USE ONLY: Logged in up-to

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. LARRISON	6/15/15	15:00	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Task G

Groundwater Dissolved-Phase Petroleum Cleanup

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

TASK G: GROUNDWATER DISSOLVED-PHASE PETROLEUM CLEANUP

WORK PERFORMED

In its letter to BNSF dated 19 April 2011, DEQ deferred implementation and confirmation of remedial action under Task G until the Task D cleanup level had been achieved to DEQ's satisfaction. With few exceptions, light non-aqueous phase liquid (LNAPL) was not detected at thicknesses greater than 0.01 foot in the wells monitored within the Task D/E dual-level pumping system zones of operation during 2013/2014. Those exceptions included consistent LNAPL detections greater than 0.01 foot in wells MUW-1 and PMW-5 (Zone 5) and MUW-24 (Zone 6), and sporadic detections in other wells. In December 2014, the DEQ approved shut down of the Task D/E dual-phase recovery system. DEQ also determined that the *Task G Stage I Remedial Action Plan for Dissolved-Phase Petroleum Hydrocarbons in Groundwater* (Task G Stage I RAP) could be resubmitted. The purpose of the Task G Stage I RAP is to identify an alluvial aquifer groundwater monitoring well network to evaluate the presence, if any, of dissolved-phase petroleum hydrocarbons in the alluvial aquifer at the Facility.

The Task G Stage I RAP was submitted to DEQ on 8 May 2015 for review and approval prior to the June 2015 groundwater sampling event. BNSF received DEQ's preliminary comments in an email dated 12 June 2015. The comments were discussed in a conference call between BNSF, Kennedy/Jenks Consultants, and DEQ and its consultant CDM Smith on 15 June 2015. The following specific modifications to the Task G Stage I RAP, agreed upon during the conference call, were implemented during the June 2015 sampling event:

- Reclassify well EX-16 from a Category I to a Category II well
- Collect groundwater samples from the uppermost portion of the water column (within 18 inches of the water table) in wells that did not have dedicated sampling equipment

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- Collect groundwater samples from wells L-87-1, LS-6, EX-2, EX-42, and EX-29 for analysis of phosphorous, potassium, and nitrates (PKN) to evaluate whether the groundwater has become nutrient limited.

DEQ provided its formal comments on the Task G Stage I RAP in a letter to BNSF dated 24 June 2015. A *Revised Task G Stage I Remedial Action Plan for Dissolved-Phase Petroleum Hydrocarbons in Groundwater* (Revised Task G Stage I RAP) addressing DEQ's comments, and incorporating the aforementioned modifications, was submitted to DEQ for review and approval on 5 August 2015 (next reporting period).

Task G groundwater sampling activities were conducted between 16 and 18 June 2015 in accordance with Revised Task G Stage I RAP (see Table G-1 attached). Note: Five wells (#3, EX-22, EX-24, EX-28, and EX-58) are part of the Task G groundwater monitoring program and GWMD-2R. Groundwater samples were collected from Category I and Category II wells and submitted to Energy under chain-of-custody protocol for analysis of petroleum hydrocarbons, natural attenuation parameters, dissolved manganese, and PKN in accordance with Revised Task G Stage I RAP.

Purge water was contained at the wellhead and transferred to the Task D/E groundwater treatment plant (GWTP) sump. Water from the sump was transferred to an influent holding tank pending sampling (pre-treatment, if warranted) and a no longer-contained-in determination for DEQ. Upon receipt of DEQ's no longer contained-in determination, water in the holding tank will be batch treated by passing it through the plant's granular activated carbon (GAC) vessels prior to discharge to the Yellowstone River under a Montana Pollutant Discharge Elimination System (MPDES) permit. Note: As water in the influent holding tank was sampled prior to the start of the June 2015 groundwater sampling activities and a no longer contained-in determination from DEQ was pending, purge water from the June 2015 groundwater sampling activities was not added to the influent holding tank until after receipt of DEQ's no longer contained-in determination and treatment and discharge of the water already contained in the tank occurred (see **Offsite Disposal Notifications, Offsite Disposal Information, and No Longer Contained-In Decisions**).

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FIELD LOGS (ATTACHED)

The following field forms/logs are attached to this section:

- Task G - Groundwater Purge and Sample Forms (June 2015).

ANALYTICAL DATA (ATTACHED)

The following analytical laboratory reports are attached to this section:

- Task G – Quarterly groundwater samples (June 2015).

Preliminary groundwater sample analytical results are summarized in Table G-1. (Note: Data validations have not been performed on the preliminary analytical results.)

As required by DEQ, the copy of the quarterly status report submitted to DEQ contains hard copies of the analytical laboratory reports. Also, as required by DEQ, the CD in DEQ's copy contains EDDs of the analytical results, when provided by the analytical laboratory.

OTHER DATA OBTAINED IN FIELD

None.

UNUSUAL/UNANTICIPATED RESULTS

None.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

POTENTIAL IMPACTS TO SCHEDULE

None.

The next scheduled quarterly groundwater sampling event for Task G (Category I) wells is scheduled for September 2015. A Technical Memorandum evaluating the June 2015

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Task G data will be submitted to DEQ in August 2015 with recommendations regarding future sampling of the Category II wells.

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TASK G - FIRST QUARTER PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

TASK G MONITORING ZONE [a]			ZONE 1	ZONE 2			ZONE 4					ZONE 5		ZONE 6					
TASK G - WELL CATEGORY [a]			Category II	Category II			Category II					Category II		Category I				Category II	
Well ID/ Sample ID	ROD Screening Level[b]	2009 RBSLs[c]	EX-11	EX-34	RW-3	RW-5	EX-14	EX-58	HRO-20	#1	EX-57	EX-36	#2	EX-16	D1_061715 (duplicate of EX-16)	EX-35	D3_061715 (duplicate of EX-35)	HRO-22	#3
Sample Date			16-Jun-15	18-Jun-15	Jun-15	Jun-15	18-Jun-15	18-Jun-15	Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	18-Jun-15	17-Jun-15	17-Jun-15	17-Jun-15	17-Jun-15	18-Jun-15	18-Jun-15
Extractable Petroleum Hydrocarbon Screen (EPH Screen) (µg/L)[d]																			
EPH Screen	_[e]	--	**793**	<300[f]	NS-sheen	NS-sheen	<300	<300	NS-sheen	<300	<300	**7,920**	<300	<300	<300	**3,560**	**4,250**	**684**	<300
Extractable Petroleum Hydrocarbons (EPH) (µg/L)[g]																			
C9 to C18 Aliphatics	1,000	1,000	NA[h]	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<300	NA	NA	NA	<300	<300	NA	NA
C19 to C36 Aliphatics	1,000	1,000	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<300	NA	NA	NA	<300	<300	NA	NA
C11 to C22 Aromatics	1,000	1,000	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<300	NA	NA	NA	<300	<300	NA	NA
Total Extractable Hydrocarbons	1,000	1,000	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<300	NA	NA	NA	<300	<300	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)[i]																			
2-Methylnaphthalene	--	--	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	**0.39**	<0.19	NA	NA
Acenaphthene	420	670	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	**0.75**	**0.66**	NA	NA
Acenaphthylene	--	--	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Anthracene	2,100	2,100	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Benzo(a)anthracene	0.48	0.5	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Benzo(a)pyrene	0.048	0.05	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Benzo(b)fluoranthene	0.48	0.5	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Benzo(g,h,I)perylene	--	--	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Benzo(k)fluoranthene	4.79	5	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Chrysene	48	50	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Dibenzo(a,h)anthracene	0.048	0.05	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Fluoranthene	280	130	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Fluorene	280	1,100	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	**0.93**	**0.92**	NA	NA
Indeno(1,2,3-cd)pyrene	0.48	0.5	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
Naphthalene	28	100	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	**1.1**	**0.31**	NA	NA
Phenanthrene	--	--	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	**0.22B[j]**	NA	NA	NA	**0.26B**	**0.25B**	NA	NA
Pyrene	210	830	NA	NA	NS-sheen	NS-sheen	NA	NA	NS-sheen	NA	NA	<0.19	NA	NA	NA	<0.19	<0.19	NA	NA
MBTEXN Volatile Petroleum Hydrocarbons (µg/L)[k]																			
Methy-t-butyl-ether	--	30	<1.0	<1.0	NS-sheen	NS-sheen	<1.0	<1.0	NS-sheen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	--	5	<0.50	<0.50	NS-sheen	NS-sheen	<0.50	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	--	1,000	<0.50	<0.50	NS-sheen	NS-sheen	<0.50	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	--	700	<0.50	<0.50	NS-sheen	NS-sheen	<0.50	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m+p Xylenes	--	--	<0.50	<0.50	NS-sheen	NS-sheen	<0.50	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylenes	--	--	<0.50	<0.50	NS-sheen	NS-sheen	<0.50	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	NS-sheen	NS-sheen	<0.50	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<1.0	<1.0	NS-sheen	NS-sheen	<1.0	<1.0	NS-sheen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.5	<1.5	<1.0	<1.0
Volatile Petroleum Hydrocarbons (VPH) (µg/L)[k]																			
C9 to C10 Aromatics	--	1,000	<20	<20	NS-sheen	NS-sheen	<20	<20	NS-sheen	<20	<20	<20	<20	<20	<20	**26**	**25**	<20	<20
C5 to C8 Aliphatics	--	700	<20	<20	NS-sheen	NS-sheen	<20	<20	NS-sheen	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
C9 to C12 Aliphatics	--	1,000	<20	<20	NS-sheen	NS-sheen	<20	<20	NS-sheen	<20	<20	**26**	<20	<20	<20	**24**	**22**	<20	<20
Total Purgeable Hydrocarbons	--	1,000	<20	<20	NS-sheen	NS-sheen	<20	<20	NS-sheen	<20	<20	**46**	<20	<20	<20	**97**	**92**	<20	<20
Natural Attenuation Parameters (mg/L)[l]																			
Alkalinity, Total as CaCO3	--	--	NR[m]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**264**	**263**	**337**	**336**	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**48**	**48**	**35**	**35**	NR	NR
Sulfide	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<0.04	<0.04	<0.04	<0.04	NR	NR
Nitrogen, Ammonia as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<0.05	<0.05	<0.05	<0.05	NR	NR
Nitrogen, Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<0.01	<0.01	<0.01	<0.01	NR	NR
Nitrogen, Nitrate as N (calculation)	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.82**	**0.82**	<0.01	<0.01	NR	NR
Nitrogen, Nitrate+Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.82**	**0.82**	<0.01	<0.01	NR	NR
Dissolved Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<0.03	<0.03	**0.74**	**0.69**	NR	NR
Dissolved Manganese	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.005**	**0.004**	**0.883**	**0.849**	NR	NR
Phosphorous, Potassium, Nitrate (PKN) (mg/L)[n]																			
Nitrogen, Nitrate+Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Kjeldahl, Total as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Total	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Phosphorpous	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Potassium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

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TASK G - FIRST QUARTER PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

TASK G MONITORING ZONE [a]			ZONE 7				ZONE 8							
TASK G - WELL CATEGORY [a]			Category II				Category II							
Well ID/ Sample ID	ROD Screening Level[b]	2009 RBSLs[c]	EX-9 (well covered by materials)	LB-6	L-87-4	EX-10	EX-4	EX-24	EX-28	EX-63	EX-27	EX-64	EX-29	D2_061715 (duplicate of EX-29)
Sample Date			Jun-15	18-Jun-15	Jun-15	18-Jun-15	17-Jun-15	16-Jun-15	17-Jun-15	16-Jun-15	18-Jun-15	18-Jun-15	17-Jun-15	17-Jun-15
Extractable Petroleum Hydrocarbon Screen (EPH Screen) (µg/L)[d]														
EPH Screen	--[e]	--	NS-no access	<300	NS-sheen	<300	**1,770**	**3,480**	<300	**2,890**	**1,800**	**865**	<300	<300
Extractable Petroleum Hydrocarbons (EPH) (µg/L)[g]														
C9 to C18 Aliphatics	1,000	1,000	NS-no access	NA	NS-sheen	NA	<300	<300	NA	<300	<300	NA	NA	NA
C19 to C36 Aliphatics	1,000	1,000	NS-no access	NA	NS-sheen	NA	<300	<300	NA	<300	<300	NA	NA	NA
C11 to C22 Aromatics	1,000	1,000	NS-no access	NA	NS-sheen	NA	<300	<300	NA	<300	<300	NA	NA	NA
Total Extractable Hydrocarbons	1,000	1,000	NS-no access	NA	NS-sheen	NA	<300	<300	NA	<300	<300	NA	NA	NA
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)[j]														
2-Methylnaphthalene	--	--	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Acenaphthene	420	670	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Acenaphthylene	--	--	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Anthracene	2,100	2,100	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Benzo(a)anthracene	0.48	0.5	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Benzo(a)pyrene	0.048	0.05	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Benzo(b)fluoranthene	0.48	0.5	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Benzo(g,h,I)perylene	--	--	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Benzo(k)fluoranthene	4.79	5	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Chrysene	48	50	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Dibenzo(a,h)anthracene	0.048	0.05	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Fluoranthene	280	130	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Fluorene	280	1,100	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.48	0.5	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
Naphthalene	28	100	NS-no access	NA	NS-sheen	NA	<0.19	**0.21**	NA	<0.19	<0.19	NA	NA	NA
Phenanthrene	--	--	NS-no access	NA	NS-sheen	NA	**0.21B**	**0.24B**	NA	**0.22B**	**0.22B**	NA	NA	NA
Pyrene	210	830	NS-no access	NA	NS-sheen	NA	<0.19	<0.19	NA	<0.19	<0.19	NA	NA	NA
MBTEXN Volatile Petroleum Hydrocarbons (µg/L)[k]														
Methy-t-butyl-ether	--	30	NS-no access	<1.0	NS-sheen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	--	5	NS-no access	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	--	1,000	NS-no access	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	--	700	NS-no access	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m+p Xylenes	--	--	NS-no access	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylenes	--	--	NS-no access	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	NS-no access	<0.50	NS-sheen	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	NS-no access	<1.0	NS-sheen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Volatile Petroleum Hydrocarbons (VPH) (µg/L)[h]														
C9 to C10 Aromatics	--	1,000	NS-no access	<20	NS-sheen	<20	<20	**17J**	<20	<20	<20	<20	<20	<20
C5 to C8 Aliphatics	--	700	NS-no access	<20	NS-sheen	<20	<20	<20	<20	<20	<20	<20	<20	<20
C9 to C12 Aliphatics	--	1,000	NS-no access	<20	NS-sheen	<20	<20	**15J**	<20	<20	**20**	<20	<20	<20
Total Purgeable Hydrocarbons	--	1,000	NS-no access	<20	NS-sheen	<20	**29**	**58**	<20	**24**	**42**	<20	<20	<20
Natural Attenuation Parameters (mg/L)[l]														
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Ammonia as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrate as N (calculation)	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrate+Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dissolved Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dissolved Manganese	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phosphorous, Potassium, Nitrate (PKN) (mg/L)[n]														
Nitrogen, Nitrate+Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.04**	**0.04**
Nitrogen, Kjeldahl, Total as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.6**	**0.6**
Nitrogen, Total	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.6**	**0.6**
Total Phosphorpous	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.041**	**0.041**
Total Potassium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**3**	**2**

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TASK G - FIRST QUARTER PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

TASK G MONITORING ZONE [a]			CITY ALLEYWAY					MAINLINE EXPANSION BIOVENTING AREA							NORTH BIOVENTING AREA		
TASK G - WELL CATEGORY [a]			Category I		Category II			Category II							Category II		
Well ID/ Sample ID	ROD Screening Level[b]	2009 RBSLs[c]	EX-17	EX-42	EX-43	EX-5	EX-6	EX-41 (loading ramp over well)	EX-51	L-87-6	EX-22	D2_061815 (duplicate of EX-22)	EX-59	D1_061615 (duplicate of EX-59)	90-1C	D1_061815 (duplicate of 90-1C)	HRO-13
Sample Date			17-Jun-15	17-Jun-15	17-Jun-15	17-Jun-15	17-Jun-15	Jun-15	16-Jun-15	16-Jun-15	18-Jun-15	18-Jun-15	16-Jun-15	16-Jun-15	18-Jun-15	18-Jun-15	16-Jun-15
Extractable Petroleum Hydrocarbon Screen (EPH Screen) (µg/L)[d]																	
EPH Screen	--[e]	--	**317**	NS-sheen	<300	<300	<300	NS-no access	**1,550**	**1,050**	**726**	**686**	**6,350**	**6,220**	**5,030**	**4,360**	**4,450**
Extractable Petroleum Hydrocarbons (EPH) (µg/L)[g]																	
C9 to C18 Aliphatics	1,000	1,000	NA	NA	NA	NA	NA	NS-no access	<300	<300	NA	NA	<300	<300	<300	<300	<300
C19 to C36 Aliphatics	1,000	1,000	NA	NA	NA	NA	NA	NS-no access	<300	<300	NA	NA	<300	<300	<300	<300	<300
C11 to C22 Aromatics	1,000	1,000	NA	NA	NA	NA	NA	NS-no access	<300	<300	NA	NA	<300	<300	<300	<300	<300
Total Extractable Hydrocarbons	1,000	1,000	NA	NA	NA	NA	NA	NS-no access	<300	<300	NA	NA	<300	<300	<300	<300	<300
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)[i]																	
2-Methylnaphthalene	--	--	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Acenaphthene	420	670	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	**0.64**
Acenaphthylene	--	--	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Anthracene	2,100	2,100	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Benzo(a)anthracene	0.48	0.5	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Benzo(a)pyrene	0.048	0.05	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Benzo(b)fluoranthene	0.48	0.5	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Benzo(g,h,I)perylene	--	--	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Benzo(k)fluoranthene	4.79	5	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Chrysene	48	50	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Dibenzo(a,h)anthracene	0.048	0.05	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Fluoranthene	280	130	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Fluorene	280	1,100	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	**0.21**	<0.19	<0.19	<0.19	**0.51**
Indeno(1,2,3-cd)pyrene	0.48	0.5	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
Naphthalene	28	100	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	**0.25**	<0.19	**0.22B**	<0.19	<0.19
Phenanthrene	--	--	NA	NA	NA	NA	NA	NS-no access	**0.23B**	**0.21B**	NA	NA	**0.23B**	**0.21B**	**0.20B**	<0.19	<0.19
Pyrene	210	830	NA	NA	NA	NA	NA	NS-no access	<0.19	<0.19	NA	NA	<0.19	<0.19	<0.19	<0.19	<0.19
MBTEXN Volatile Petroleum Hydrocarbons (µg/L)[k]																	
Methy-t-butyl-ether	--	30	<1.0	NA	<1.0	<1.0	<1.0	NS-no access	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	--	5	<0.50	NA	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	--	1,000	<0.50	NA	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	--	700	<0.50	NA	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m+p Xylenes	--	--	<0.50	NA	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylenes	--	--	<0.50	NA	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	NA	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<1.0	NA	<1.0	<1.0	<1.0	NS-no access	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Volatile Petroleum Hydrocarbons (VPH) (µg/L)[h]																	
C9 to C10 Aromatics	--	1,000	<20	NA	<20	<20	<20	NS-no access	<20	<20	<20	<20	**45**	**46**	<20	<20	**19J[o]**
C5 to C8 Aliphatics	--	700	<20	NA	<20	<20	<20	NS-no access	<20	<20	<20	<20	<20	<20	<20	<20	<20
C9 to C12 Aliphatics	--	1,000	<20	NA	<20	<20	<20	NS-no access	<20	<20	<20	<20	**57**	**54**	**28**	**27**	**17J**
Total Purgeable Hydrocarbons	--	1,000	<20	NA	<20	<20	<20	NS-no access	**17J**	<20	<20	<20	**178**	**176**	**46**	**43**	**112**
Natural Attenuation Parameters (mg/L)[l]																	
Alkalinity, Total as CaCO3	--	--	**264**	**260**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	--	--	**47**	**46**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	--	--	<0.04	<0.04	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Ammonia as N	--	--	<0.05	<0.05	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrite as N	--	--	<0.01	<0.01	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrate as N (calculation)	--	--	**0.76**	**0.78**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrate+Nitrite as N	--	--	**0.76**	**0.78**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dissolved Iron	--	--	<0.03	<0.03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dissolved Manganese	--	--	**0.100**	<0.001	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phosphorous, Potassium, Nitrate (PKN) (mg/L)[n]																	
Nitrogen, Nitrate+Nitrite as N	--	--	NR	0.78	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Kjeldahl, Total as N	--	--	NR	<0.5	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Total	--	--	NR	**0.8**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Phosphorpous	--	--	NR	**0.014**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Potassium	--	--	NR	**2**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

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TASK G - FIRST QUARTER PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

TASK G MONITORING ZONE [a]			NORTHWEST BIOVENTING AREA		DEPOT AREA										
TASK G - WELL CATEGORY [a]			Category II		Category II										
Well ID/ Sample ID	ROD Screening Level[b]	2009 RBSLs[c]	95-1	EX-54	EX-3	L-87-1	LG-3 (well paved over)	LS-6	EX-1	EX-2	L-88-9	LG-4 (well paved over)	LG-10 (well paved over)	LS-10	LG-13 (well paved over)
Sample Date			18-Jun-15	16-Jun-15	16-Jun-15	18-Jun-15	Jun-15	16-Jun-15	16-Jun-15	18-Jun-15	16-Jun-15	Jun-15	Jun-15	16-Jun-15	Jun-15
Extractable Petroleum Hydrocarbon Screen (EPH Screen) (µg/L)[d]															
EPH Screen	--[e]	--	<300	<300	<300	<300	NS-no access	**4,730**	<300	<300	<300	NS-no access	NS-no access	<300	NS-no access
Extractable Petroleum Hydrocarbons (EPH) (µg/L)[g]															
C9 to C18 Aliphatics	1,000	1,000	NA	NA	NA	NA	NS-no access	<300	NA	NA	NA	NS-no access	NS-no access	NA	NS-no sccess
C19 to C36 Aliphatics	1,000	1,000	NA	NA	NA	NA	NS-no access	<300	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
C11 to C22 Aromatics	1,000	1,000	NA	NA	NA	NA	NS-no access	<300	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Total Extractable Hydrocarbons	1,000	1,000	NA	NA	NA	NA	NS-no access	<300	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)[i]															
2-Methylnaphthalene	--	--	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Acenaphthene	420	670	NA	NA	NA	NA	NS-no access	**1.1**	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Acenaphthylene	--	--	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Anthracene	2,100	2,100	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Benzo(a)anthracene	0.48	0.5	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Benzo(a)pyrene	0.048	0.05	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Benzo(b)fluoranthene	0.48	0.5	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Benzo(g,h,I)perylene	--	--	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Benzo(k)fluoranthene	4.79	5	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Chrysene	48	50	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Dibenzo(a,h)anthracene	0.048	0.05	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Fluoranthene	280	130	NA	NA	NA	NA	NS-no access	**0.38**	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Fluorene	280	1,100	NA	NA	NA	NA	NS-no access	**1.3**	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Indeno(1,2,3-cd)pyrene	0.48	0.5	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Naphthalene	28	100	NA	NA	NA	NA	NS-no access	<0.19	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Phenanthrene	--	--	NA	NA	NA	NA	NS-no access	**0.29**	NA	NA	NA	NS-no access	NS-no access	NA	NS-no access
Pyrene	210	830	NA	NA	NA	NA		**0.37**	NA	NA	NA			NA	NS-no access
MBTEXN Volatile Petroleum Hydrocarbons (µg/L)[k]															
Methy-t-butyl-ether	--	30	<1.0	<1.0	<1.0	<1.0	NS-no access	<1.0	<1.0	<1.0	<1.0	NS-no access	NS-no access	<1.0	NS-no access
Benzene	--	5	<0.50	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	NS-no access	NS-no access	<0.50	NS-no access
Toluene	--	1,000	<0.50	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	NS-no access	NS-no access	<0.50	NS-no access
Ethylbenzene	--	700	<0.50	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	NS-no access	NS-no access	<0.50	NS-no access
m+p Xylenes	--	--	<0.50	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	NS-no access	NS-no access	<0.50	NS-no access
o-Xylenes	--	--	<0.50	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	NS-no access	NS-no access	<0.50	NS-no access
Xylenes, Total	--	10,000	<0.50	<0.50	<0.50	<0.50	NS-no access	<0.50	<0.50	<0.50	<0.50	NS-no access	NS-no access	<0.50	NS-no access
Naphthalene	--	100	<1.0	<1.0	<1.0	<1.0	NS-no access	<2.5	<1.0	<1.0	<1.0	NS-no access	NS-no access	<1.0	NS-no access
Volatile Petroleum Hydrocarbons (VPH) (µg/L)[h]															
C9 to C10 Aromatics	--	1,000	<20	<20	<20	<20	NS-no access	**58**	<20	<20	<20	NS-no access	NS-no access	<20	NS-no access
C5 to C8 Aliphatics	--	700	<20	<20	<20	<20	NS-no access	<20	<20	<20	<20	NS-no access	NS-no access	<20	NS-no access
C9 to C12 Aliphatics	--	1,000	<20	<20	<20	<20	NS-no access	**33**	<20	<20	<20	NS-no access	NS-no access	<20	NS-no access
Total Purgeable Hydrocarbons	--	1,000	<20	<20	<20	<20	NS-no access	**160**	<20	<20	<20	NS-no access	NS-no access	<20	NS-no access
Natural Attenuation Parameters (mg/L)[l]															
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Ammonia as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrate as N (calculation)	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrogen, Nitrate+Nitrite as N	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dissolved Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dissolved Manganese	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phosphorous, Potassium, Nitrate (PKN) (mg/L)[n]															
Nitrogen, Nitrate+Nitrite as N	--	--	NR	NR	NR	**0.58**	NR	<0.01	NR	**0.69**	NR	NR	NR	NR	NR
Nitrogen, Kjeldahl, Total as N	--	--	NR	NR	NR	<0.5	NR	<0.5	NR	<0.5	NR	NR	NR	NR	NR
Nitrogen, Total	--	--	NR	NR	NR	**0.6**	NR	<0.5	NR	**0.7**	NR	NR	NR	NR	NR
Total Phosphorpous	--	--	NR	NR	NR	**0.014**	NR	**0.030**	NR	**0.018**	NR	NR	NR	NR	NR
Total Potassium	--	--	NR	NR	NR	**2**	NR	**3**	NR	**2**	NR	NR	NR	NR	NR

Notes:
(a) Monitoring zone and well category taken from Table 6 of the Task G Stage I Remedial Action Plan for Dissolved Phase Petroleum Hydrocarbons (Draft, dated May 2015).
(b) Record of Decision (ROD) screening level. ROD values for extractable petroleum hydrocarbon (EPH) fractions in groundwater are risk-based screening levels (RBSLs) based on Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases (Final Draft) dated March 2000.
ROD values for polynuclear aromatic hydrocarbons (PAHs) in groundwater from Circular WQB-7, Montana Numeric Water Quality Standards, September 1999.
(c) RBSLs Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases dated September 2009.
(d) Groundwater samples were screened for EPH using modified EPA Method 8015. The EPH screening method is a screening technique for EPH analysis via the Montana Method. If the EPH screen result exceeded 1,000 µg/L, the sample was analyzed for EPH fractions.
(e) "--" denotes a ROD cleanup level/screening level (RBSL) has not been established.
(f) "<" denotes analyte was not detected at the indicated method reporting limit.
(g) Groundwater samples were analyzed for EPH fractions using Massachusetts Department of Environmental Protection (MADEP) EPH Fractionation Method.
(h) "NA" denotes not analyzed. EPH screen less than 1,000 µg/L.
(i) Groundwater samples were analyzed for PAHs using EPA Method 8270 in selective ion monitoring mode (SIM).
(j) "B" denotes analytical laboratory qualifier denoting methos blank contamination.
(k) Groundwater samples were analyzed for volatile petroleum hydrocarbons (VPH) by the Massachusetts Department of Environmental Protection(MADEP) VPH Method [including methyl-t-butyl-ether (MTBE), benzene, toluene, ethylbenzene, xylenes, and naphthalene, collectively referred to as MBTEXN].
(l) Samples were analyzed for natural attenuation parameters as follows:
- Alkalinity using SM 2320B
- Sulfate using EPA Method 300.0
- Sulfide using SM 4500 S-D
- Nitrogen, Ammmonia as N using EPA Method 350.1
- Nitrogen, Nitrate+Nitrite as N using EPA Method 353.2
- Dissolved iron and manganese using EPA Method 6010. Samples were field filtered using a 0.45 micron in-line filter.
(m) "NR" denotes analysis not required.
(n) Samples were analyzed for nutrients as follows:
- Nitrogen, Nitrate+Nitrite as N using EPA Method 353.2
- Nitrogen, Kjeldahl, Total as N using EPA Method 351.2
- Phosphorous, Total as P using EPA Method 365.1
- Potassium, Total using EPA Method 200.7
(o) "J" denotes estimated concentration below the the limit of quantitation.

Reported values shown in bold.
"NS-sheen" denotes well not sampled for petroleum hydrocarbons due to the presence of an iridescent sheen
"NS-no access" denotes well not sampled because the well could not be accessed during the sampling event
µg/L - micrograms per liter
mg/L - milligrams per liter
PRELIMINARY DATA HAVE NOT BEEN VALIDATED

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TASK G
QUARTERLY GROUNDWATER SAMPLING
JUNE 2015
Groundwater Purge and Sample Forms

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**LB-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.46 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**28.5**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**18.5 - 28.5**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	CL ~~23.5~~ 22.82
Sampling Time:	1210	Depth to Groundwater (ft):	21.82
Total Discharge (gal):	1.57	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	6.68

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0730			
Turbidity:	Micro TPW	3/19/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
LB-6_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
LB-6_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1150	1155	1200	1205	~~1210~~ CL			
Parameter (every 5 min)		5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)		.4	.4	.4	.4				
Volume Purged (Liters)		2	4	6					
Water Depth (ft)		21.85	21.85	21.85					
Temperature (°C), (± 0.2)		11.84	11.48	11.49					
pH, (± 0.1)		7.19	7.17	7.18					
Sp. Conductance (uS/cm),(± 3%)		591	592	591					
DO (mg/L), (± 10% or 10% of 0.2mg/l)		5.46	5.23	5.18					
ORP (mV), (± 10%)		108.6	102.2	98.4					
Turbidity (NTU), (± 10% or 3 <10 NTUs)		4.19	3.09	3.70					
Color		CLEAR							
Odor/Evidence of LNAPL		NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**LS-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.59 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	*WELL CASING BENT
Water Level Meter:	Solinst	Total Casing Depth (ft):	**26.6**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**16.6 - 26.6**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	**21.6** 20.39
Sampling Time:	1015	Depth to Groundwater (ft):	20.39
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	6.21

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15 0730	FBLP	FBL_061615	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
LS-6_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
LS-6_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
LS-6_061615	1	Poly	H2SO4	250mL	N	TOTAL N, TOTAL P	
LS-6_061615	1	Poly	HNO3	250mL	N	TOTAL K	

0944 Time	0949	0954	0959	1004	1009	1014		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	20.39	20.39	20.39	20.39	20.39	20.39		
Temperature (°C), (± 0.2)	11.80	11.57	11.64	11.57	11.64	11.66		
pH, (± 0.1)	6.47	6.41	6.42	6.39	6.42	6.46		
Sp. Conductance (uS/cm),(± 3%)	753	752	751	743	741	737		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.63	0.20	0.23	0.08	0.10	0.14		
ORP (mV), (± 10%)	13.9	-14.4	-38.8	-59.9	-64.7	-71.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.61	3.76	3.57	3.44	3.61	3.82		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**LS-10**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.76 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARRESON	Well Condition:	CASING NOT STATIONARY W/IN MONUMENT
Water Level Meter:	Solinst	Total Casing Depth (ft):	**29.6**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**19.6 - 29.6**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~24.6~~ 21.62
Sampling Time:	1415	Depth to Groundwater (ft):	20.62
Total Discharge (gal):	2.0	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	8.98

Reference: TOC

Weather: Sunny - 75°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
LS-10_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
LS-10_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1346 Time	1351	1356	1401	1406	1411			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3			
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5			
Water Depth (ft)	20.63	20.63	20.63	20.63	20.63			
Temperature (°C), (± 0.2)	14.43	13.61	13.22	13.16	13.02			
pH, (± 0.1)	7.49	7.31	7.19	7.17	7.17			
Sp. Conductance (uS/cm),(± 3%)	553	534	535	535	535			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.64	4.62	4.81	4.89	4.96			
ORP (mV), (± 10%)	48.6	45.7	48.2	48.9	48.5			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.73	0.73	1.34	0.47	1.50			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**L-87-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.76 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	34.2
Purging Equipment:	Sample Pro	Screened Interval (ft):	24.2 - 34.2
Sampling Equipment:	Sample Pro	Purge Depth (ft):	BC ~~29.2~~ 25.27
Sampling Time:	0945	Depth to Groundwater (ft):	24.27
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.93
Weather:	Sunny ~65°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15	TRIP BLANK	TB2_061815	0800
Other:		BC	~~RINSE~~	~~BC_061815~~	~~0900~~

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
L-87-1_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
L-87-1_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
L-87-1_	1	Poly	H2SO4	250 mL	N	TOTAL N, TOTAL P	
L-87-1_	1	Poly	HNO3	250mL	N	TOTAL K	

Time	0913	0918	0923	0928	0933	0938	0943		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.2	0.2	0.2	0.2	0.2	0.2		
Volume Purged (Liters)		1.0	2.0	3.0	4.0	5.0	6.0		
Water Depth (ft)		24.26	24.26	24.26	24.26	24.26	24.26		
Temperature (°C), (± 0.2)		13.53	BC 13.02	13.00	13.08	13.05	12.85		
pH, (± 0.1)		7.33	7.28	7.28	7.30	7.30	7.30		
Sp. Conductance (uS/cm),(± 3%)		519	516	517	517	515	515		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		6.13	5.99	5.92	5.86	5.86	5.82		
ORP (mV), (± 10%)		137.3	130.5	128.6	124.5	122.6	121.0		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		CLEAR →							
Color		CLEAR →							
Odor/Evidence of LNAPL		NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**L-87-4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.21 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**28.2**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**18.2 - 28.2**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	**24.2**
Sampling Time:	—	Depth to Groundwater (ft):	22.01
Total Discharge (gal):		Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556		TBLP	TBL_061815	1330
Turbidity:	Micro TPW				
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
L-87-4_	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
L-87-4_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED, SHEEN OBSERVED

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

* SHEEN OBSERVED DURING INITIAL PURGE OF ~1-LITER

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**L-87-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.47 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARRIEON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**27.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**17.0 - 27.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	BC ~~22.0~~ 25.03
Sampling Time:	1150	Depth to Groundwater (ft):	24.03
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	2.97

Reference: TOC

Weather: Sunny - 70°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
L-87-6_ 061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
L-87-6_ 061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1127 Time	1132	1137	1142	1147				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3				
Volume Purged (Liters)	1.5	3.0	4.5	6.0				
Water Depth (ft)	24.03	24.03	24.03	24.03				
Temperature (°C), (± 0.2)	13.47	12.37	12.23	12.16				
pH, (± 0.1)	7.12	7.02	6.99	6.99				
Sp. Conductance (uS/cm),(± 3%)	688	686	686	687				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.55	0.30	0.27	0.26				
ORP (mV), (± 10%)	30.0	37.6	40.7	42.7				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.70	3.46	0.49	1.01				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	06/16/15	Well Number:	**L-88-9**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 0.78 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**30.4**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**20.4 - 30.4**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	CL ~~25.4~~ 21.90
Sampling Time:	1120	Depth to Groundwater (ft):	20.90
Total Discharge (gal):	1.57	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.50

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	06/16/15 0730	Temp	CL ~~TBS~~ ~~[illegible]~~	
Turbidity:	Micro TPW	3/9/15		~~TBS_061615~~ CL	0800
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
L-88-9_06/16/15	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
L-88-9_06/16/15	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1059 Time	1104	1109	1114	1119				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	20.90	20.90	20.90	20.90				
Temperature (°C), (± 0.2)	11.44	10.83	10.77	10.72				
pH, (± 0.1)	7.21	7.16	7.15	7.12				
Sp. Conductance (uS/cm),(± 3%)	605	606	603	603				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.48	0.42	0.39	0.38				
ORP (mV), (± 10%)	113.0	110.9	109.6	108.5				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.16	3.08	3.83	2.47				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**#1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good -
Water Level Meter:	Solinst	Total Casing Depth (ft):	25.7
Purging Equipment:	Sample Pro	Screened Interval (ft):	15.7 - 25.7
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~20.7~~ 18.35
Sampling Time:	1505	Depth to Groundwater (ft):	17.35
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	8.35

Reference: TOC

Weather: Pt Cloudy - 70°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15	TRIPBLANK	TB3061815	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
1_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
1_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1431	1436	1441	1446	1451	1456	1501		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.2	0.2	0.2	0.2	0.2	0.2		
Volume Purged (Liters)		1.0	2.0	3.0	4.0	5.0	6.0		
Water Depth (ft)		17.34	17.34	17.34	17.34	17.34	17.34		
Temperature (°C), (± 0.2)		14.62	13.87	13.40	13.18	13.15	13.26		
pH, (± 0.1)		7.51	7.30	7.24	7.24	7.25	7.25		
Sp. Conductance (uS/cm),(± 3%)		632	623	619	620	620	618		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		6.33	5.99	6.01	5.86	5.85	5.83		
ORP (mV), (± 10%)		101.1	94.1	90.8	86.0	81.8	80.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		1.40	0.82	1.52	1.88	2.85	1.94		
Color		CLEAR →							
Odor/Evidence of LNAPL		NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**#2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**24.3**
Purging Equipment:	~~Sample Pro~~ DED.	Screened Interval (ft):	**14.3 - 24.3**
Sampling Equipment:	~~Sample Pro~~ DED.	Purge Depth (ft):	~~[illegible]~~ **19.3**
Sampling Time:	1900	Depth to Groundwater (ft):	17.70
Total Discharge (gal):	2.1	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	6.60
Weather:	Rainy ~60°F		

Reference: 19.3 **TOC**

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15	TRIP BL.	TB5_061815	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
2_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
2_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1839	1844	1849	1854	1859				
Parameter (every 5 min)		5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)		0.4	0.4	0.4	0.4				
Volume Purged (Liters)		2.0	4.0	6.0	8.0				
Water Depth (ft)		17.70	17.70	17.70	17.70				
Temperature (°C), (± 0.2)		11.61	11.21	11.11	11.13				
pH, (± 0.1)		7.45	7.27	7.25	7.24				
Sp. Conductance (uS/cm),(± 3%)		604	597	596	596				
DO (mg/L), (± 10% or 10% of 0.2mg/l)		4.76	4.95	5.06	5.13				
ORP (mV), (± 10%)		137.3	138.3	136.5	133.6				
Turbidity (NTU), (± 10% or 3 <10 NTUs)		2.03	1.86	1.04	1.29				
Color		CLEAR →							
Odor/Evidence of LNAPL		NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	# 3
Project Name:	BN Livingston Shop Complex	Monument Type:	Stickup: _____ (ft PVC) Flush: -1.1
Project Number:	1596021*16	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	23.6
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	13.6 - 23.6
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	22.0
Sampling Time:	1745	Depth to Groundwater (ft):	17.89
Total Discharge (gal):	~~4~~ 3.9	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	5.71
Weather:	Sunny - 85°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
3_061815	3	VOA	HCL	40ml	N	VOC 8260	
3_061815	3	VOA	HCL	40ml	N	VPH MADEP	
3_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: 3_Date ie; mmddyy							

1714 Time	1719	1724	1729	1734	1739	1744		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.5	0.5	0.5	0.5	0.5	0.5		
Volume Purged (Liters)	2.5	5.0	7.5	~~9.0~~ 10.0	12.5	15.0		
Water Depth (ft)	17.90	17.91	17.92	17.93	17.93	17.93		
Temperature (°C), (± 0.2)	11.51	11.25	11.16	11.03	10.93	11.00		
pH, (± 0.1)	7.43	7.29	7.28	7.29	7.28	7.33		
Sp. Conductance (uS/cm),(± 3%)	637	636	637	636	636	635		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.90	5.07	5.14	5.21	5.32	5.25		
ORP (mV), (± 10%)	102.8	89.3	81.9	78.5	78.3	75.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	22.29	15.83	10.55	9.56	7.28	6.51		
Color	V. LT GRAY/CLEAR							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**90-1C**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**26.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**16.0 - 26.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	CL ~~21.0~~ 22.86
Sampling Time:	0950	Depth to Groundwater (ft):	21.86
Total Discharge (gal):	3.28	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	4.14

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0930	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15	DUPLICATE	DI_061815	0800
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
90-1C_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
90-1C_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

0924 Time	0929	0934	0939	0944	0949			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.5	.5	.5	.5	.5			
Volume Purged (Liters)	2.5	5	7.5	10	12.5			
Water Depth (ft)	21.88	21.88	21.88	21.88	21.88			
Temperature (°C), (± 0.2)	13.09	12.89	12.87	12.83	12.92			
pH, (± 0.1)	6.61	6.56	6.57	6.55	6.57			
Sp. Conductance (uS/cm),(± 3%)	900	899	898	896	896			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.46	0.18	0.12	0.12	0.11			
ORP (mV), (± 10%)	-55.3	-52.3	-52.5	-48.8	-47.6			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	20.81	11.59	8.09	6.69	6.12			
Color	CLEAR / LT ORANGE							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**95-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.13 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**31.8**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**16.8 - 31.8**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~24.3~~ 22.04
Sampling Time:	~~1055~~ 1100	Depth to Groundwater (ft):	21.04
Total Discharge (gal):	2.10	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.76

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0930	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
95-1_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
95-1_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1036 Time	1041	1046	1051	~~1056~~ 1056 CL				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.4	.4	.4	.4				
Volume Purged (Liters)	2	4	6	8				
Water Depth (ft)	21.05	21.05	21.05	21.05				
Temperature (°C), (± 0.2)	11.94	11.55	11.49	11.51				
pH, (± 0.1)	7.09	6.99	7.01	7.00				
Sp. Conductance (uS/cm),(± 3%)	607	606	605	606				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.71	4.59	4.58	4.57				
ORP (mV), (± 10%)	77.8	86.2	88.5	89.3				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.36	3.12	3.71	3.75				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/3/15

Well Number: **RW-3**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: _____

Well Diameter (in): 14

Sampling Personnel: CL

Well Condition:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Total Casing Depth (ft): **28.3**

Screened Interval (ft): **18.3 - 28.3**

Purge Depth (ft): **23.3**

Reference: **TOC**

Sampling Time: —

Depth to Groundwater (ft):

Total Discharge (gal):

Depth to LNAPL (ft):

Water Disposal: GWTP

Water Column (ft):

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
RW-3_	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
RW-3_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED SHEEN OBSERVED

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**RW-5**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: ____
Project Number:	**1596021*16**	Well Diameter (in):	14
Sampling Personnel:	CL	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**30.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**20.0 - 30.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	**25.0**
Sampling Time:	—	Depth to Groundwater (ft):	16.23
Total Discharge (gal):		Depth to LNAPL (ft):	(S)
Water Disposal:	GWTP	Water Column (ft):	

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
~~RW-5_~~	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
RW-5_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED, SHEEN OBSERVED

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**HRO-13**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**38.5**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**18.5 - 38.5**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~28.5~~ 23.45
Sampling Time:	1040	Depth to Groundwater (ft):	22.45
Total Discharge (gal):	1.1	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	16.05

Reference: TOC

Weather: Pt Cloudy - 70°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
HRO-13_ 061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
HRO-13_ 061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1019	1024	1029	1034	1039				
Parameter (every 5 min)		5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)		0.2	0.2	0.2	0.2				
Volume Purged (Liters)		1.0	2.0	3.0	4.0				
Water Depth (ft)		22.45	22.45	22.45	22.46				
Temperature (°C), (± 0.2)		13.13	12.47	12.35	12.27				
pH, (± 0.1)		6.81	6.76	6.76	6.76				
Sp. Conductance (uS/cm),(± 3%)		755	754	754	754				
DO (mg/L), (± 10% or 10% of 0.2mg/l)		0.91	0.40	0.36	0.32				
ORP (mV), (± 10%)		-76.8	-85.0	-84.5	-85.9				
Turbidity (NTU), (± 10% or 3 <10 NTUs)		12.10	7.20	5.49	0.88				
Color		V. LT TAN							
Odor/Evidence of LNAPL		NO LNAPL - SL. ANAEROBIC ODORS							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/1/15

Well Number: **HRO-20**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Sampling Personnel: BC

Well Condition:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Total Casing Depth (ft): **30.5**

Screened Interval (ft): **15.5 - 25.5**

Purge Depth (ft): **20.5**

Reference: **TOC**

Sampling Time: —

Depth to Groundwater (ft):

Total Discharge (gal):

Depth to LNAPL (ft):

Water Disposal: GWTP

Water Column (ft):

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
~~HRO-20_~~	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
HRO-20_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED. SHEEN OBSERVED

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or ±10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**HRO-22**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	25.0
Purging Equipment:	Sample Pro	Screened Interval (ft):	15.0 - 25.0
Sampling Equipment:	Sample Pro	Purge Depth (ft):	CL ~~20.0~~ 24.15
Sampling Time:	1615	Depth to Groundwater (ft):	23.15
Total Discharge (gal):	3.55	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	1.85

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 CL ~~0730~~ 0930			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
HRO-22_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
HRO-22_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1605	1610	1615	1620	1625	1630		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.45	.45	.45	.45	.45	.45		
Volume Purged (Liters)	4.5	4.5	6.75	9	11.25	13.5		
Water Depth (ft)	23.15	23.15	23.15	23.15	23.15	23.15		
Temperature (°C), (± 0.2)	12.43	12.25	12.41	12.44	12.62	12.60		
pH, (± 0.1)	7.07	7.04	7.05	7.05	7.07	7.06		
Sp. Conductance (uS/cm),(± 3%)	668	669	669	670	670	670		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.33	0.31	0.39	0.39 CL	0.32	0.31		
ORP (mV), (± 10%)	46.1	47.0	44.1	43.5	43.7	43.4		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	14.65	9.17	5.63	9.77	4.51	2.87		
Color	CLEAR	W/ ORANGE	ORGANIC	WATER				
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	28.8
Purging Equipment:	Sample Pro	Screened Interval (ft):	13.8 - 28.8
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~21.3~~ 19.45
Sampling Time:	1310	Depth to Groundwater (ft):	18.45
Total Discharge (gal):	2.0	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.35
Weather:	SUNNY - 75°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15			
Turbidity:	Micro TPW	3/9/15	TRIP BLANK	TB4_061615	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-1_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-1_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1243 Time	1248	1253	1258	1303	1308			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3			
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5			
Water Depth (ft)	18.45	18.45	18.45	18.45	18.45			
Temperature (°C), (± 0.2)	12.66	11.97	11.74	11.70	11.56			
pH, (± 0.1)	7.40	7.25	7.17	7.17	7.18			
Sp. Conductance (uS/cm),(± 3%)	581	576	574	574	574			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.02	4.10	4.19	4.22	4.21			
ORP (mV), (± 10%)	51.5	55.3	58.2	56.8	55.6			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	0.71	0.54	2.82	3.32	0.47			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/18/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: ~~H20~~ 1125

Total Discharge (gal): 2.4

Water Disposal: GWTP

Weather: PT CLOUDY - 70°F

Well Number: **EX-2**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 4

Well Condition: stripped-j-plug too tall to seal

Total Casing Depth (ft): 28.0

Screened Interval (ft): 13.0 - 28.0

Purge Depth (ft): ~~20.5~~ 18.00

Depth to Groundwater (ft): 17.00

Depth to LNAPL (ft): —

Water Column (ft): 11.00

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15	RINSE	RX-061815	~~08~~ 1035
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-2_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-2_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
EX-2_	1	Poly	H_2SO_4	250 mL	N	Total N, Total P	
EX-2_	1	Poly	HNO_3	250mL	N	Total K	

Time	1054	1059	1104	1109	1114	1119	1124		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)		1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)		17.01	17.01	17.01	17.01	17.01	17.01		
Temperature (°C), (± 0.2)		12.97	12.42	12.15	12.09	11.95	12.00		
pH, (± 0.1)		7.53	7.31	7.27	7.26	7.26	7.29		
Sp. Conductance (uS/cm),(± 3%)		516	546	565	571	574	575		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		1.33	1.74	2.68	3.12	3.59	3.78		
ORP (mV), (± 10%)		100.5	94.2	87.3	79.7	74.0	75.9		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		14.16	10.47	7.00	7.56	3.30	3.08		
Color		LT TAN →							
Odor/Evidence of LNAPL		NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-3**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**30.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**15.0 - 30.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~25.0~~ 19.90
Sampling Time:	1225	Depth to Groundwater (ft):	18.90
Total Discharge (gal):	2.10	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.10

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
EX-3_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-3_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1200 Time	1205	1210	1215	1220				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.4	.4	.4	.4				
Volume Purged (Liters)	2	4	6	8				
Water Depth (ft)	18.90	18.90	18.90	18.90				
Temperature (°C), (± 0.2)	11.60	11.14	11.14	11.11				
pH, (± 0.1)	7.32	7.22	7.20	7.19				
Sp. Conductance (uS/cm),(± 3%)	625	621	621	622				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.40	0.32	0.32	0.30				
ORP (mV), (± 10%)	125.4	113.2	108.9	107.0				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.68	3.25	3.79	3.67				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 0.74 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**19.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**4.0 - 19.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~CL 11.5~~ 7.00
Sampling Time:	1750	Depth to Groundwater (ft):	6.00
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	13.00

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
EX-4_ 061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-4_ 061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1718 Time	1723	1728	1733	1738	1743	1748		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	6.02	6.02	6.02	6.02	6.02	6.02		
Temperature (°C), (± 0.2)	14.70	14.32	14.25	14.24	14.07	13.93		
pH, (± 0.1)	7.14	7.13	7.13	7.13	7.13	7.14		
Sp. Conductance (uS/cm),(± 3%)	752	752	755	754	753	755		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.13	0.12	0.12	0.14	0.15	0.14		
ORP (mV), (± 10%)	194.4	169.1	154.2	139.1	129.5	119.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.20	6.15	7.05	7.02	6.94	6.42		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-5**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	(Good)
Water Level Meter:	Solinst	Total Casing Depth (ft):	**29.8**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**14.8 - 29.8**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	BC ~~22.3~~ 18.24
Sampling Time:	1810	Depth to Groundwater (ft):	17.24
Total Discharge (gal):	2.0	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.56

Reference: TOC

Weather: Pt Cloudy - 75°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-5_ 061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-5_ 061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1744 Time	1749 BC ~~1751~~ 1754	1759	1804	1809			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3			
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5			
Water Depth (ft)	17.24	17.24	17.24	17.24	17.24			
Temperature (°C), (± 0.2)	13.06	12.13	11.92	11.85	11.82			
pH, (± 0.1)	7.31	7.16	7.05	7.05	7.05			
Sp. Conductance (uS/cm),(± 3%)	637	636	636	637	637			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.15	2.92	2.63	2.58	2.48			
ORP (mV), (± 10%)	125.4	121.5	117.0	114.8	111.6			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.48	3.37	3.46	2.50	3.07			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	27.1
Purging Equipment:	Sample Pro	Screened Interval (ft):	12.5 - 27.1
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~BC 19.6~~ 17.66
Sampling Time:	1710	Depth to Groundwater (ft):	16.66
Total Discharge (gal):	2.4	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.44
Weather:	Sunny - 70°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15	TRIP BLANK	TBS_061715	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-6_061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-6_061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1638 Time	1643	1648	1653	1658	1703	1708		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	16.65	16.65	16.65	16.65	16.65	16.65		
Temperature (°C), (± 0.2)	13.46	13.00	12.86	12.46	12.41	12.29		
pH, (± 0.1)	7.39	7.24	7.41	7.12	7.07	7.05		
Sp. Conductance (uS/cm),(± 3%)	624	623	623	623	622	622		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	1.87	1.51	1.41	1.37	1.35	1.37		
ORP (mV), (± 10%)	72.2	67.6	65.7	66.5	67.9	68.1		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	0.73	2.80	3.21	3.02	3.54	2.81		
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/1/15

Well Number: **EX-9**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 4

Sampling Personnel:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: —

Total Discharge (gal):

Water Disposal: GWTP

Well Condition:

Total Casing Depth (ft): **27.5**

Screened Interval (ft): **12.5 - 27.5**

Purge Depth (ft): **20.0**

Depth to Groundwater (ft):

Depth to LNAPL (ft):

Water Column (ft):

Reference: **TOC**

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-9_	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-9_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED, UNABLE TO ACCESS

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/18/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: 1225

Total Discharge (gal): 2.0

Water Disposal: GWTP

Weather: Sunny - 75°F

Well Number: **EX-10**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 4

Well Condition: Good

Total Casing Depth (ft): 30.0

Screened Interval (ft): 15.0 - 30.0

Purge Depth (ft): ~~22.5~~ 18.99

Depth to Groundwater (ft): 17.99

Depth to LNAPL (ft): —

Water Column (ft): 12.01

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-10_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-10_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1158 Time	1203	1208	1213	1218	1223			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3			
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5			
Water Depth (ft)	17.99	17.99	17.99	17.99	17.99			
Temperature (°C), (± 0.2)	13.05	12.22	11.99	11.79	11.91			
pH, (± 0.1)	7.47	7.26	7.24	7.21	7.24			
Sp. Conductance (uS/cm),(± 3%)	601	599	600	598	599			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.98	5.06	5.15	5.12	5.13			
ORP (mV), (± 10%)	91.6	91.7	91.1	90.6	88.5			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.70	1.17	1.92	0.37	2.28			
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-11**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	32.2
Purging Equipment:	Sample Pro	Screened Interval (ft):	12.2 -32.2
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~22.2~~ 22.67
Sampling Time:	0935	Depth to Groundwater (ft):	21.67
Total Discharge (gal):	1.4	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.53
Weather:	DT CLOUDY - 57°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15			
Turbidity:	Micro TPW	3/9/15	TRIP BLANK	TB2_061615	0800
Other:			RINSE BLANK	RX_061615	0840

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-11_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-11_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	0904	0909	0914	0919	0924	0929	0934		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.1	0.2	0.2	0.2	0.2	0.2		
Volume Purged (Liters)		0.5	~~1.0~~ 1.5	2.5	3.5	4.5	5.5		
Water Depth (ft)		21.68	21.68	21.68	21.69	21.69	21.69		
Temperature (°C), (± 0.2)		13.27	12.26	11.56	11.13	11.01	11.01		
pH, (± 0.1)		7.02	6.95	6.93	6.90	6.89	6.89		
Sp. Conductance (uS/cm),(± 3%)		719	719	718	718	719	719		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		3.57	1.37	1.03	0.72	0.62	0.63		
ORP (mV), (± 10%)		191.7	184.7	178.0	172.0	165.6	163.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		57.11	35.48	16.63	5.08	4.09	6.10		
Color		CLEAR LIQUID w/ PRECIPITATING ORANGE SOLIDS							
Odor/Evidence of LNAPL		NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/18/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: 1600

Total Discharge (gal): 2.6

Water Disposal: GWTP

Weather: Sunny - 75°F

Well Number: **EX-14**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 4

Well Condition: Good

Total Casing Depth (ft): 29.0

Screened Interval (ft): 14.0 - 29.0

Purge Depth (ft): ~~22.5~~ 18.60

Depth to Groundwater (ft): 17.60

Depth to LNAPL (ft): —

Water Column (ft): 11.40

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-14_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-14_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1533 Time	1538	1543	1548	1553	1558			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.4	0.4	0.4	0.4	0.4			
Volume Purged (Liters)	2.0	4.0	6.0	8.0	10.0			
Water Depth (ft)	17.65	17.65	17.65	17.65	17.65			
Temperature (°C), (± 0.2)	13.26	12.26	~~12.26~~ 11.97	11.85	11.81			
pH, (± 0.1)	7.50	7.29	7.25	7.26	7.29			
Sp. Conductance (uS/cm),(± 3%)	586	581	581	582	581			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.14	5.38	5.48	5.48	5.49			
ORP (mV), (± 10%)	82.0	84.5	83.3	80.4	77.5			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.64	2.05	0.00	0.43	0.37			
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-16**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	33.0
Purging Equipment:	Sample Pro	Screened Interval (ft):	13.0 - 33.0
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~CL 23.0~~ 21.61
Sampling Time:	1130	Depth to Groundwater (ft):	20.61
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.39
Weather:			

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15 0730	Duplicate	D1_061715	1030 0800
Turbidity:	Micro TPW	3/9/15	RINSE	RX_061715	0800 1030
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-16_ 061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-16_ 061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
EX-16_ 061715	1	Plastic	H2SO4	250ml	N	Nitrate + Nitrite, Ammonia as N, Nitrate as N Calc.	
EX-16_ 061715	1	Plastic	None	250ml	N	Nitrite, Sulfate, Alkalinity	***48-hr Hold Time***
EX-16_ 061715	1	Plastic	HNO3	250ml	Y	Dissolved Metals	
EX-16_ 061715	1	Plastic	ZnAc/NaOH	250ml	N	Sulfide	***No Headspace

1055 Time	1100	1105	1110	1115	1120	1125		
Parameter (every 5 min)	.5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.5	.5	.5	.5	.5	.5		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	20.63	20.63	20.63	20.63	20.63	20.63		
Temperature (°C), (± 0.2)	12.22	12.03	12.00	11.92	12.07	11.99		
pH, (± 0.1)	7.20	7.15	7.12	7.11	7.11	7.11		
Sp. Conductance (uS/cm),(± 3%)	645	646	644	644	645	648		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.15	0.18	0.13	0.17	0.19	0.17		
ORP (mV), (± 10%)	185.7	175.3	164.4	157.4	151.9	142.4		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	5.05	15.17	18.82	11.93	10.02	9.67		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-17**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**30.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**15.0 - 30.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	CL ~~22.5~~ 21.04
Sampling Time:	0935	Depth to Groundwater (ft):	20.04
Total Discharge (gal):	2.63	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.96

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15 0930			
Turbidity:	Micro TPW	3/9/15	TRIP	TBI_061715	0800
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
EX-17_ 061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-17_ 061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
EX-17_ 061715	1	Plastic	H2SO4	250ml	N	Nitrate + Nitrite, Ammonia as N, Nitrate as N Calc.	
EX-17_ 061715	1	Plastic	None	250ml	N	Nitrite, Sulfate, Alkalinity	***48-hr Hold Time***
EX-17_ 061715	1	Plastic	HNO3	250ml	Y	Dissolved Metals	
EX-17_ 061715	1	Plastic	ZnAc/NaOH	250ml	N	Sulfide	***No Headspace

0908 Time	0913	0918	0923	0928				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.5	.5	.5	.5				
Volume Purged (Liters)	2.5	5	7.5	10				
Water Depth (ft)	20.04	20.04	20.04	20.04				
Temperature (°C), (± 0.2)	12.20	11.92	11.78	11.74				
pH, (± 0.1)	7.12	7.06	7.03	7.02				
Sp. Conductance (uS/cm),(± 3%)	641	640	639	639				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.21	0.19	0.20	0.20				
ORP (mV), (± 10%)	165.1	152.3	140.6	132.2				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.60	3.53	3.85	3.74				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-22**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.2
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**34.8**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**19.8 - 34.8**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**29.0**
Sampling Time:	1750	Depth to Groundwater (ft):	22.39
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.41

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0730			
Turbidity:	Micro TPW	3/19/15	**Duplicate**	D2_061815	0800
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
EX-22_061815	3	VOA	HCL	40ml	N	VOC 8260	
EX-22_061815	3	VOA	HCL	40ml	N	VPH MADEP	
EX-22_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: EX-22 Date ie; mmddyy							

1715 Time	1720	1725	1730	1735	1740	1745		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	22.42	22.43	22.43	22.43	22.43	22.43		
Temperature (°C), (± 0.2)	12.59	12.36	12.37	12.19	12.29	12.28		
pH, (± 0.1)	6.95	6.92	6.92	6.91	6.92	6.93		
Sp. Conductance (uS/cm),(± 3%)	776	774	774	775	773	774		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.35	0.20	0.19	0.08	0.20	0.19		
ORP (mV), (± 10%)	160.5	146.4	137.7	130.9	124.8	119.5		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.68	1.81	2.73	3.01	3.28	4.09		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-24**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.6
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**24.4**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**9.4 - 24.4**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**22.0**
Sampling Time:	1820	Depth to Groundwater (ft):	15.23
Total Discharge (gal):	2.4	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.17
Weather:	P+Cloudy - 65°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15	TRIP	TB6_061615	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-24_061615	3	VOA	HCL	40ml	N	VOC 8260	
EX-24_061615	3	VOA	HCL	40ml	N	VPH MADEP	
EX-24_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: EX-24_Date ie; mmddyy							

1745 Time	1750	1755	1800	1805	1810	1815		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	15.23	15.23	15.23	15.23	15.23	15.23		
Temperature (°C), (± 0.2)	12.69	12.38	12.51	12.46	12.39	12.33		
pH, (± 0.1)	7.10	6.95	6.92	6.91	6.92	6.93		
Sp. Conductance (uS/cm),(± 3%)	672	683	686	689	688	688		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.17	0.52	0.30	0.22	0.19	0.16		
ORP (mV), (± 10%)	77.6	60.4	54.5	49.2	44.9	42.8		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.33	2.00	1.24	1.12	0.33	2.37		
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-27**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	33.9
Purging Equipment:	Sample Pro	Screened Interval (ft):	13.9 - 33.9
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~BL 23.9~~ 19.90
Sampling Time:	2040	Depth to Groundwater (ft):	18.90
Total Discharge (gal):	2.4	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	15.00
Weather:	Pt Cloudy-65°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-27_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-27_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	2009	2014	2019	2024	2029	2034	2039		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)		1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)		18.90	18.90	18.90	18.90	18.90	18.90		
Temperature (°C), (± 0.2)		13.36	12.63	12.46	12.44	12.34	12.35		
pH, (± 0.1)		7.18	7.05	7.06	7.06	7.06	7.07		
Sp. Conductance (uS/cm),(± 3%)		661	659	659	658	658	658		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		1.07	0.38	0.29	0.27	0.25	0.29		
ORP (mV), (± 10%)		12.6	12.6	12.8	11.5	9.2	8.5		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		2.22	1.12	0.00	0.00	0.37	0.52		
Color		V. LT TAN/CLEAR							
Odor/Evidence of LNAPL		NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-28**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.2 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**20.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**5.6 - 20.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**14.0**
Sampling Time:	1650	Depth to Groundwater (ft):	6.04
Total Discharge (gal):	1.18	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	14.56

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15 0730	TRIP	TB4_061715	1500
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
EX-28_ 061715	3	VOA	HCL	40ml	N	VOC 8260	
EX-28_ 061715	3	VOA	HCL	40ml	N	VPH MADEP	
EX-28_ 061715	2	Glass	H2SO4	1-Liter	N	EPH Screen	

COMPLETE SAMPLE ID: EX-28_Date ie; mmddyy

1630 Time	1635	1640	1645	1650 CL			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	6.06	6.06	6.06					
Temperature (°C), (± 0.2)	11.63	11.51	11.63					
pH, (± 0.1)	7.13	7.09	7.06					
Sp. Conductance (uS/cm),(± 3%)	683	682	683					
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.14	0.11	0.13					
ORP (mV), (± 10%)	176.5	161.9	152.2					
Turbidity (NTU), (± 10% or 3 <10 NTUs)	7.51	4.39	1.87					
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/17/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: CL

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: 1915

Total Discharge (gal): 1.97

Water Disposal: GWTP

Well Number: **EX-29**

Monument Type: Stickup: 1.85 (ft PVC) Flush:

Well Diameter (in): 4

Well Condition: good

Total Casing Depth (ft): * CL ~~20.0~~ 7.85

Screened Interval (ft): 5.0 - 20.0 ~~7.01~~ CL

Purge Depth (ft): 7.00 CL ~~12.5~~ ~~7.28~~ CL

Depth to Groundwater (ft): 6.00

Depth to LNAPL (ft): —

Water Column (ft): *

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15 0930	Duplicate	D2_061715	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-29_ 061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-29_ 061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
EX-29_ 061715	1	Poly	H_2SO_4	250mL	N	TOTAL N, TOTAL P	
EX-29_ 061715	1	Poly	HNO_3	250mL	N	TOTAL K	

CL 1851 Time	1856	1901	1906	1907	1912			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3			
Volume Purged (Liters)	1.5	3	4.5	6	7.5			
Water Depth (ft)	6.04	6.04	6.04	6.04	6.04			
Temperature (°C), (± 0.2)	13.76	13.41	13.28	13.16	13.13			
pH, (± 0.1)	6.98	6.97	6.98	6.99	7.00			
Sp. Conductance (uS/cm),(± 3%)	1062	1158	1194	1197	1195			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.15	0.13	0.13	0.12	0.11			
ORP (mV), (± 10%)	-148.2	-163.7	-171.1	-171.3	-169.8			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.96	3.78	3.70	4.54	3.54			
Color	CLEAR w/ MINOR ORGANIC MATTER							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

* OBSTRUCTION @ 7.85' TOC

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-34**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**33.5**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**18.5 - 33.5**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~CL 26.0~~ 22.93
Sampling Time:	1955	Depth to Groundwater (ft):	21.43
Total Discharge (gal):	2.10	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.07

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/19/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
EX-34_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-34_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1930 Time	1935	1940	1945	1950				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.5	.5	.5	.5				
Volume Purged (Liters)	2	4	6	8				
Water Depth (ft)	21.43	21.43	21.43	21.43				
Temperature (°C), (± 0.2)	11.50	11.02	11.06	11.12				
pH, (± 0.1)	7.18	7.13	7.11	7.11				
Sp. Conductance (uS/cm),(± 3%)	647	643	643	643				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.55	4.47	4.44	4.49				
ORP (mV), (± 10%)	181.9	171.2	164.2	159.5				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.74	2.80	2.94	2.60				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-35**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	32.0
Purging Equipment:	Sample Pro	Screened Interval (ft):	17.0 - 32.0
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~24.5~~ 21.95
Sampling Time:	1120	Depth to Groundwater (ft):	20.95
Total Discharge (gal):		Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.05
Weather:	Pt Cloudy - 70°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15			
Turbidity:	Micro TPW	5/9/15	Duplicate	DZ-061715	0800
Other:			TRIP BLANK	TBZ-061715	0800

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-35_ 061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-35_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	
EX-35_	1	Plastic	H2SO4	250ml	N	Nitrate + Nitrite, Ammonia as N, Nitrate as N Calc.	
EX-35_	1	Plastic	None	250ml	N	Nitrite, Sulfate, Alkalinity	***48-hr Hold Time***
EX-35_	1	Plastic	HNO3	250ml	Y	Dissolved Metals	
EX-35_	1	Plastic	ZnAc/NaOH	250ml	N	Sulfide	***No Headspace

1045 Time	1050	1055	1100	1105	1110	1115		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.2	0.2	0.2	0.2	0.2	0.2		
Volume Purged (Liters)	1.0	2.0	3.0	4.0	5.0	6.0		
Water Depth (ft)	20.95	20.95	20.95	20.95	20.95	20.95		
Temperature (°C), (± 0.2)	14.66	13.72	13.22	12.73	12.77	12.63		
pH, (± 0.1)	7.19	6.99	6.92	6.90	6.94	6.94		
Sp. Conductance (uS/cm),(± 3%)	791	791	799	809	816	814		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.58	0.45	0.30	0.25	0.23	0.22		
ORP (mV), (± 10%)	-3.1	-28.4	-30.9	-37.7	-39.2	-40.7		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	10.51	4.56	4.89	3.52	3.28	5.16		
Color	~~SMA~~ CLEAR w/	SML QUANTITES		OF BRN	PARTICULATES			
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/18/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: 1950

Total Discharge (gal): 2.4

Water Disposal: GWTP

Weather: LT RAIN - 65°F

Well Number: **EX-36**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Well Condition: GOOD

Total Casing Depth (ft): **32.0**

Screened Interval (ft): **17.0 - 32.0**

Purge Depth (ft): ~~BC 24.5~~ 19.88

Depth to Groundwater (ft): 18.88

Depth to LNAPL (ft): —

Water Column (ft): 13.12

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-36_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-36_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1915	1920	1925	1930	1935	1940	1945		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)		1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)		BC ~~8.04~~ 18.88	18.88	18.88	18.88	18.88	18.88		
Temperature (°C), (± 0.2)		13.31	11.90	11.64	11.39	11.34	11.35		
pH, (± 0.1)		6.97	6.86	6.87	6.89	6.91	6.93		
Sp. Conductance (uS/cm),(± 3%)		761	755	752	750	749	750		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		2.69	2.91	3.01	3.09	3.25	3.30		
ORP (mV), (± 10%)		-27.3	-24.9	-25.9	-27.1	-27.2	-27.7		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		8.04	6.89	4.93	5.57	3.52			
Color		CLEAR/	LT TAN	W/ BRN	PARTICULATES				
Odor/Evidence of LNAPL		PETROL	LIKE	ODOR					

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/1/15

Well Number: **EX-41**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Sampling Personnel:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: —

Total Discharge (gal):

Water Disposal: GWTP

Well Condition:

Total Casing Depth (ft): **30.5**

Screened Interval (ft): **15.5 - 30.5**

Purge Depth (ft): **23.0**

Depth to Groundwater (ft):

Depth to LNAPL (ft):

Water Column (ft):

Reference: **TOC**

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-41_	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-41_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED. UNABLE TO ACCESS

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	EX-42
Project Name:	BN Livingston Shop Complex	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	1596021*16	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	31.1
Purging Equipment:	Sample Pro	Screened Interval (ft):	16.1 - 31.1
Sampling Equipment:	Sample Pro	Purge Depth (ft):	BC ~~23.0~~ 20.07
Sampling Time:	0925	Depth to Groundwater (ft):	19.07
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.03

Reference: TOC

Weather: Pt Cloud, ~65°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15	Duplicate	~~DZ-061715~~ cc	0800
Turbidity:	Micro TPW	3/9/15	TRIP BLANK	~~TBZ-061715~~ cc	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
BC ~~EX-42_061715~~	~~3~~	~~VOA~~	~~HCL~~	~~40ml~~	~~N~~	~~VPH+MBTEXN MADEP~~	
BC ~~EX-42_~~	~~2~~	~~Glass~~	~~H2SO4~~	~~1 Liter~~	~~N~~	~~EPH Screen SW8015M~~	
EX-42_061715	1	Plastic	H2SO4	250ml	N	Nitrate + Nitrite, Ammonia as N, Nitrate as N Calc.	
EX-42_	1	Plastic	H_2SO_4	250mL	N	TOTAL N, TOTAL P	
EX-42_	1	Plastic	None	250ml	N	Nitrite, Sulfate, Alkalinity	***48-hr Hold Time***
EX-42_	1	Plastic	HNO3	250ml	Y	Dissolved Metals	
EX-42_	1	Plastic	ZnAc/NaOH	250ml	N	Sulfide	***No Headspace
EX-42_	1	Plastic	HNO_3	250mL	N	TOTAL K	

Time	0850	0855	0900	0905	0910	0915	0926		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.4	0.4	0.4	0.4	0.4	0.4		
Volume Purged (Liters)		2.0	4.0	6.0	8.0	10.0	12.0		
Water Depth (ft)		19.07	19.07	19.07	19.07	19.07	19.07		
Temperature (°C), (± 0.2)		12.36	11.95	11.87	11.91	11.92	11.99		
pH, (± 0.1)		7.11	7.04	7.06	7.06	7.07	7.09		
Sp. Conductance (uS/cm),(± 3%)		632	631	630	630	630	630		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		0.67	0.56	0.54	0.43	0.44	0.45		
ORP (mV), (± 10%)		172.2	165.0	157.3	151.7	146.0	139.8		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		7.13	5.16	1.03	0.70	0.61	2.81		
Color		CLEAR/SMALL QUANTITES OF ORANGE PARTICULATES							
Odor/Evidence of LNAPL		NONE / SLT SHEEN AT SAMPLE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Sheen observed in purge bucket but not in parameter cup. Sheen observed at sample collection. Sample collected and submission pending.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-43**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	29.3
Purging Equipment:	Sample Pro	Screened Interval (ft):	14.3 - 29.3
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~21.8~~ 18.07
Sampling Time:	1925	Depth to Groundwater (ft):	17.07
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.23
Weather:	PL Cloudy - 65°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15	Type	Sample ID	Time
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-43_061715	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-43_061715	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1850	1855	1900	1905	1910	1915	1920		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.2	0.2	0.2	0.2	0.2	0.2		
Volume Purged (Liters)		1.0	2.0	3.0	4.0	5.0	6.0		
Water Depth (ft)		17.05	17.06	17.06	17.06	17.06	17.06		
Temperature (°C), (± 0.2)		14.89	12.85	12.59	12.43	12.18	12.11		
pH, (± 0.1)		7.38	7.05	7.03	7.01	7.01	7.00		
Sp. Conductance (uS/cm),(± 3%)		640	626	627	627	627	628		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		2.42	1.41	1.16	1.04	1.01	0.96		
ORP (mV), (± 10%)		101.6	104.0	101.6	99.0	97.5	95.9		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		7.97	5.10	5.06	4.50	4.47	2.38		
Color		CLEAR w/ V. LOW QUANTITIES OF BRN PART.							
Odor/Evidence of LNAPL		NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-51**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**31.4**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**16.4 - 31.4**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	CL ~~23.9~~ 22.19
Sampling Time:	1455	Depth to Groundwater (ft):	21.19
Total Discharge (gal):		Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.21

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15	Trip	TB5_061615	0800
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
EX-51_ 061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-51_ 061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1426	1431	1436	1441	1446	1451			
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)		.5	.5	.5	.5	.5			
Volume Purged (Liters)		2.5	5	7.5	10	12.5			
Water Depth (ft)		21.23	21.23	21.22	21.22	21.21			
Temperature (°C), (± 0.2)		13.23	12.72	12.62	12.81	12.95			
pH, (± 0.1)		6.89	6.83	6.77	6.78	6.77			
Sp. Conductance (uS/cm),(± 3%)		1048	1050	1039	1036	1035			
DO (mg/L), (± 10% or 10% of 0.2mg/l)		0.25	0.26	0.34	0.48	0.68			
ORP (mV), (± 10%)		96.4	91.2	93.9	94.9	96.9			
Turbidity (NTU), (± 10% or 3 <10 NTUs)		5.21	5.07	6.20	5.90	5.81			
Color		CLEAR							
Odor/Evidence of LNAPL		NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-54**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARRSON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**37.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**17.0 - 37.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~27.0~~ 20.35
Sampling Time:	1530	Depth to Groundwater (ft):	19.35
Total Discharge (gal):	2.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	17.65
Weather:	Pt Cloudy – 65°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-54_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-54_ 061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1503 Time	1508	1513	1518	1523	1528			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.4	0.4	0.4	0.4	0.4			
Volume Purged (Liters)	2.0	4.0	6.0	8.0	10.0			
Water Depth (ft)	19.37	19.37	19.37	19.38	19.38			
Temperature (°C), (± 0.2)	12.75	11.88	11.58	11.38	11.30			
pH, (± 0.1)	7.32	7.08	7.06	7.06	7.06			
Sp. Conductance (uS/cm),(± 3%)	625	611	607	607	607			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.82	4.08	4.25	4.32	4.36			
ORP (mV), (± 10%)	78.5	80.8	78.0	76.7	75.2			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	6.40	5.12	4.85	2.70	1.57			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/18/15 ~~6/18/15~~ CL

Well Number: **EX-57**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Sampling Personnel: CL

Well Condition: good

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: 1505

Total Casing Depth (ft): 40.0

Screened Interval (ft): 20.0 - 40.0

Purge Depth (ft): CL ~~30.0~~ 20.59

Depth to Groundwater (ft): 19.59

Depth to LNAPL (ft): —

Reference: TOC

Total Discharge (gal): 2.10

Water Disposal: GWTP

Water Column (ft): 20.41

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0730	Trip	TB1_061815	1320
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-57_061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-57_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1443	1448	1453	1458	1503				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.4	.4	.4	.4				
Volume Purged (Liters)	2	4	6	8				
Water Depth (ft)	19.60	19.60	19.60	19.60				
Temperature (°C), (± 0.2)	11.90	11.47	11.45	11.49				
pH, (± 0.1)	7.25	7.13	7.13	7.13				
Sp. Conductance (uS/cm),(± 3%)	600	599	599	599				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.25	4.17	4.11	4.09				
ORP (mV), (± 10%)	114.1	108.5	107.1	107.4				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.67	3.00	3.36	3.62				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-58**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**40.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**15.5 - 40.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.0**
Sampling Time:	1655	Depth to Groundwater (ft):	18.88
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	21.62
Weather:	Sunny - 80°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15	TRIP BLANK	TB3_061815	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-58_061815	3	VOA	HCL	40ml	N	VOC 8260	
EX-58_061815	3	VOA	HCL	40ml	N	VPH MADEP	
EX-58_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: EX-58_Date ie; mmddyy							

1633 Time	1638	1643	1648	1653				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3				
Volume Purged (Liters)	1.5	3.0	4.5	6.0				
Water Depth (ft)	18.88	18.88	18.88	18.88				
Temperature (°C), (± 0.2)	11.94	12.06	12.01	11.93				
pH, (± 0.1)	7.46	7.25	7.24	7.22				
Sp. Conductance (uS/cm),(± 3%)	601	593	597	606				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.34	4.06	4.00	3.93				
ORP (mV), (± 10%)	110.5	96.7	86.4	79.8				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	20.79	7.32	4.42	4.40				
Color	VLT TAN/CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-59**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**38.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**18.0 - 38.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~CL 28.0~~ 22.04
Sampling Time:	1340	Depth to Groundwater (ft):	21.04
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	16.96

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15 0730	DUPLICATE	DI_061615	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
EX-59_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-59_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1307 Time	1313	1317	1323	1327	1333	1337		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	21.15	21.15	21.16	21.16	21.15	21.15		
Temperature (°C), (± 0.2)	14.95	13.90	13.68	13.64	13.68	13.70		
pH, (± 0.1)	6.98	6.86	6.84	6.83	6.83	6.83		
Sp. Conductance (uS/cm),(± 3%)	981	967	938	922	918	915		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.29	0.32	0.31	0.22	0.16	0.16		
ORP (mV), (± 10%)	101.9	82.0	65.9	56.4	56.4	47.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	21.50	11.96	7.79	6.61	4.59	4.64		
Color	CLEAR / YELLOWISH							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-63**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARBON	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**38.5**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**18.5 - 38.5**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~19.28.5~~ 20.97
Sampling Time:	1720	Depth to Groundwater (ft):	19.97
Total Discharge (gal):	1.7	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	18.53
Weather:	LT RAIN - 60°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15			
Turbidity:	Micro TPW	3/9/15	TB	TB3_061615	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-63_061615	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-63_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

Time	1645	1650	1655	1700	1705	1710	1715		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.2	0.2	0.2	0.2	0.2	0.2		
Volume Purged (Liters)		1.0	2.0	3.0	4.0	5.0	6.0		
Water Depth (ft)		19.98	19.98	19.98	19.98	19.98	19.98		
Temperature (°C), (± 0.2)		13.96	12.80	12.15	11.96	11.77	11.71		
pH, (± 0.1)		7.05	6.92	6.90	6.91	6.92	6.93		
Sp. Conductance (uS/cm),(± 3%)		978	982	981	982	982	984		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		1.81	0.69	0.54	0.42	0.36	0.36		
ORP (mV), (± 10%)		68.6	72.8	71.9	70.0	68.2	67.4		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		6.10	2.70	2.59	2.15	2.68	1.11		
Color		CLEAR/	V. LT YELLOW/TAN						
Odor/Evidence of LNAPL		NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-64**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**40.5**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**20.0 - 40.5**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	~~30.3~~ 22.26
Sampling Time:	1905	Depth to Groundwater (ft):	21.26
Total Discharge (gal):	2.63	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	19.24

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0920			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
EX-64_ 061815	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
EX-64_ 061815	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

1837 Time	1842	1847	1852	1857	1902			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.5	.5	.5	.5	.5			
Volume Purged (Liters)	2	4	6	8	10			
Water Depth (ft)	21.28	21.28	21.28	21.28	21.28			
Temperature (°C), (± 0.2)	12.56	12.20	12.02	12.04	12.07			
pH, (± 0.1)	7.06	6.99	6.98	6.98	6.97			
Sp. Conductance (uS/cm),(± 3%)	810	809	809	808	809			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.47	0.32	0.22	0.20	0.20			
ORP (mV), (± 10%)	173.4	164.4	156.4	148.5	142.8			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	15.39	6.78	2.86	4.03	3.03			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/1/15

Well Number: **LG-3**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Sampling Personnel:

Well Condition:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: —

Total Discharge (gal):

Water Disposal: GWTP

Total Casing Depth (ft): **22.8**

Screened Interval (ft): **12.8 - 22.8**

Purge Depth (ft): **17.8**

Depth to Groundwater (ft):

Depth to LNAPL (ft):

Water Column (ft):

Reference: bgs

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
~~LG-3_~~	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
~~LG-3_~~	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED. COVERED BY ASPHALT

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/1/15	Well Number:	**LG-4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:		Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**22.0**
Purging Equipment:	Sample Pro	Screened Interval (ft):	**12.0 - 22.0**
Sampling Equipment:	Sample Pro	Purge Depth (ft):	**17.0**
Sampling Time:	—	Depth to Groundwater (ft):	
Total Discharge (gal):		Depth to LNAPL (ft):	
Water Disposal:	GWTP	Water Column (ft):	

Reference: bgs

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
LG-4_	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
LG-4_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED, COVERED W/ASPHALT

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/1/15

Well Number: **LG-10**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Sampling Personnel:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time: —

Total Discharge (gal):

Water Disposal: GWTP

Well Condition:

Total Casing Depth (ft): **22.9**

Screened Interval (ft): **12.9 - 22.9**

Purge Depth (ft): **17.9**

Depth to Groundwater (ft):

Depth to LNAPL (ft):

Water Column (ft):

Reference: **TOC**

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
~~LG-10_~~	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
LG-10_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPED, COVERED W/ASPHALT

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/1/15

Well Number: **LG-13**

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Sampling Personnel:

Water Level Meter: Solinst

Purging Equipment: Sample Pro

Sampling Equipment: Sample Pro

Sampling Time:

Total Discharge (gal):

Water Disposal: GWTP

Well Condition:

Total Casing Depth (ft): **23.3**

Screened Interval (ft): **13.3 - 23.3**

Purge Depth (ft): **18.3**

Depth to Groundwater (ft):

Depth to LNAPL (ft):

Water Column (ft):

Reference: **TOC**

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
~~LG-13_~~	3	VOA	HCL	40ml	N	VPH+MBTEXN MADEP	
LG-13_	2	Glass	H2SO4	1-Liter	N	EPH Screen SW8015M	

NOT SAMPLED, COVERED W/ASPHALT

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

TASK G
QUARTERLY GROUNDWATER SAMPLING
JUNE 2015
Analytical Laboratory Reports
(also on CD at back of report)

ANALYTICAL SUMMARY REPORT

July 08, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061723 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - Task-G

Energy Laboratories Inc Billings MT received the following 30 samples for Kennedy Jenks Consultants on 6/18/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061723-001	TB1_061615	06/16/15 8:00	06/18/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061723-002	LS-6_061615	06/16/15 10:15	06/18/15	Aqueous	Metals by ICP/ICPMS, Total EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Preparation by EPA 200.2 Digestion, Total P TKN preparation Phosphorus, Total Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061723-003	L-88-9_061615	06/16/15 11:20	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061723-004	EX-3_061615	06/16/15 12:25	06/18/15	Aqueous	Same As Above
B15061723-005	TB1_061715	06/17/15 8:00	06/18/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061723-006	D1_061715	06/17/15 8:00	06/18/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate Sulfide, Methylene Blue Colorimetric
B15061723-007	EX-17_061715	06/17/15 9:35	06/18/15	Aqueous	Same As Above
B15061723-008	EX-16_061715	06/17/15 11:30	06/18/15	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

B15061723-009	RX_061715	06/17/15 10:30	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061723-010	TB5_061615	06/16/15 8:00	06/18/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061723-011	D1_061615	06/16/15 8:00	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061723-012	EX-51_061615	06/16/15 14:55	06/18/15	Aqueous	Same As Above
B15061723-013	EX-59_061615	06/16/15 13:40	06/18/15	Aqueous	Same As Above
B15061723-014	TB2_061615	06/16/15 8:00	06/18/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061723-015	RX-061615	06/16/15 8:40	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061723-016	EX-11_061615	06/16/15 9:35	06/18/15	Aqueous	Same As Above
B15061723-017	HRO-13_061615	06/16/15 10:40	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061723-018	L-87-6_061615	06/16/15 11:50	06/18/15	Aqueous	Same As Above
B15061723-019	TB4_061615	06/16/15 8:00	06/18/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061723-020	EX-1_061615	06/16/15 13:10	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061723-021	LS-10_061615	06/16/15 14:15	06/18/15	Aqueous	Same As Above
B15061723-022	EX-54_061615	06/16/15 15:30	06/18/15	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

B15061723-023	EX-24_061615	06/16/15 18:20	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH 8260-Volatile Organic Compounds-Short List
B15061723-024	TB6_061615	06/16/15 8:00	06/18/15	Trip Blank	8260-Volatile Organic Compounds-Short List
B15061723-025	TB3_061615	06/16/15 8:00	06/18/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061723-026	EX-63_061615	06/16/15 17:20	06/18/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061723-027	D3_061715	06/17/15 8:00	06/18/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate Sulfide, Methylene Blue Colorimetric Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061723-028	TB3_061715	06/17/15 8:00	06/18/15	Aqueous	Volatile Petroleum Hydrocarbons

ANALYTICAL SUMMARY REPORT

B15061723-029	EX-42_061715	06/17/15 9:25	06/18/15	Aqueous	Metals by ICP/ICPMS, Total Metals by ICP/ICPMS, Dissolved Alkalinity Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Preparation by EPA 200.2 Digestion, Total P TKN preparation Phosphorus, Total Sulfide, Methylene Blue Colorimetric
B15061723-030	EX-35_061715	06/17/15 11:20	06/18/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Anions by Ion Chromatography Nitrogen, Ammonia Nitrogen, Nitrite Nitrogen, Nitrate + Nitrite Nitrogen, Nitrate Sulfide, Methylene Blue Colorimetric Separatory Funnel Liquid-Liquid Ext. Low Level PAH

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Revised Date: 07/08/15
Report Date: 07/06/15

CASE NARRATIVE

Fractionations with PAHs were added to the following samples per email from Amanda Aldersley on 6/25/15:

B15061723-002	LS-6_061615
B15061723-011	D1_061615
B15061723-012	EX-51_061615
B15061723-013	EX-59_061615
B15061723-017	HRO-13_061615
B15061723-018	L-87-6_061615
B15061723-023	EX-24_061615
B15061723-026	EX-63_061615
B15061723-027	D3_061715
B15061723-030	EX-35_061715

Revised Report 07/08/15:

The report was revised to include MTBE, Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene in the EPA Method 8260B analysis report.

This revised report replaces any previous report in its entirety.

DATES REPORT

Work Order: B15061723
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -

Revised Date: 07/08/15
Report Date: 07/06/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061723-001A	TB1_061615	6/16/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-002A	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Metals by ICP/ICPMS, Total		06/19/2015 E200.7 [90635]	6/22/2015
B15061723-002B	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-002B	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Nitrogen, Total (TKN+NO3+NO2)		NA	6/23/2015
B15061723-002B	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/19/2015 E351.2 [90630]	6/19/2015
B15061723-002B	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Phosphorus, Total		06/19/2015 E365.1 [90631]	6/19/2015
B15061723-002C	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90774]	6/30/2015
B15061723-002C	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90774]	7/4/2015
B15061723-002C	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/19/2015 SW8015M [90668]	6/21/2015
B15061723-002C	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Low Level PAH		06/19/2015 SW8270C [90924]	6/30/2015
B15061723-002C	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Low Level PAH		06/19/2015 SW8270C [90924]	6/30/2015
B15061723-002D	LS-6_061615	6/16/2015 10:15:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-003A	L-88-9_061615	6/16/2015 11:20:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/19/2015 SW8015M [90668]	6/21/2015
B15061723-003B	L-88-9_061615	6/16/2015 11:20:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-004A	EX-3_061615	6/16/2015 12:25:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/19/2015 SW8015M [90668]	6/21/2015
B15061723-004B	EX-3_061615	6/16/2015 12:25:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-005A	TB1_061715	6/17/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-006A	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-006A	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-006A	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061723-006A	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrite		NA	6/18/2015
B15061723-006B	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/23/2015
B15061723-006C	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-006C	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrate		NA	6/23/2015
B15061723-006C	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-006D	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Sulfide, Methylene Blue Colorimetric		NA	6/19/2015
B15061723-006E	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/19/2015 SW8015M [90668]	6/21/2015
B15061723-006F	D1_061715	6/17/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015

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B15061723-007A	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-007A	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-007A	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061723-007A	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Nitrogen, Nitrite		NA	6/18/2015
B15061723-007B	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/22/2015
B15061723-007C	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-007C	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Nitrogen, Nitrate		NA	6/23/2015
B15061723-007C	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-007D	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Sulfide, Methylene Blue Colorimetric		NA	6/19/2015
B15061723-007E	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/19/2015 SW8015M [90668]	6/21/2015
B15061723-007F	EX-17_061715	6/17/2015 9:35:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-008A	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-008A	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-008A	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061723-008A	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Nitrogen, Nitrite		NA	6/18/2015
B15061723-008B	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/22/2015
B15061723-008C	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-008C	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-008C	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Nitrogen, Nitrate		NA	6/23/2015
B15061723-008C	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-008D	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Sulfide, Methylene Blue Colorimetric		NA	6/19/2015
B15061723-008E	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/19/2015 SW8015M [90668]	6/21/2015
B15061723-008F	EX-16_061715	6/17/2015 11:30:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-009E	RX_061715	6/17/2015 10:30:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-009F	RX_061715	6/17/2015 10:30:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-010A	TB5_061615	6/16/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/19/2015
B15061723-011A	D1_061615	6/16/2015 8:00:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	6/30/2015
B15061723-011A	D1_061615	6/16/2015 8:00:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	7/4/2015

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B15061723-011A	D1_061615	6/16/2015 8:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-011A	D1_061615	6/16/2015 8:00:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	6/30/2015
B15061723-011A	D1_061615	6/16/2015 8:00:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-011B	D1_061615	6/16/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061723-012A	EX-51_061615	6/16/2015 2:55:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	6/29/2015
B15061723-012A	EX-51_061615	6/16/2015 2:55:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	7/4/2015
B15061723-012A	EX-51_061615	6/16/2015 2:55:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-012A	EX-51_061615	6/16/2015 2:55:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	6/30/2015
B15061723-012A	EX-51_061615	6/16/2015 2:55:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-012B	EX-51_061615	6/16/2015 2:55:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-013A	EX-59_061615	6/16/2015 1:40:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	6/30/2015
B15061723-013A	EX-59_061615	6/16/2015 1:40:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	7/4/2015
B15061723-013A	EX-59_061615	6/16/2015 1:40:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-013A	EX-59_061615	6/16/2015 1:40:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-013A	EX-59_061615	6/16/2015 1:40:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	6/30/2015
B15061723-013B	EX-59_061615	6/16/2015 1:40:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-014A	TB2_061615	6/16/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-015A	RX-061615	6/16/2015 8:40:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-015B	RX-061615	6/16/2015 8:40:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-016A	EX-11_061615	6/16/2015 9:35:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/25/2015
B15061723-016B	EX-11_061615	6/16/2015 9:35:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-017A	HRO-13_061615	6/16/2015 10:40:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	6/30/2015
B15061723-017A	HRO-13_061615	6/16/2015 10:40:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	7/4/2015
B15061723-017A	HRO-13_061615	6/16/2015 10:40:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-017A	HRO-13_061615	6/16/2015 10:40:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	6/30/2015
B15061723-017A	HRO-13_061615	6/16/2015 10:40:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015

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B15061723-017B	HRO-13_061615	6/16/2015 10:40:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061723-018A	L-87-6_061615	6/16/2015 11:50:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	6/29/2015
B15061723-018A	L-87-6_061615	6/16/2015 11:50:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	6/29/2015
B15061723-018A	L-87-6_061615	6/16/2015 11:50:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-018A	L-87-6_061615	6/16/2015 11:50:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	6/30/2015
B15061723-018A	L-87-6_061615	6/16/2015 11:50:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-018B	L-87-6_061615	6/16/2015 11:50:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-019A	TB4_061615	6/16/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-020A	EX-1_061615	6/16/2015 1:10:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-020B	EX-1_061615	6/16/2015 1:10:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-021A	LS-10_061615	6/16/2015 2:15:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-021B	LS-10_061615	6/16/2015 2:15:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-022A	EX-54_061615	6/16/2015 3:30:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-022B	EX-54_061615	6/16/2015 3:30:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-023A	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	7/3/2015
B15061723-023A	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/29/2015 MA-EPH [90895]	7/3/2015
B15061723-023A	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/24/2015
B15061723-023A	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	6/30/2015
B15061723-023A	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-023A	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-023B	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-023C	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061723-023C	EX-24_061615	6/16/2015 6:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061723-024A	TB6_061615	6/16/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061723-025A	TB3_061615	6/16/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/22/2015

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B15061723-026A	EX-63_061615	6/16/2015 5:20:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/30/2015 MA-EPH [90895]	6/30/2015
B15061723-026A	EX-63_061615	6/16/2015 5:20:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/30/2015 MA-EPH [90895]	7/4/2015
B15061723-026A	EX-63_061615	6/16/2015 5:20:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/25/2015
B15061723-026A	EX-63_061615	6/16/2015 5:20:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-026A	EX-63_061615	6/16/2015 5:20:00 PM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-026B	EX-63_061615	6/16/2015 5:20:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-027A	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-027A	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-027A	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061723-027A	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrite		NA	6/18/2015
B15061723-027B	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/22/2015
B15061723-027C	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-027C	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrate		NA	6/23/2015
B15061723-027C	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-027D	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Sulfide, Methylene Blue Colorimetric		NA	6/19/2015
B15061723-027E	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/30/2015 MA-EPH [90895]	6/30/2015
B15061723-027E	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/30/2015 MA-EPH [90895]	7/4/2015
B15061723-027E	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/25/2015
B15061723-027E	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-027E	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-027F	D3_061715	6/17/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061723-028A	TB3_061715	6/17/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061723-029A	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-029A	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-029A	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061723-029A	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Nitrogen, Nitrite		NA	6/18/2015
B15061723-029B	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/22/2015
B15061723-029C	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Metals by ICP/ICPMS, Total		06/19/2015 E200.7 [90635]	6/22/2015

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B15061723-029D	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-029D	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Nitrogen, Nitrate		NA	6/23/2015
B15061723-029D	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-029D	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Nitrogen, Total (TKN+NO3+NO2)		NA	6/23/2015
B15061723-029D	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/19/2015 E351.2 [90630]	6/19/2015
B15061723-029D	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Phosphorus, Total		06/19/2015 E365.1 [90631]	6/19/2015
B15061723-029E	EX-42_061715	6/17/2015 9:25:00 AM	Aqueous	Sulfide, Methylene Blue Colorimetric		NA	6/19/2015
B15061723-030A	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-030A	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Alkalinity		NA	6/24/2015
B15061723-030A	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/24/2015
B15061723-030A	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Nitrogen, Nitrite		NA	6/18/2015
B15061723-030B	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/22/2015
B15061723-030C	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Nitrogen, Ammonia		NA	6/19/2015
B15061723-030C	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Nitrogen, Nitrate		NA	6/23/2015
B15061723-030C	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061723-030D	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Sulfide, Methylene Blue Colorimetric		NA	6/19/2015
B15061723-030E	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		06/30/2015 MA-EPH [90895]	6/30/2015
B15061723-030E	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		06/30/2015 MA-EPH [90895]	7/4/2015
B15061723-030E	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/23/2015 SW8015M [90718]	6/25/2015
B15061723-030E	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-030E	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Low Level PAH		06/23/2015 SW8270C [90926]	7/1/2015
B15061723-030F	EX-35_061715	6/17/2015 11:20:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-001
Client Sample ID: TB1_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 13:09 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 13:09 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 13:09 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 13:09 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 13:09 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 13:09 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 13:09 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 13:09 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 13:09 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 13:09 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 13:09 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 13:09 / pbf
Surr: VPH Aromatics Surrogate	95.0	%REC		70-130		MA-VPH	06/19/15 13:09 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/19/15 13:09 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 10:15
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-002
Client Sample ID: LS-6_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	06/22/15 11:00 / bas
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	06/19/15 14:56 / cal
Nitrogen, Total	ND	mg/L		0.5		Calculation	06/23/15 08:19 / jpv
Phosphorus, Total as P	0.030	mg/L		0.005		E365.1	06/19/15 16:07 / gap
METALS, TOTAL							
Potassium	3	mg/L		1		E200.7	06/22/15 22:01 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 23:16 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 23:16 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 23:16 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 23:16 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 23:16 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 23:16 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 23:16 / pbf
Naphthalene	ND	ug/L	D	2.5	100	MA-VPH	06/19/15 23:16 / pbf
C9 to C10 Aromatics	58	ug/L		20	1000	MA-VPH	06/19/15 23:16 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 23:16 / pbf
C9 to C12 Aliphatics	33	ug/L		20	1000	MA-VPH	06/19/15 23:16 / pbf
Total Purgeable Hydrocarbons	160	ug/L		20	1000	MA-VPH	06/19/15 23:16 / pbf
Surr: VPH Aromatics Surrogate	92.0	%REC		70-130		MA-VPH	06/19/15 23:16 / pbf
Surr: VPH Aliphatics Surrogate	97.0	%REC		70-130		MA-VPH	06/19/15 23:16 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	4730	ug/L	*	300	1000	SW8015M	06/21/15 07:39 / amn
Surr: o-Terphenyl	80.0	%REC		40-140		SW8015M	06/21/15 07:39 / amn

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 05:54 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 05:54 / cmb
Surr: 1-Chloro-octadecane	76.0	%REC		40-140		MA-EPH	06/30/15 05:54 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 04:57 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 04:57 / mdw
Surr: 2-Bromonaphthalene	65.0	%REC		40-140		MA-EPH	07/04/15 04:57 / mdw
Surr: 2-Fluorobiphenyl	83.0	%REC		40-140		MA-EPH	07/04/15 04:57 / mdw
Surr: o-Terphenyl	79.0	%REC		40-140		MA-EPH	07/04/15 04:57 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 10:15
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-002
Client Sample ID: LS-6_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	06/30/15 13:04 / jjb
Acenaphthene	1.1	ug/L		0.19	670	SW8270C	06/30/15 13:04 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	06/30/15 13:04 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	06/30/15 13:04 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	06/30/15 13:04 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	06/30/15 13:04 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	06/30/15 13:04 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	06/30/15 13:04 / jjb
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	06/30/15 13:04 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	06/30/15 13:04 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	06/30/15 13:04 / jjb
Fluoranthene	0.38	ug/L		0.19	130	SW8270C	06/30/15 13:04 / jjb
Fluorene	1.3	ug/L		0.19	1100	SW8270C	06/30/15 13:04 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	06/30/15 13:04 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	06/30/15 13:04 / jjb
Phenanthrene	0.29	ug/L		0.19		SW8270C	06/30/15 13:04 / jjb
Pyrene	0.37	ug/L		0.19	830	SW8270C	06/30/15 13:04 / jjb
Surr: 2-Fluorobiphenyl	77.0	%REC		40-140		SW8270C	06/30/15 12:34 / jjb
Surr: o-Terphenyl	70.0	%REC		40-140		SW8270C	06/30/15 12:34 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 11:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-003
Client Sample ID: L-88-9_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 17:39 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 17:39 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 17:39 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 17:39 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 17:39 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 17:39 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 17:39 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 17:39 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 17:39 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 17:39 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 17:39 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 17:39 / pbf
Surr: VPH Aromatics Surrogate	81.0	%REC		70-130		MA-VPH	06/19/15 17:39 / pbf
Surr: VPH Aliphatics Surrogate	86.0	%REC		70-130		MA-VPH	06/19/15 17:39 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/21/15 06:15 / amn
Surr: o-Terphenyl	82.0	%REC		40-140		SW8015M	06/21/15 06:15 / amn

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-004
Client Sample ID: EX-3_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 12:25
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 18:13 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 18:13 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 18:13 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 18:13 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 18:13 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 18:13 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 18:13 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 18:13 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 18:13 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 18:13 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 18:13 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 18:13 / pbf
Surr: VPH Aromatics Surrogate	90.0	%REC		70-130		MA-VPH	06/19/15 18:13 / pbf
Surr: VPH Aliphatics Surrogate	92.0	%REC		70-130		MA-VPH	06/19/15 18:13 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/21/15 05:32 / amn
Surr: o-Terphenyl	75.0	%REC		40-140		SW8015M	06/21/15 05:32 / amn

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-005
Client Sample ID: TB1_061715

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 13:43 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 13:43 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 13:43 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 13:43 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 13:43 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 13:43 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 13:43 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 13:43 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 13:43 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 13:43 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 13:43 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 13:43 / pbf
Surr: VPH Aromatics Surrogate	97.0	%REC		70-130		MA-VPH	06/19/15 13:43 / pbf
Surr: VPH Aliphatics Surrogate	100	%REC		70-130		MA-VPH	06/19/15 13:43 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 08:00
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-006
Client Sample ID: D1_061715

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
INORGANICS							
Alkalinity, Total as CaCO3	263	mg/L		4		A2320 B	06/24/15 00:21 / ajr
Sulfate	48	mg/L		1		E300.0	06/23/15 22:01 / rbf
Sulfide	ND	mg/L		0.04		A4500-S D	06/19/15 11:48 / cnm
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/19/15 12:08 / bas
Nitrogen, Nitrite as N	ND	mg/L		0.01		E353.2	06/18/15 14:34 / bas
Nitrogen, Nitrate as N	0.82	mg/L		0.01		Calculation	06/23/15 08:19 / jpv
Nitrogen, Nitrate+Nitrite as N	0.82	mg/L		0.01		E353.2	06/22/15 11:02 / bas
METALS, DISSOLVED							
Iron	ND	mg/L		0.03		SW6010B	06/23/15 12:11 / prw
Manganese	0.004	mg/L		0.001		SW6010B	06/23/15 12:11 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 18:47 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 18:47 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 18:47 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 18:47 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 18:47 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 18:47 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 18:47 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 18:47 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 18:47 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 18:47 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 18:47 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 18:47 / pbf
Surr: VPH Aromatics Surrogate	94.0	%REC		70-130		MA-VPH	06/19/15 18:47 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/19/15 18:47 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/21/15 06:57 / amn
Surr: o-Terphenyl	71.0	%REC		40-140		SW8015M	06/21/15 06:57 / amn

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-007
Client Sample ID: EX-17_061715

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 09:35
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
INORGANICS							
Alkalinity, Total as CaCO3	264	mg/L		4		A2320 B	06/24/15 00:28 / ajr
Sulfate	47	mg/L		1		E300.0	06/23/15 22:42 / rbf
Sulfide	ND	mg/L		0.04		A4500-S D	06/19/15 11:48 / cnm
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/19/15 12:09 / bas
Nitrogen, Nitrite as N	ND	mg/L		0.01		E353.2	06/18/15 14:35 / bas
Nitrogen, Nitrate as N	0.76	mg/L		0.01		Calculation	06/23/15 08:19 / jpv
Nitrogen, Nitrate+Nitrite as N	0.76	mg/L		0.01		E353.2	06/22/15 11:03 / bas
METALS, DISSOLVED							
Iron	ND	mg/L		0.03		SW6010B	06/22/15 13:05 / prw
Manganese	0.100	mg/L		0.001		SW6010B	06/22/15 13:05 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 19:21 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 19:21 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 19:21 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 19:21 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 19:21 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 19:21 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 19:21 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 19:21 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 19:21 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 19:21 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 19:21 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 19:21 / pbf
Surr: VPH Aromatics Surrogate	90.0	%REC		70-130		MA-VPH	06/19/15 19:21 / pbf
Surr: VPH Aliphatics Surrogate	94.0	%REC		70-130		MA-VPH	06/19/15 19:21 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	317	ug/L		300	1000	SW8015M	06/21/15 09:04 / amn
Surr: o-Terphenyl	79.0	%REC		40-140		SW8015M	06/21/15 09:04 / amn

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-008
Client Sample ID: EX-16_061715

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 11:30
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
INORGANICS							
Alkalinity, Total as CaCO3	264	mg/L		4		A2320 B	06/24/15 00:43 / ajr
Sulfate	48	mg/L		1		E300.0	06/23/15 22:55 / rbf
Sulfide	ND	mg/L		0.04		A4500-S D	06/19/15 11:48 / cnm
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/19/15 13:42 / bas
Nitrogen, Nitrite as N	ND	mg/L		0.01		E353.2	06/18/15 14:37 / bas
Nitrogen, Nitrate as N	0.82	mg/L		0.01		Calculation	06/23/15 08:19 / jpv
Nitrogen, Nitrate+Nitrite as N	0.82	mg/L		0.01		E353.2	06/22/15 11:04 / bas
METALS, DISSOLVED							
Iron	ND	mg/L		0.03		SW6010B	06/22/15 13:19 / prw
Manganese	0.005	mg/L		0.001		SW6010B	06/22/15 13:19 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 19:55 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 19:55 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 19:55 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 19:55 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 19:55 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 19:55 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 19:55 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 19:55 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 19:55 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 19:55 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 19:55 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 19:55 / pbf
Surr: VPH Aromatics Surrogate	95.0	%REC		70-130		MA-VPH	06/19/15 19:55 / pbf
Surr: VPH Aliphatics Surrogate	99.0	%REC		70-130		MA-VPH	06/19/15 19:55 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/21/15 10:30 / amn
Surr: o-Terphenyl	76.0	%REC		40-140		SW8015M	06/21/15 10:30 / amn

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-009
Client Sample ID: RX_061715

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 10:30
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 21:01 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 21:01 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 21:01 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 21:01 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 21:01 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 21:01 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 21:01 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 21:01 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 21:01 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 21:01 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 21:01 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 21:01 / pbf
Surr: VPH Aromatics Surrogate	91.0	%REC		70-130		MA-VPH	06/19/15 21:01 / pbf
Surr: VPH Aliphatics Surrogate	95.0	%REC		70-130		MA-VPH	06/19/15 21:01 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/24/15 13:31 / cmb
Surr: o-Terphenyl	82.0	%REC		40-140		SW8015M	06/24/15 13:31 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-010
Client Sample ID: TB5_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/19/15 14:17 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/19/15 14:17 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/19/15 14:17 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/19/15 14:17 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/19/15 14:17 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/19/15 14:17 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/19/15 14:17 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/19/15 14:17 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/19/15 14:17 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/19/15 14:17 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/19/15 14:17 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/19/15 14:17 / pbf
Surr: VPH Aromatics Surrogate	94.0	%REC		70-130		MA-VPH	06/19/15 14:17 / pbf
Surr: VPH Aliphatics Surrogate	97.0	%REC		70-130		MA-VPH	06/19/15 14:17 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-011
Client Sample ID: D1_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 03:05 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 03:05 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 03:05 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 03:05 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 03:05 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 03:05 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 03:05 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 03:05 / pbf
C9 to C10 Aromatics	46	ug/L		20	1000	MA-VPH	06/23/15 03:05 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 03:05 / pbf
C9 to C12 Aliphatics	54	ug/L		20	1000	MA-VPH	06/23/15 03:05 / pbf
Total Purgeable Hydrocarbons	176	ug/L		20	1000	MA-VPH	06/23/15 03:05 / pbf
Surr: VPH Aromatics Surrogate	93.0	%REC		70-130		MA-VPH	06/23/15 03:05 / pbf
Surr: VPH Aliphatics Surrogate	93.0	%REC		70-130		MA-VPH	06/23/15 03:05 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	6220	ug/L	*	300	1000	SW8015M	06/24/15 14:14 / cmb
Surr: o-Terphenyl	54.0	%REC		40-140		SW8015M	06/24/15 14:14 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 08:03 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 08:03 / cmb
Surr: 1-Chloro-octadecane	42.0	%REC		40-140		MA-EPH	06/30/15 08:03 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 05:40 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 05:40 / mdw
Surr: 2-Bromonaphthalene	76.0	%REC		40-140		MA-EPH	07/04/15 05:40 / mdw
Surr: 2-Fluorobiphenyl	96.0	%REC		40-140		MA-EPH	07/04/15 05:40 / mdw
Surr: o-Terphenyl	68.0	%REC		40-140		MA-EPH	07/04/15 05:40 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 12:16 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/01/15 12:16 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 12:16 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 12:16 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 12:16 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 12:16 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 12:16 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 12:16 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-011
Client Sample ID: D1_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 12:16 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 12:16 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 12:16 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 12:16 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/01/15 12:16 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 12:16 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/01/15 12:16 / jjb
Phenanthrene	0.21	ug/L	B	0.19		SW8270C	07/01/15 12:16 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 12:16 / jjb
Surr: 2-Fluorobiphenyl	93.0	%REC		40-140		SW8270C	06/30/15 16:40 / jjb
Surr: o-Terphenyl	64.0	%REC		40-140		SW8270C	06/30/15 16:40 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 14:55
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-012
Client Sample ID: EX-51_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 17:59 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 17:59 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 17:59 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 17:59 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 17:59 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 17:59 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 17:59 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 17:59 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 17:59 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 17:59 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 17:59 / pbf
Total Purgeable Hydrocarbons	17	ug/L	J	20	1000	MA-VPH	06/22/15 17:59 / pbf
Surr: VPH Aromatics Surrogate	94.0	%REC		70-130		MA-VPH	06/22/15 17:59 / pbf
Surr: VPH Aliphatics Surrogate	95.0	%REC		70-130		MA-VPH	06/22/15 17:59 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	1550	ug/L	*	300	1000	SW8015M	06/24/15 16:22 / cmb
Surr: o-Terphenyl	64.0	%REC		40-140		SW8015M	06/24/15 16:22 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/29/15 23:31 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/29/15 23:31 / cmb
Surr: 1-Chloro-octadecane	91.0	%REC		40-140		MA-EPH	06/29/15 23:31 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 06:23 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 06:23 / mdw
Surr: 2-Bromonaphthalene	77.0	%REC		40-140		MA-EPH	07/04/15 06:23 / mdw
Surr: 2-Fluorobiphenyl	107	%REC		40-140		MA-EPH	07/04/15 06:23 / mdw
Surr: o-Terphenyl	85.0	%REC		40-140		MA-EPH	07/04/15 06:23 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 12:46 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/01/15 12:46 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 12:46 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 12:46 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 12:46 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 12:46 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 12:46 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 12:46 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-012
Client Sample ID: EX-51_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 14:55
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 12:46 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 12:46 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 12:46 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 12:46 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/01/15 12:46 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 12:46 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/01/15 12:46 / jjb
Phenanthrene	0.23	ug/L	B	0.19		SW8270C	07/01/15 12:46 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 12:46 / jjb
Surr: 2-Fluorobiphenyl	92.0	%REC		40-140		SW8270C	06/30/15 17:42 / jjb
Surr: o-Terphenyl	70.0	%REC		40-140		SW8270C	06/30/15 17:42 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 13:40
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-013
Client Sample ID: EX-59_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 18:34 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 18:34 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 18:34 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 18:34 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 18:34 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 18:34 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 18:34 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 18:34 / pbf
C9 to C10 Aromatics	45	ug/L		20	1000	MA-VPH	06/22/15 18:34 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 18:34 / pbf
C9 to C12 Aliphatics	57	ug/L		20	1000	MA-VPH	06/22/15 18:34 / pbf
Total Purgeable Hydrocarbons	178	ug/L		20	1000	MA-VPH	06/22/15 18:34 / pbf
Surr: VPH Aromatics Surrogate	94.0	%REC		70-130		MA-VPH	06/22/15 18:34 / pbf
Surr: VPH Aliphatics Surrogate	93.0	%REC		70-130		MA-VPH	06/22/15 18:34 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	6350	ug/L	*	300	1000	SW8015M	06/24/15 15:39 / cmb
Surr: o-Terphenyl	55.0	%REC		40-140		SW8015M	06/24/15 15:39 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 09:28 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 09:28 / cmb
Surr: 1-Chloro-octadecane	39.0	%REC	S	40-140		MA-EPH	06/30/15 09:28 / cmb
- S=Surrogate recovery outside QC advisory limits. The sample contained a layer of sediment that may have strongly adsorbed the surrogate and/or reduced extraction efficiency.							
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 07:05 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 07:05 / mdw
Surr: 2-Bromonaphthalene	73.0	%REC		40-140		MA-EPH	07/04/15 07:05 / mdw
Surr: 2-Fluorobiphenyl	95.0	%REC		40-140		MA-EPH	07/04/15 07:05 / mdw
Surr: o-Terphenyl	61.0	%REC		40-140		MA-EPH	07/04/15 07:05 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 13:17 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/01/15 13:17 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 13:17 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 13:17 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 13:17 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 13:17 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 13:40
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-013
Client Sample ID: EX-59_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 13:17 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 13:17 / jjb
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 13:17 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 13:17 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 13:17 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 13:17 / jjb
Fluorene	0.21	ug/L		0.19	1100	SW8270C	07/01/15 13:17 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 13:17 / jjb
Naphthalene	0.25	ug/L		0.19	100	SW8270C	07/01/15 13:17 / jjb
Phenanthrene	0.23	ug/L	B	0.19		SW8270C	07/01/15 13:17 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 13:17 / jjb
Surr: 2-Fluorobiphenyl	94.0	%REC		40-140		SW8270C	06/30/15 18:43 / jjb
Surr: o-Terphenyl	55.0	%REC		40-140		SW8270C	06/30/15 18:43 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-014
Client Sample ID: TB2_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 12:43 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 12:43 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 12:43 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 12:43 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 12:43 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 12:43 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 12:43 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 12:43 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 12:43 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 12:43 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 12:43 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 12:43 / pbf
Surr: VPH Aromatics Surrogate	93.0	%REC		70-130		MA-VPH	06/22/15 12:43 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/22/15 12:43 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:40
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-015
Client Sample ID: RX-061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 19:08 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 19:08 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 19:08 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 19:08 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 19:08 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 19:08 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 19:08 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 19:08 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 19:08 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 19:08 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 19:08 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 19:08 / pbf
Surr: VPH Aromatics Surrogate	91.0	%REC		70-130		MA-VPH	06/22/15 19:08 / pbf
Surr: VPH Aliphatics Surrogate	95.0	%REC		70-130		MA-VPH	06/22/15 19:08 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/24/15 17:05 / cmb
Surr: o-Terphenyl	85.0	%REC		40-140		SW8015M	06/24/15 17:05 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 09:35
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-016
Client Sample ID: EX-11_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 19:42 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 19:42 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 19:42 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 19:42 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 19:42 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 19:42 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 19:42 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 19:42 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 19:42 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 19:42 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 19:42 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 19:42 / pbf
Surr: VPH Aromatics Surrogate	90.0	%REC		70-130		MA-VPH	06/22/15 19:42 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/22/15 19:42 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	793	ug/L		300	1000	SW8015M	06/25/15 01:38 / cmb
Surr: o-Terphenyl	85.0	%REC		40-140		SW8015M	06/25/15 01:38 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 10:40
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-017
Client Sample ID: HRO-13_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 04:13 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 04:13 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 04:13 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 04:13 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 04:13 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 04:13 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 04:13 / pbf
Naphthalene	ND	ug/L	D	2.0	100	MA-VPH	06/23/15 04:13 / pbf
C9 to C10 Aromatics	19	ug/L	J	20	1000	MA-VPH	06/23/15 04:13 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 04:13 / pbf
C9 to C12 Aliphatics	17	ug/L	J	20	1000	MA-VPH	06/23/15 04:13 / pbf
Total Purgeable Hydrocarbons	112	ug/L		20	1000	MA-VPH	06/23/15 04:13 / pbf
Surr: VPH Aromatics Surrogate	92.0	%REC		70-130		MA-VPH	06/23/15 04:13 / pbf
Surr: VPH Aliphatics Surrogate	93.0	%REC		70-130		MA-VPH	06/23/15 04:13 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	4450	ug/L	*	300	1000	SW8015M	06/24/15 22:47 / cmb
Surr: o-Terphenyl	78.0	%REC		40-140		SW8015M	06/24/15 22:47 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 15:28 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 15:28 / cmb
Surr: 1-Chloro-octadecane	72.0	%REC		40-140		MA-EPH	06/30/15 15:28 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 07:48 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 07:48 / mdw
Surr: 2-Bromonaphthalene	72.0	%REC		40-140		MA-EPH	07/04/15 07:48 / mdw
Surr: 2-Fluorobiphenyl	90.0	%REC		40-140		MA-EPH	07/04/15 07:48 / mdw
Surr: o-Terphenyl	79.0	%REC		40-140		MA-EPH	07/04/15 07:48 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 13:48 / jjb
Acenaphthene	0.64	ug/L		0.19	670	SW8270C	07/01/15 13:48 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 13:48 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 13:48 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 13:48 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 13:48 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 13:48 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 13:48 / jjb

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-017
Client Sample ID: HRO-13_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 10:40
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 13:48 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 13:48 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 13:48 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 13:48 / jjb
Fluorene	0.51	ug/L		0.19	1100	SW8270C	07/01/15 13:48 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 13:48 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/01/15 13:48 / jjb
Phenanthrene	ND	ug/L		0.19		SW8270C	07/01/15 13:48 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 13:48 / jjb
Surr: 2-Fluorobiphenyl	81.0	%REC		40-140		SW8270C	06/30/15 19:45 / jjb
Surr: o-Terphenyl	67.0	%REC		40-140		SW8270C	06/30/15 19:45 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 11:50
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-018
Client Sample ID: L-87-6_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 20:16 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 20:16 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 20:16 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 20:16 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 20:16 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 20:16 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 20:16 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 20:16 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 20:16 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 20:16 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 20:16 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 20:16 / pbf
Surr: VPH Aromatics Surrogate	95.0	%REC		70-130		MA-VPH	06/22/15 20:16 / pbf
Surr: VPH Aliphatics Surrogate	95.0	%REC		70-130		MA-VPH	06/22/15 20:16 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	1050	ug/L	*	300	1000	SW8015M	06/24/15 23:30 / cmb
Surr: o-Terphenyl	71.0	%REC		40-140		SW8015M	06/24/15 23:30 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/29/15 22:06 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/29/15 22:06 / cmb
Surr: 1-Chloro-octadecane	53.0	%REC		40-140		MA-EPH	06/29/15 22:06 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	06/29/15 22:49 / cmb
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	06/29/15 22:49 / cmb
Surr: 2-Bromonaphthalene	77.0	%REC		40-140		MA-EPH	06/29/15 22:49 / cmb
Surr: 2-Fluorobiphenyl	94.0	%REC		40-140		MA-EPH	06/29/15 22:49 / cmb
Surr: o-Terphenyl	69.0	%REC		40-140		MA-EPH	06/29/15 22:49 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 14:18 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/01/15 14:18 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 14:18 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 14:18 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 14:18 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 14:18 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 14:18 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 14:18 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-018
Client Sample ID: L-87-6_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 11:50
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 14:18 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 14:18 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 14:18 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 14:18 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/01/15 14:18 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 14:18 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/01/15 14:18 / jjb
Phenanthrene	0.21	ug/L	B	0.19		SW8270C	07/01/15 14:18 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 14:18 / jjb
Surr: 2-Fluorobiphenyl	94.0	%REC		40-140		SW8270C	06/30/15 20:47 / jjb
Surr: o-Terphenyl	67.0	%REC		40-140		SW8270C	06/30/15 20:47 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-019
Client Sample ID: TB4_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 13:17 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 13:17 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 13:17 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 13:17 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 13:17 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 13:17 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 13:17 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 13:17 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 13:17 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 13:17 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 13:17 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 13:17 / pbf
Surr: VPH Aromatics Surrogate	95.0	%REC		70-130		MA-VPH	06/22/15 13:17 / pbf
Surr: VPH Aliphatics Surrogate	101	%REC		70-130		MA-VPH	06/22/15 13:17 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-020
Client Sample ID: EX-1_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 13:10
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 20:50 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 20:50 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 20:50 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 20:50 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 20:50 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 20:50 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 20:50 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 20:50 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 20:50 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 20:50 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 20:50 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 20:50 / pbf
Surr: VPH Aromatics Surrogate	91.0	%REC		70-130		MA-VPH	06/22/15 20:50 / pbf
Surr: VPH Aliphatics Surrogate	94.0	%REC		70-130		MA-VPH	06/22/15 20:50 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/24/15 18:31 / cmb
Surr: o-Terphenyl	80.0	%REC		40-140		SW8015M	06/24/15 18:31 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 14:15
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-021
Client Sample ID: LS-10_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 21:25 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 21:25 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 21:25 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 21:25 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 21:25 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 21:25 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 21:25 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 21:25 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 21:25 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 21:25 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 21:25 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 21:25 / pbf
Surr: VPH Aromatics Surrogate	89.0	%REC		70-130		MA-VPH	06/22/15 21:25 / pbf
Surr: VPH Aliphatics Surrogate	93.0	%REC		70-130		MA-VPH	06/22/15 21:25 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/24/15 19:13 / cmb
Surr: o-Terphenyl	82.0	%REC		40-140		SW8015M	06/24/15 19:13 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 15:30
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-022
Client Sample ID: EX-54_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 21:59 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 21:59 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 21:59 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 21:59 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 21:59 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 21:59 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 21:59 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 21:59 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 21:59 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 21:59 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 21:59 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 21:59 / pbf
Surr: VPH Aromatics Surrogate	89.0	%REC		70-130		MA-VPH	06/22/15 21:59 / pbf
Surr: VPH Aliphatics Surrogate	92.0	%REC		70-130		MA-VPH	06/22/15 21:59 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/24/15 20:39 / cmb
Surr: o-Terphenyl	79.0	%REC		40-140		SW8015M	06/24/15 20:39 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-023
Client Sample ID: EX-24_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 18:20
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 17:29 / msk
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 17:29 / msk
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Tetrachloroethene	0.55	ug/L		0.50		SW8260B	06/22/15 17:02 / sbd
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 18:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-023
Client Sample ID: EX-24_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.23	ug/L	J	0.50		SW8260B	06/18/15 17:29 / msk
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 17:29 / msk
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 17:29 / msk
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/18/15 17:29 / msk
Surr: 1,2-Dichloroethane-d4	92.0	%REC		70-130		SW8260B	06/18/15 17:29 / msk
Surr: Toluene-d8	108	%REC		79-122		SW8260B	06/18/15 17:29 / msk
Surr: p-Bromofluorobenzene	96.0	%REC		76-127		SW8260B	06/18/15 17:29 / msk
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 22:33 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 22:33 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 22:33 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 22:33 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 22:33 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 22:33 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 22:33 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 22:33 / pbf
C9 to C10 Aromatics	17	ug/L	J	20	1000	MA-VPH	06/22/15 22:33 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 22:33 / pbf
C9 to C12 Aliphatics	15	ug/L	J	20	1000	MA-VPH	06/22/15 22:33 / pbf
Total Purgeable Hydrocarbons	58	ug/L		20	1000	MA-VPH	06/22/15 22:33 / pbf
Surr: VPH Aromatics Surrogate	91.0	%REC		70-130		MA-VPH	06/22/15 22:33 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/22/15 22:33 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	3480	ug/L	*	300	1000	SW8015M	06/24/15 21:21 / cmb
Surr: o-Terphenyl	72.0	%REC		40-140		SW8015M	06/24/15 21:21 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/03/15 14:57 / mdw
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/03/15 14:57 / mdw
Surr: 1-Chloro-octadecane	76.0	%REC		40-140		MA-EPH	07/03/15 14:57 / mdw
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/03/15 15:39 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/03/15 15:39 / mdw
Surr: 2-Bromonaphthalene	69.0	%REC		40-140		MA-EPH	07/03/15 15:39 / mdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 18:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-023
Client Sample ID: EX-24_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
Surr: 2-Fluorobiphenyl	85.0	%REC		40-140		MA-EPH	07/03/15 15:39 / mdw
Surr: o-Terphenyl	85.0	%REC		40-140		MA-EPH	07/03/15 15:39 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.

SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)

2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 14:49 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/01/15 14:49 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 14:49 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 14:49 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 14:49 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 14:49 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 14:49 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 14:49 / jjb
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 14:49 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 14:49 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 14:49 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 14:49 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/01/15 14:49 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 14:49 / jjb
Naphthalene	0.21	ug/L		0.19	100	SW8270C	07/01/15 14:49 / jjb
Phenanthrene	0.24	ug/L	B	0.19		SW8270C	07/01/15 14:49 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 14:49 / jjb
Surr: 2-Fluorobiphenyl	80.0	%REC		40-140		SW8270C	06/30/15 23:41 / jjb
Surr: o-Terphenyl	76.0	%REC		40-140		SW8270C	06/30/15 23:41 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-024
Client Sample ID: TB6_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 16:36 / msk
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 16:36 / msk
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-024
Client Sample ID: TB6_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 16:36 / msk
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 16:36 / msk
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 16:36 / msk
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/18/15 16:36 / msk
Surr: Toluene-d8	105	%REC		79-122		SW8260B	06/18/15 16:36 / msk
Surr: p-Bromofluorobenzene	94.0	%REC		76-127		SW8260B	06/18/15 16:36 / msk

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-025
Client Sample ID: TB3_061615

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 08:00
DateReceived: 06/18/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 13:51 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 13:51 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 13:51 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 13:51 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 13:51 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 13:51 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 13:51 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 13:51 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 13:51 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 13:51 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 13:51 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 13:51 / pbf
Surr: VPH Aromatics Surrogate	93.0	%REC		70-130		MA-VPH	06/22/15 13:51 / pbf
Surr: VPH Aliphatics Surrogate	97.0	%REC		70-130		MA-VPH	06/22/15 13:51 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 17:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-026
Client Sample ID: EX-63_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 23:41 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 23:41 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 23:41 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 23:41 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 23:41 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 23:41 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 23:41 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 23:41 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 23:41 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 23:41 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 23:41 / pbf
Total Purgeable Hydrocarbons	24	ug/L		20	1000	MA-VPH	06/22/15 23:41 / pbf
Surr: VPH Aromatics Surrogate	79.0	%REC		70-130		MA-VPH	06/22/15 23:41 / pbf
Surr: VPH Aliphatics Surrogate	80.0	%REC		70-130		MA-VPH	06/22/15 23:41 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	2890	ug/L	*	300	1000	SW8015M	06/25/15 06:40 / cmb
Surr: o-Terphenyl	76.0	%REC		40-140		SW8015M	06/25/15 06:40 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 16:11 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 16:11 / cmb
Surr: 1-Chloro-octadecane	64.0	%REC		40-140		MA-EPH	06/30/15 16:11 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 08:31 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 08:31 / mdw
Surr: 2-Bromonaphthalene	84.0	%REC		40-140		MA-EPH	07/04/15 08:31 / mdw
Surr: 2-Fluorobiphenyl	86.0	%REC		40-140		MA-EPH	07/04/15 08:31 / mdw
Surr: o-Terphenyl	78.0	%REC		40-140		MA-EPH	07/04/15 08:31 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 15:19 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/01/15 15:19 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 15:19 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 15:19 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 15:19 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 15:19 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 15:19 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 15:19 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/16/15 17:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-026
Client Sample ID: EX-63_061615

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 15:19 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 15:19 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 15:19 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 15:19 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/01/15 15:19 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 15:19 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/01/15 15:19 / jjb
Phenanthrene	0.22	ug/L	B	0.19		SW8270C	07/01/15 15:19 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 15:19 / jjb
Surr: 2-Fluorobiphenyl	75.0	%REC		40-140		SW8270C	07/01/15 02:46 / jjb
Surr: o-Terphenyl	66.0	%REC		40-140		SW8270C	07/01/15 02:46 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 08:00
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-027
Client Sample ID: D3_061715

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
INORGANICS							
Alkalinity, Total as CaCO3	336	mg/L		4		A2320 B	06/24/15 00:50 / ajr
Sulfate	35	mg/L	D	2		E300.0	06/23/15 23:09 / rbf
Sulfide	ND	mg/L		0.04		A4500-S D	06/19/15 11:48 / cnm
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/19/15 12:16 / bas
Nitrogen, Nitrite as N	ND	mg/L		0.01		E353.2	06/18/15 14:38 / bas
Nitrogen, Nitrate as N	ND	mg/L		0.01		Calculation	06/23/15 08:19 / jpv
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	06/22/15 11:05 / bas
METALS, DISSOLVED							
Iron	0.69	mg/L		0.03		SW6010B	06/22/15 13:22 / prw
Manganese	0.849	mg/L		0.001		SW6010B	06/22/15 13:22 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 00:49 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 00:49 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 00:49 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 00:49 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 00:49 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 00:49 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 00:49 / pbf
Naphthalene	ND	ug/L	D	1.5	100	MA-VPH	06/23/15 00:49 / pbf
C9 to C10 Aromatics	25	ug/L		20	1000	MA-VPH	06/23/15 00:49 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 00:49 / pbf
C9 to C12 Aliphatics	22	ug/L		20	1000	MA-VPH	06/23/15 00:49 / pbf
Total Purgeable Hydrocarbons	92	ug/L		20	1000	MA-VPH	06/23/15 00:49 / pbf
Surr: VPH Aromatics Surrogate	82.0	%REC		70-130		MA-VPH	06/23/15 00:49 / pbf
Surr: VPH Aliphatics Surrogate	87.0	%REC		70-130		MA-VPH	06/23/15 00:49 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	4250	ug/L	*	300	1000	SW8015M	06/25/15 07:24 / cmb
Surr: o-Terphenyl	78.0	%REC		40-140		SW8015M	06/25/15 07:24 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 19:46 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 19:46 / cmb
Surr: 1-Chloro-octadecane	64.0	%REC		40-140		MA-EPH	06/30/15 19:46 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 02:16 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 02:16 / mdw
Surr: 2-Bromonaphthalene	91.0	%REC		40-140		MA-EPH	07/04/15 02:16 / mdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-027
Client Sample ID: D3_061715

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 08:00
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
Surr: 2-Fluorobiphenyl	100	%REC		40-140		MA-EPH	07/04/15 02:16 / mdw
Surr: o-Terphenyl	80.0	%REC		40-140		MA-EPH	07/04/15 02:16 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.

SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)

2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/01/15 15:50 / jjb
Acenaphthene	0.66	ug/L		0.19	670	SW8270C	07/01/15 15:50 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 15:50 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 15:50 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 15:50 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 15:50 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 15:50 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 15:50 / jjb
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 15:50 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 15:50 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 15:50 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 15:50 / jjb
Fluorene	0.92	ug/L		0.19	1100	SW8270C	07/01/15 15:50 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 15:50 / jjb
Naphthalene	0.31	ug/L		0.19	100	SW8270C	07/01/15 15:50 / jjb
Phenanthrene	0.25	ug/L	B	0.19		SW8270C	07/01/15 15:50 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 15:50 / jjb
Surr: 2-Fluorobiphenyl	83.0	%REC		40-140		SW8270C	07/01/15 03:47 / jjb
Surr: o-Terphenyl	67.0	%REC		40-140		SW8270C	07/01/15 03:47 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 08:00
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-028
Client Sample ID: TB3_061715

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 14:25 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 14:25 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 14:25 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 14:25 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 14:25 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 14:25 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 14:25 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 14:25 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 14:25 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 14:25 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 14:25 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 14:25 / pbf
Surr: VPH Aromatics Surrogate	94.0	%REC		70-130		MA-VPH	06/22/15 14:25 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/22/15 14:25 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-029
Client Sample ID: EX-42_061715

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 09:25
DateReceived: 06/18/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
INORGANICS							
Alkalinity, Total as CaCO3	260	mg/L		4		A2320 B	06/24/15 00:57 / ajr
Sulfate	46	mg/L		1		E300.0	06/23/15 23:49 / rbf
Sulfide	ND	mg/L		0.04		A4500-S D	06/19/15 11:48 / cnm
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/19/15 12:17 / bas
Nitrogen, Nitrite as N	ND	mg/L		0.01		E353.2	06/18/15 14:39 / bas
Nitrogen, Nitrate as N	0.78	mg/L		0.01		Calculation	06/23/15 08:19 / jpv
Nitrogen, Nitrate+Nitrite as N	0.78	mg/L		0.01		E353.2	06/22/15 11:09 / bas
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	06/19/15 14:57 / cal
Nitrogen, Total	0.8	mg/L		0.5		Calculation	06/23/15 08:19 / jpv
Phosphorus, Total as P	0.014	mg/L		0.005		E365.1	06/19/15 16:08 / gap
METALS, DISSOLVED							
Iron	ND	mg/L		0.03		SW6010B	06/22/15 13:26 / prw
Manganese	ND	mg/L		0.001		SW6010B	06/22/15 13:26 / prw
METALS, TOTAL							
Potassium	2	mg/L		1		E200.7	06/22/15 22:04 / prw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 11:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-030
Client Sample ID: EX-35_061715

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
INORGANICS							
Alkalinity, Total as CaCO3	337	mg/L		4		A2320 B	06/24/15 01:04 / ajr
Sulfate	35	mg/L	D	2		E300.0	06/24/15 00:03 / rbf
Sulfide	ND	mg/L		0.04		A4500-S D	06/19/15 11:48 / cnm
NUTRIENTS							
Nitrogen, Ammonia as N	ND	mg/L		0.05		E350.1	06/19/15 12:18 / bas
Nitrogen, Nitrite as N	ND	mg/L		0.01		E353.2	06/18/15 14:40 / bas
Nitrogen, Nitrate as N	ND	mg/L		0.01		Calculation	06/23/15 08:19 / jpv
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	06/22/15 11:12 / bas
METALS, DISSOLVED							
Iron	0.74	mg/L		0.03		SW6010B	06/22/15 13:29 / prw
Manganese	0.883	mg/L		0.001		SW6010B	06/22/15 13:29 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 01:57 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 01:57 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 01:57 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 01:57 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 01:57 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 01:57 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 01:57 / pbf
Naphthalene	ND	ug/L	D	1.5	100	MA-VPH	06/23/15 01:57 / pbf
C9 to C10 Aromatics	26	ug/L		20	1000	MA-VPH	06/23/15 01:57 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 01:57 / pbf
C9 to C12 Aliphatics	24	ug/L		20	1000	MA-VPH	06/23/15 01:57 / pbf
Total Purgeable Hydrocarbons	97	ug/L		20	1000	MA-VPH	06/23/15 01:57 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/23/15 01:57 / pbf
Surr: VPH Aliphatics Surrogate	87.0	%REC		70-130		MA-VPH	06/23/15 01:57 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	3560	ug/L	*	300	1000	SW8015M	06/25/15 08:49 / cmb
Surr: o-Terphenyl	66.0	%REC		40-140		SW8015M	06/25/15 08:49 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 18:20 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	06/30/15 18:20 / cmb
Surr: 1-Chloro-octadecane	55.0	%REC		40-140		MA-EPH	06/30/15 18:20 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 09:13 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 09:13 / mdw
Surr: 2-Bromonaphthalene	94.0	%REC		40-140		MA-EPH	07/04/15 09:13 / mdw

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Collection Date: 06/17/15 11:20
DateReceived: 06/18/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15061723-030
Client Sample ID: EX-35_061715

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
Surr: 2-Fluorobiphenyl	99.0	%REC		40-140		MA-EPH	07/04/15 09:13 / mdw
Surr: o-Terphenyl	78.0	%REC		40-140		MA-EPH	07/04/15 09:13 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.

SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)

2-Methylnaphthalene	0.39	ug/L		0.19		SW8270C	07/01/15 16:21 / jjb
Acenaphthene	0.75	ug/L		0.19	670	SW8270C	07/01/15 16:21 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/01/15 16:21 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/01/15 16:21 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 16:21 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 16:21 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 16:21 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/01/15 16:21 / jjb
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/01/15 16:21 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/01/15 16:21 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/01/15 16:21 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/01/15 16:21 / jjb
Fluorene	0.93	ug/L		0.19	1100	SW8270C	07/01/15 16:21 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/01/15 16:21 / jjb
Naphthalene	1.1	ug/L		0.19	100	SW8270C	07/01/15 16:21 / jjb
Phenanthrene	0.26	ug/L	B	0.19		SW8270C	07/01/15 16:21 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/01/15 16:21 / jjb
Surr: 2-Fluorobiphenyl	85.0	%REC		40-140		SW8270C	07/01/15 04:48 / jjb
Surr: o-Terphenyl	66.0	%REC		40-140		SW8270C	07/01/15 04:48 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Batch: R244996
Lab ID: MBLK	Method Blank				Run: MAN-TECH_150623B				06/23/15 22:52
Alkalinity, Total as CaCO3	ND	mg/L	1.0						
Lab ID: LCS	Laboratory Control Sample				Run: MAN-TECH_150623B				06/23/15 22:59
Alkalinity, Total as CaCO3	102	mg/L	4.0	102	90	110			
Lab ID: B15061704-005AMS	Sample Matrix Spike				Run: MAN-TECH_150623B				06/23/15 23:25
Alkalinity, Total as CaCO3	211	mg/L	4.0	98	80	120			
Lab ID: B15061723-007ADUP	Sample Duplicate				Run: MAN-TECH_150623B				06/24/15 00:35
Alkalinity, Total as CaCO3	262	mg/L	4.0				0.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte		Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**A4500-S D**								Analytical Run: SPEC_150619D	
Lab ID:	**CCV**	Continuing Calibration Verification Standard							06/19/15 11:48	
Sulfide		0.518	mg/L	0.040	104	85	115			
Method:	**A4500-S D**								Batch: R244854	
Lab ID:	**MB-R244854**	Method Blank				Run: SPEC_150619D			06/19/15 11:48	
Sulfide		ND	mg/L	0.002						
Lab ID:	**LCS-R244854**	Laboratory Control Sample				Run: SPEC_150619D			06/19/15 11:48	
Sulfide		0.293	mg/L	0.040	119	70	130			
Lab ID:	**B15061478-001AMS**	Sample Matrix Spike				Run: SPEC_150619D			06/19/15 11:48	
Sulfide		0.329	mg/L	0.040	113	70	130			
Lab ID:	**B15061478-001AMSD**	Sample Matrix Spike Duplicate				Run: SPEC_150619D			06/19/15 11:48	
Sulfide		0.331	mg/L	0.040	114	70	130	0.8	20	
Lab ID:	**B15061723-029EMS**	Sample Matrix Spike				Run: SPEC_150619D			06/19/15 11:48	
Sulfide		0.293	mg/L	0.040	119	70	130			
Lab ID:	**B15061723-029EMSD**	Sample Matrix Spike Duplicate				Run: SPEC_150619D			06/19/15 11:48	
Sulfide		0.300	mg/L	0.040	122	70	130	2.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte		Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**						Analytical Run: IC METROHM 1_150623A			
Lab ID:	**ICV**	Initial Calibration Verification Standard								06/23/15 10:19
Sulfate		8.91	mg/L	1.0	99	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								06/24/15 21:38
Sulfate		8.90	mg/L	1.0	99	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard								06/25/15 00:47
Sulfate		8.81	mg/L	1.0	98	90	110			
Method:	**E300.0**									Batch: R244972
Lab ID:	**MB**	Method Blank				Run: IC METROHM 1_150623A				06/23/15 10:33
Sulfate		ND	mg/L	0.2						
Lab ID:	**LFB**	Laboratory Fortified Blank				Run: IC METROHM 1_150623A				06/23/15 10:46
Sulfate		9.07	mg/L	1.0	101	90	110			
Lab ID:	**B15061723-006AMS**	Sample Matrix Spike				Run: IC METROHM 1_150623A				06/23/15 22:15
Sulfate		88.8	mg/L	1.0	91	90	110			
Lab ID:	**B15061723-006AMSD**	Sample Matrix Spike Duplicate				Run: IC METROHM 1_150623A				06/23/15 22:28
Sulfate		87.9	mg/L	1.0	89	90	110	1.0	20	S
Lab ID:	**B15061740-004AMS**	Sample Matrix Spike				Run: IC METROHM 1_150623A				06/24/15 01:24
Sulfate		2070	mg/L	9.0		90	110			A
Lab ID:	**B15061740-004AMSD**	Sample Matrix Spike Duplicate				Run: IC METROHM 1_150623A				06/24/15 01:37
Sulfate		2030	mg/L	9.0		90	110	1.8	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E350.1								Analytical Run: FIA203-B_150619B	
Lab ID: ICV	Initial Calibration Verification Standard							06/19/15 11:34	
Nitrogen, Ammonia as N	2.07	mg/L	0.050	101	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							06/19/15 11:56	
Nitrogen, Ammonia as N	0.990	mg/L	0.050	99	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							06/19/15 13:50	
Nitrogen, Ammonia as N	0.977	mg/L	0.050	98	90	110			
Method: E350.1								Batch: R244821	
Lab ID: MBLK	Method Blank				Run: FIA203-B_150619B			06/19/15 11:36	
Nitrogen, Ammonia as N	ND	mg/L	0.005						
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-B_150619B			06/19/15 11:37	
Nitrogen, Ammonia as N	0.984	mg/L	0.050	99	90	110			
Lab ID: B15061813-009CMS	Sample Matrix Spike				Run: FIA203-B_150619B			06/19/15 13:33	
Nitrogen, Ammonia as N	0.941	mg/L	0.050	94	90	110			
Lab ID: B15061813-009CMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150619B			06/19/15 13:34	
Nitrogen, Ammonia as N	0.946	mg/L	0.050	95	90	110	0.5	10	
Lab ID: B15061723-008CMS	Sample Matrix Spike				Run: FIA203-B_150619B			06/19/15 13:43	
Nitrogen, Ammonia as N	0.879	mg/L	0.050	87	90	110			S
Lab ID: B15061723-008CMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150619B			06/19/15 13:44	
Nitrogen, Ammonia as N	0.885	mg/L	0.050	88	90	110	0.7	10	S

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Report Date: 06/26/15
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E351.2								Analytical Run: FIA204-B_150619A	
Lab ID: ICV	Initial Calibration Verification Standard								06/19/15 14:34
Nitrogen, Kjeldahl, Total as N	9.58	mg/L	0.50	96	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								06/19/15 14:52
Nitrogen, Kjeldahl, Total as N	9.56	mg/L	0.50	96	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								06/19/15 15:07
Nitrogen, Kjeldahl, Total as N	9.62	mg/L	0.50	96	90	110			
Method: E351.2									Batch: 90630
Lab ID: MB-90630	Method Blank				Run: FIA204-B_150619A				06/19/15 14:35
Nitrogen, Kjeldahl, Total as N	ND	mg/L	0.2						
Lab ID: LCS-90630	Laboratory Control Sample				Run: FIA204-B_150619A				06/19/15 14:36
Nitrogen, Kjeldahl, Total as N	9.70	mg/L	0.50	97	90	110			
Lab ID: B15061704-005CMS	Sample Matrix Spike				Run: FIA204-B_150619A				06/19/15 14:48
Nitrogen, Kjeldahl, Total as N	10.2	mg/L	0.50	102	90	110			
Lab ID: B15061704-005CMSD	Sample Matrix Spike Duplicate				Run: FIA204-B_150619A				06/19/15 14:49
Nitrogen, Kjeldahl, Total as N	9.89	mg/L	0.50	99	90	110	3.1	10	
Lab ID: B15061784-001AMS	Sample Matrix Spike				Run: FIA204-B_150619A				06/19/15 15:03
Nitrogen, Kjeldahl, Total as N	11.3	mg/L	0.50	97	90	110			
Lab ID: B15061784-001AMSD	Sample Matrix Spike Duplicate				Run: FIA204-B_150619A				06/19/15 15:04
Nitrogen, Kjeldahl, Total as N	11.5	mg/L	0.50	99	90	110	1.8	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-B_150618A	
Lab ID: ICV	Initial Calibration Verification Standard							06/18/15 10:39	
Nitrogen, Nitrite as N	2.75	mg/L	0.060	91	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							06/18/15 14:28	
Nitrogen, Nitrite as N	0.522	mg/L	0.010	104	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							06/18/15 14:43	
Nitrogen, Nitrite as N	0.506	mg/L	0.010	101	90	110			
Method: E353.2								Batch: R244725	
Lab ID: MBLK	Method Blank				Run: FIA203-B_150618A			06/18/15 10:41	
Nitrogen, Nitrite as N	ND	mg/L	0.006						
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-B_150618A			06/18/15 10:42	
Nitrogen, Nitrite as N	0.502	mg/L	0.010	100	90	110			
Lab ID: B15061717-001BMS	Sample Matrix Spike				Run: FIA203-B_150618A			06/18/15 14:31	
Nitrogen, Nitrite as N	0.486	mg/L	0.010	97	90	110			
Lab ID: B15061717-001BMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150618A			06/18/15 14:32	
Nitrogen, Nitrite as N	0.504	mg/L	0.010	101	90	110	3.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-B_150622A	
Lab ID: ICV	Initial Calibration Verification Standard							06/22/15 10:28	
Nitrogen, Nitrate+Nitrite as N	0.565	mg/L	0.010	100	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							06/22/15 10:51	
Nitrogen, Nitrate+Nitrite as N	0.986	mg/L	0.010	99	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							06/22/15 11:24	
Nitrogen, Nitrate+Nitrite as N	0.970	mg/L	0.010	97	90	110			
Method: E353.2								Batch: R244879	
Lab ID: MBLK	Method Blank				Run: FIA203-B_150622A			06/22/15 10:30	
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.010						
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-B_150622A			06/22/15 10:31	
Nitrogen, Nitrate+Nitrite as N	0.987	mg/L	0.010	99	90	110			
Lab ID: B15061704-010CMS	Sample Matrix Spike				Run: FIA203-B_150622A			06/22/15 10:53	
Nitrogen, Nitrate+Nitrite as N	1.01	mg/L	0.010	97	90	110			
Lab ID: B15061704-010CMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150622A			06/22/15 10:55	
Nitrogen, Nitrate+Nitrite as N	1.01	mg/L	0.010	97	90	110	0.3	10	
Lab ID: B15061723-029DMS	Sample Matrix Spike				Run: FIA203-B_150622A			06/22/15 11:10	
Nitrogen, Nitrate+Nitrite as N	1.77	mg/L	0.010	99	90	110			
Lab ID: B15061723-029DMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150622A			06/22/15 11:11	
Nitrogen, Nitrate+Nitrite as N	1.77	mg/L	0.010	99	90	110	0.1	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Report Date: 06/26/15
Work Order: B15061723

Analyte		Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E365.1**								Analytical Run: FIA202-B_150619B	
Lab ID:	**ICV**	Initial Calibration Verification Standard							06/19/15 15:42	
Phosphorus, Total as P		0.523	mg/L	0.0050	105	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard							06/19/15 16:03	
Phosphorus, Total as P		0.508	mg/L	0.0050	102	90	110			
Lab ID:	**CCV**	Continuing Calibration Verification Standard							06/19/15 16:16	
Phosphorus, Total as P		0.513	mg/L	0.0050	103	90	110			
Method:	**E365.1**									Batch: 90631
Lab ID:	**MB-90631**	Method Blank				Run: FIA202-B_150619B			06/19/15 15:45	
Phosphorus, Total as P		ND	mg/L	0.003						
Lab ID:	**LCS-90631**	Laboratory Control Sample				Run: FIA202-B_150619B			06/19/15 15:46	
Phosphorus, Total as P		0.207	mg/L	0.0050	103	90	110			
Lab ID:	**B15061704-001CMS**	Sample Matrix Spike				Run: FIA202-B_150619B			06/19/15 15:48	
Phosphorus, Total as P		0.208	mg/L	0.0050	100	90	110			
Lab ID:	**B15061704-001CMSD**	Sample Matrix Spike Duplicate				Run: FIA202-B_150619B			06/19/15 15:49	
Phosphorus, Total as P		0.206	mg/L	0.0050	99	90	110	1.0	10	
Lab ID:	**B15061704-008CMS**	Sample Matrix Spike				Run: FIA202-B_150619B			06/19/15 15:58	
Phosphorus, Total as P		0.205	mg/L	0.0050	102	90	110			
Lab ID:	**B15061704-008CMSD**	Sample Matrix Spike Duplicate				Run: FIA202-B_150619B			06/19/15 15:59	
Phosphorus, Total as P		0.206	mg/L	0.0050	103	90	110	0.5	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Analytical Run: ICP203-B_150622A	
Lab ID: **ICV**		Continuing Calibration Verification Standard							06/22/15 12:16	
Potassium		24.2	mg/L	1.0	97	95	105			
Lab ID: **CCV**		Continuing Calibration Verification Standard							06/22/15 21:29	
Potassium		23.1	mg/L	1.0	92	90	110			
Lab ID: **CCV**		Continuing Calibration Verification Standard							06/22/15 22:11	
Potassium		23.2	mg/L	1.0	93	90	110			
Method: **E200.7**									Batch: 90635	
Lab ID: **MB-90635**		Method Blank				Run: ICP203-B_150622A			06/22/15 21:50	
Potassium		ND	mg/L	0.05						
Lab ID: **LCS-90635**		Laboratory Control Sample				Run: ICP203-B_150622A			06/22/15 21:53	
Potassium		24.2	mg/L	1.0	97	85	115			
Lab ID: **B15061740-010BMS3**		Sample Matrix Spike				Run: ICP203-B_150622A			06/22/15 22:50	
Potassium		26.7	mg/L	1.0	94	70	130			
Lab ID: **B15061740-010BMSD**		Sample Matrix Spike Duplicate				Run: ICP203-B_150622A			06/22/15 23:00	
Potassium		27.9	mg/L	1.0	98	70	130	4.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**SW6010B**									Analytical Run: ICP203-B_150622A	
Lab ID:	**QCS**	2	Initial Calibration Verification Standard							06/22/15 12:33	
Iron			3.89	mg/L	0.030	97	90	110			
Manganese			3.89	mg/L	0.010	97	90	110			
Lab ID:	**ICSA**	2	Interference Check Sample A							06/22/15 12:36	
Iron			182	mg/L	0.030	91	80	120			
Manganese			-0.0230	mg/L	0.010						
Lab ID:	**ICSAB**	2	Interference Check Sample AB							06/22/15 12:40	
Iron			182	mg/L	0.030	91	80	120			
Manganese			0.439	mg/L	0.010	88	80	120			
Lab ID:	**CCV**	2	Continuing Calibration Verification Standard							06/22/15 12:58	
Iron			2.39	mg/L	0.020	96	90	110			
Manganese			2.38	mg/L	0.010	95	90	110			
Lab ID:	**CCV**	2	Continuing Calibration Verification Standard							06/22/15 13:40	
Iron			2.38	mg/L	0.020	95	90	110			
Manganese			2.38	mg/L	0.010	95	90	110			
Method:	**SW6010B**									Batch: R244890	
Lab ID:	**MB-6500DIS150622A**	2	Method Blank				Run: ICP203-B_150622A			06/22/15 12:22	
Iron			ND	mg/L	0.003						
Manganese			ND	mg/L	0.0006						
Lab ID:	**LFB-6500DIS150622A**	2	Laboratory Fortified Blank				Run: ICP203-B_150622A			06/22/15 12:26	
Iron			4.99	mg/L	0.030	100	80	120			
Manganese			4.96	mg/L	0.010	99	80	120			
Lab ID:	**B15061723-007BDIL**	2	Serial Dilution				Run: ICP203-B_150622A			06/22/15 13:08	
Iron			0.0213	mg/L	0.030		0	0		10	N
Manganese			0.101	mg/L	0.0032		0	0	1.4	10	
Lab ID:	**B15061723-007BMS2**	2	Sample Matrix Spike				Run: ICP203-B_150622A			06/22/15 13:12	
Iron			5.04	mg/L	0.030	101	75	125			
Manganese			5.08	mg/L	0.0010	100	75	125			
Lab ID:	**B15061723-007BMSD**	2	Sample Matrix Spike Duplicate				Run: ICP203-B_150622A			06/22/15 13:15	
Iron			5.03	mg/L	0.030	101	75	125	0.1	20	
Manganese			5.08	mg/L	0.0010	100	75	125	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**SW6010B**									Analytical Run: ICP203-B_150623A	
Lab ID:	**QCS**	2	Initial Calibration Verification Standard							06/23/15 11:25	
Iron			4.11	mg/L	0.030	103	90	110			
Manganese			4.00	mg/L	0.010	100	90	110			
Lab ID:	**ICSA**	2	Interference Check Sample A							06/23/15 11:29	
Iron			188	mg/L	0.030	94	80	120			
Manganese			-0.0244	mg/L	0.010						
Lab ID:	**ICSAB**	2	Interference Check Sample AB							06/23/15 11:32	
Iron			189	mg/L	0.030	95	80	120			
Manganese			0.446	mg/L	0.010	89	80	120			
Lab ID:	**CCV**	2	Continuing Calibration Verification Standard							06/23/15 11:50	
Iron			2.57	mg/L	0.020	103	90	110			
Manganese			2.51	mg/L	0.010	101	90	110			
Lab ID:	**CCV**	2	Continuing Calibration Verification Standard							06/23/15 12:32	
Iron			2.50	mg/L	0.020	100	90	110			
Manganese			2.42	mg/L	0.010	97	90	110			
Method:	**SW6010B**									Batch: R244955	
Lab ID:	**MB-6500DIS150623A**	2	Method Blank				Run: ICP203-B_150623A			06/23/15 11:15	
Iron			ND	mg/L	0.003						
Manganese			ND	mg/L	0.0006						
Lab ID:	**LFB-6500DIS150623A**	2	Laboratory Fortified Blank				Run: ICP203-B_150623A			06/23/15 11:18	
Iron			5.12	mg/L	0.030	102	80	120			
Manganese			5.01	mg/L	0.010	100	80	120			
Lab ID:	**B15061723-006BDIL**	2	Serial Dilution				Run: ICP203-B_150623A			06/23/15 12:14	
Iron			0.0258	mg/L	0.030		0	0		10	N
Manganese			0.00730	mg/L	0.0032		0	0		10	N
Lab ID:	**B15061723-006BMS2**	2	Sample Matrix Spike				Run: ICP203-B_150623A			06/23/15 12:18	
Iron			5.31	mg/L	0.030	106	75	125			
Manganese			5.12	mg/L	0.0010	102	75	125			
Lab ID:	**B15061723-006BMSD**	2	Sample Matrix Spike Duplicate				Run: ICP203-B_150623A			06/23/15 12:21	
Iron			5.30	mg/L	0.030	105	75	125	0.3	20	
Manganese			5.12	mg/L	0.0010	102	75	125	0.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15

Client: Kennedy Jenks Consultants

Report Date: 07/06/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244817
Lab ID: CCV-061815	Continuing Calibration Verification Standard								06/18/15 13:09
Benzene	4.92	ug/L	1.0	98	70	130			
Bromobenzene	5.72	ug/L	1.0	114	70	130			
Bromochloromethane	4.96	ug/L	1.0	99	70	130			
Bromodichloromethane	4.96	ug/L	1.0	99	70	130			
Bromoform	4.80	ug/L	1.0	96	70	130			
Bromomethane	3.69	ug/L	1.0	74	70	130			
Carbon tetrachloride	5.20	ug/L	1.0	104	70	130			
Chlorobenzene	5.92	ug/L	1.0	118	70	130			
Chlorodibromomethane	5.12	ug/L	1.0	102	70	130			
Chloroethane	5.08	ug/L	1.0	102	70	130			
Chloroform	4.80	ug/L	1.0	96	80	120			
Chloromethane	4.80	ug/L	1.0	96	70	130			
1,2-Dibromoethane	5.12	ug/L	1.0	102	70	130			
2-Chlorotoluene	6.00	ug/L	1.0	120	70	130			
Dibromomethane	4.92	ug/L	1.0	98	70	130			
1,2-Dichlorobenzene	5.36	ug/L	1.0	107	70	130			
4-Chlorotoluene	5.32	ug/L	1.0	106	70	130			
1,3-Dichlorobenzene	5.72	ug/L	1.0	114	70	130			
1,4-Dichlorobenzene	5.60	ug/L	1.0	112	70	130			
Dichlorodifluoromethane	6.04	ug/L	1.0	121	70	130			
1,1-Dichloroethane	4.80	ug/L	1.0	96	70	130			
1,2-Dichloroethane	4.36	ug/L	1.0	87	70	130			
1,1-Dichloroethene	4.92	ug/L	1.0	98	80	120			
cis-1,2-Dichloroethene	5.00	ug/L	1.0	100	70	130			
trans-1,2-Dichloroethene	5.40	ug/L	1.0	108	70	130			
1,2-Dichloropropane	5.00	ug/L	1.0	100	80	120			
1,3-Dichloropropane	4.96	ug/L	1.0	99	70	130			
2,2-Dichloropropane	5.04	ug/L	1.0	101	70	130			
1,1-Dichloropropene	5.16	ug/L	1.0	103	70	130			
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	70	130			
trans-1,3-Dichloropropene	4.92	ug/L	1.0	98	70	130			
Ethylbenzene	5.92	ug/L	1.0	118	80	120			
Methyl tert-butyl ether (MTBE)	4.04	ug/L	1.0	81	70	130			
Methylene chloride	4.32	ug/L	1.0	86	70	130			
Naphthalene	5.32	ug/L	1.0	106	70	130			
Styrene	6.08	ug/L	1.0	122	70	130			
1,1,1,2-Tetrachloroethane	5.72	ug/L	1.0	114	70	130			
1,1,2,2-Tetrachloroethane	4.24	ug/L	1.0	85	70	130			
Tetrachloroethene	6.48	ug/L	1.0	130	70	130			
Toluene	5.88	ug/L	1.0	118	80	120			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	70	130			
1,1,2-Trichloroethane	4.92	ug/L	1.0	98	70	130			
Trichloroethene	5.24	ug/L	1.0	105	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Work Order: B15061723

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244817
Lab ID: CCV-061815	Continuing Calibration Verification Standard								06/18/15 13:09
Trichlorofluoromethane	5.32	ug/L	1.0	106	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.00	ug/L	1.0	120	70	130			
1,2,3-Trichloropropane	4.04	ug/L	1.0	81	70	130			
Vinyl chloride	5.12	ug/L	1.0	102	80	120			
m+p-Xylenes	12.4	ug/L	1.0	124	70	130			
o-Xylene	6.44	ug/L	1.0	129	70	130			
Xylenes, Total	18.9	ug/L	1.0	126	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	81	70	130			
Surr: Dibromofluoromethane			1.0	101	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	118	79	122			
Method: SW8260B									Batch: R244817
Lab ID: LCS-061815	Laboratory Control Sample				Run: CS5972A.I_150618A				06/18/15 13:54
Benzene	5.32	ug/L	1.0	106	71	133			
Bromobenzene	5.56	ug/L	1.0	111	78	133			
Bromochloromethane	5.32	ug/L	1.0	106	68	131			
Bromodichloromethane	5.32	ug/L	1.0	106	67	138			
Bromoform	4.80	ug/L	1.0	96	64	136			
Bromomethane	3.47	ug/L	1.0	69	60	138			
Carbon tetrachloride	5.56	ug/L	1.0	111	61	144			
Chlorobenzene	6.00	ug/L	1.0	120	78	136			
Chlorodibromomethane	5.36	ug/L	1.0	107	72	136			
Chloroethane	4.68	ug/L	1.0	94	64	136			
Chloroform	5.24	ug/L	1.0	105	69	133			
Chloromethane	3.92	ug/L	1.0	78	63	149			
1,2-Dibromoethane	5.44	ug/L	1.0	109	75	131			
2-Chlorotoluene	5.92	ug/L	1.0	118	74	135			
Dibromomethane	5.20	ug/L	1.0	104	72	133			
1,2-Dichlorobenzene	5.68	ug/L	1.0	114	78	129			
4-Chlorotoluene	5.20	ug/L	1.0	104	79	135			
1,3-Dichlorobenzene	5.84	ug/L	1.0	117	79	132			
1,4-Dichlorobenzene	5.72	ug/L	1.0	114	78	131			
Dichlorodifluoromethane	5.00	ug/L	1.0	100	55	141			
1,1-Dichloroethane	5.20	ug/L	1.0	104	72	130			
1,2-Dichloroethane	4.60	ug/L	1.0	92	57	146			
1,1-Dichloroethene	5.36	ug/L	1.0	107	66	142			
cis-1,2-Dichloroethene	5.28	ug/L	1.0	106	74	133			
trans-1,2-Dichloroethene	5.84	ug/L	1.0	117	76	138			
1,2-Dichloropropane	5.00	ug/L	1.0	100	72	135			
1,3-Dichloropropane	5.28	ug/L	1.0	106	75	134			
2,2-Dichloropropane	5.28	ug/L	1.0	106	42	167			
1,1-Dichloropropene	5.84	ug/L	1.0	117	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Work Order: B15061723

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244817
Lab ID: LCS-061815	Laboratory Control Sample				Run: CS5972A.I_150618A				06/18/15 13:54
cis-1,3-Dichloropropene	5.60	ug/L	1.0	112	75	132			
trans-1,3-Dichloropropene	6.16	ug/L	1.0	123	77	145			
Ethylbenzene	6.16	ug/L	1.0	123	78	131			
Methyl tert-butyl ether (MTBE)	3.83	ug/L	1.0	77	58	151			
Methylene chloride	4.56	ug/L	1.0	91	73	126			
Naphthalene	6.40	ug/L	1.0	128	55	139			
Styrene	5.84	ug/L	1.0	117	76	134			
1,1,1,2-Tetrachloroethane	5.76	ug/L	1.0	115	75	135			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	72	132			
Tetrachloroethene	7.04	ug/L	1.0	141	78	137			S
Toluene	6.16	ug/L	1.0	123	78	134			
1,1,1-Trichloroethane	5.28	ug/L	1.0	106	64	141			
1,1,2-Trichloroethane	5.44	ug/L	1.0	109	72	133			
Trichloroethene	5.64	ug/L	1.0	113	75	138			
Trichlorofluoromethane	4.88	ug/L	1.0	98	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	7.04	ug/L	1.0	141	60	140			S
1,2,3-Trichloropropane	4.56	ug/L	1.0	91	67	133			
Vinyl chloride	4.96	ug/L	1.0	99	66	140			
m+p-Xylenes	12.3	ug/L	1.0	123	78	133			
o-Xylene	5.92	ug/L	1.0	118	79	136			
Xylenes, Total	18.2	ug/L	1.0	121	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	85	70	130			
Surr: Dibromofluoromethane			1.0	102	77	126			
Surr: p-Bromofluorobenzene			1.0	95	76	127			
Surr: Toluene-d8			1.0	118	79	122			
Lab ID: BLK-061815	Method Blank				Run: CS5972A.I_150618A				06/18/15 14:47
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Work Order: B15061723

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244817
Lab ID: BLK-061815	Method Blank				Run: CS5972A.I_150618A				06/18/15 14:47
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	91	70	130			
Surr: Dibromofluoromethane			1.0	105	77	126			
Surr: p-Bromofluorobenzene			1.0	96	76	127			
Surr: Toluene-d8			1.0	110	79	122			
Lab ID: B15061640-001CMS	Sample Matrix Spike				Run: CS5972A.I_150618A				06/18/15 19:17
Benzene	5.08	ug/L	1.0	102	71	133			
Bromobenzene	5.36	ug/L	1.0	107	78	133			
Bromochloromethane	5.64	ug/L	1.0	113	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15

Client: Kennedy Jenks Consultants

Report Date: 07/06/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244817
Lab ID: B15061640-001CMS	Sample Matrix Spike				Run: CS5972A.I_150618A				06/18/15 19:17
Bromodichloromethane	5.36	ug/L	1.0	107	67	138			
Bromoform	4.92	ug/L	1.0	98	64	136			
Bromomethane	2.80	ug/L	1.0	56	60	138			S
Carbon tetrachloride	5.32	ug/L	1.0	106	61	144			
Chlorobenzene	5.96	ug/L	1.0	119	78	136			
Chlorodibromomethane	5.68	ug/L	1.0	114	72	136			
Chloroethane	4.60	ug/L	1.0	92	64	136			
Chloroform	5.40	ug/L	1.0	108	69	133			
Chloromethane	3.66	ug/L	1.0	73	63	149			
1,2-Dibromoethane	5.60	ug/L	1.0	112	75	131			
2-Chlorotoluene	5.40	ug/L	1.0	108	74	135			
Dibromomethane	5.36	ug/L	1.0	107	72	133			
1,2-Dichlorobenzene	5.60	ug/L	1.0	112	78	129			
4-Chlorotoluene	4.80	ug/L	1.0	96	79	135			
1,3-Dichlorobenzene	5.72	ug/L	1.0	114	79	132			
1,4-Dichlorobenzene	5.68	ug/L	1.0	114	78	131			
Dichlorodifluoromethane	4.80	ug/L	1.0	96	55	141			
1,1-Dichloroethane	5.20	ug/L	1.0	104	72	130			
1,2-Dichloroethane	4.96	ug/L	1.0	99	57	146			
1,1-Dichloroethene	5.12	ug/L	1.0	102	66	142			
cis-1,2-Dichloroethene	5.52	ug/L	1.0	110	74	133			
trans-1,2-Dichloroethene	5.88	ug/L	1.0	118	76	138			
1,2-Dichloropropane	5.04	ug/L	1.0	101	72	135			
1,3-Dichloropropane	5.20	ug/L	1.0	104	75	134			
2,2-Dichloropropane	4.76	ug/L	1.0	95	42	167			
1,1-Dichloropropene	5.52	ug/L	1.0	110	72	140			
cis-1,3-Dichloropropene	5.32	ug/L	1.0	106	75	132			
trans-1,3-Dichloropropene	6.08	ug/L	1.0	122	77	145			
Ethylbenzene	5.68	ug/L	1.0	114	78	131			
Methyl tert-butyl ether (MTBE)	4.88	ug/L	1.0	98	58	151			
Methylene chloride	4.84	ug/L	1.0	97	73	126			
Naphthalene	6.36	ug/L	1.0	127	55	139			
Styrene	6.16	ug/L	1.0	123	76	134			
1,1,1,2-Tetrachloroethane	5.92	ug/L	1.0	118	75	135			
1,1,2,2-Tetrachloroethane	5.20	ug/L	1.0	104	72	132			
Tetrachloroethene	6.60	ug/L	1.0	128	78	137			
Toluene	5.64	ug/L	1.0	113	78	134			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	64	141			
1,1,2-Trichloroethane	5.48	ug/L	1.0	110	72	133			
Trichloroethene	5.20	ug/L	1.0	104	75	138			
Trichlorofluoromethane	4.76	ug/L	1.0	95	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.96	ug/L	1.0	139	60	140			
1,2,3-Trichloropropane	5.08	ug/L	1.0	102	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15

Client: Kennedy Jenks Consultants

Report Date: 07/06/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244817
Lab ID: B15061640-001CMS	Sample Matrix Spike				Run: CS5972A.I_150618A			06/18/15 19:17	
Vinyl chloride	4.76	ug/L	1.0	95	66	140			
m+p-Xylenes	11.9	ug/L	1.0	119	78	133			
o-Xylene	6.00	ug/L	1.0	120	79	136			
Xylenes, Total	17.9	ug/L	1.0	119	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	89	70	130			
Surr: Dibromofluoromethane			1.0	107	77	126			
Surr: p-Bromofluorobenzene			1.0	90	76	127			
Surr: Toluene-d8			1.0	106	79	122			
Lab ID: B15061640-001CMSD	Sample Matrix Spike Duplicate				Run: CS5972A.I_150618A			06/18/15 20:11	
Benzene	5.32	ug/L	1.0	106	71	133	4.6	20	
Bromobenzene	5.48	ug/L	1.0	110	78	133	2.2	20	
Bromochloromethane	5.92	ug/L	1.0	118	68	131	4.8	20	
Bromodichloromethane	5.96	ug/L	1.0	119	67	138	11	20	
Bromoform	5.20	ug/L	1.0	104	64	136	5.5	20	
Bromomethane	3.05	ug/L	1.0	61	60	138	8.6	20	
Carbon tetrachloride	5.52	ug/L	1.0	110	61	144	3.7	20	
Chlorobenzene	6.16	ug/L	1.0	123	78	136	3.3	20	
Chlorodibromomethane	5.80	ug/L	1.0	116	72	136	2.1	20	
Chloroethane	4.80	ug/L	1.0	96	64	136	4.3	20	
Chloroform	5.64	ug/L	1.0	113	69	133	4.3	20	
Chloromethane	3.88	ug/L	1.0	78	63	149	5.8	20	
1,2-Dibromoethane	6.04	ug/L	1.0	121	75	131	7.6	20	
2-Chlorotoluene	5.68	ug/L	1.0	114	74	135	5.1	20	
Dibromomethane	5.44	ug/L	1.0	109	72	133	1.5	20	
1,2-Dichlorobenzene	5.76	ug/L	1.0	115	78	129	2.8	20	
4-Chlorotoluene	4.96	ug/L	1.0	99	79	135	3.3	20	
1,3-Dichlorobenzene	5.84	ug/L	1.0	117	79	132	2.1	20	
1,4-Dichlorobenzene	5.92	ug/L	1.0	118	78	131	4.1	20	
Dichlorodifluoromethane	5.00	ug/L	1.0	100	55	141	4.1	20	
1,1-Dichloroethane	5.32	ug/L	1.0	106	72	130	2.3	20	
1,2-Dichloroethane	5.24	ug/L	1.0	105	57	146	5.5	20	
1,1-Dichloroethene	5.32	ug/L	1.0	106	66	142	3.8	20	
cis-1,2-Dichloroethene	5.68	ug/L	1.0	114	74	133	2.9	20	
trans-1,2-Dichloroethene	5.64	ug/L	1.0	113	76	138	4.2	20	
1,2-Dichloropropane	5.20	ug/L	1.0	104	72	135	3.1	20	
1,3-Dichloropropane	5.44	ug/L	1.0	109	75	134	4.5	20	
2,2-Dichloropropane	4.72	ug/L	1.0	94	42	167	0.8	20	
1,1-Dichloropropene	5.64	ug/L	1.0	113	72	140	2.2	20	
cis-1,3-Dichloropropene	5.84	ug/L	1.0	117	75	132	9.3	20	
trans-1,3-Dichloropropene	6.20	ug/L	1.0	124	77	145	2.0	20	
Ethylbenzene	5.80	ug/L	1.0	116	78	131	2.1	20	
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151	4.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15
Report Date: 07/06/15
Work Order: B15061723

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244817
Lab ID: B15061640-001CMSD	Sample Matrix Spike Duplicate				Run: CS5972A.I_150618A			06/18/15 20:11	
Methylene chloride	5.04	ug/L	1.0	101	73	126	4.0	20	
Naphthalene	6.72	ug/L	1.0	134	55	139	5.5	20	
Styrene	5.72	ug/L	1.0	114	76	134	7.4	20	
1,1,1,2-Tetrachloroethane	6.16	ug/L	1.0	123	75	135	4.0	20	
1,1,2,2-Tetrachloroethane	5.44	ug/L	1.0	109	72	132	4.5	20	
Tetrachloroethene	6.52	ug/L	1.0	126	78	137	1.2	20	
Toluene	5.72	ug/L	1.0	114	78	134	1.4	20	
1,1,1-Trichloroethane	5.36	ug/L	1.0	107	64	141	6.2	20	
1,1,2-Trichloroethane	5.68	ug/L	1.0	114	72	133	3.6	20	
Trichloroethene	5.20	ug/L	1.0	104	75	138	0.0	20	
Trichlorofluoromethane	4.96	ug/L	1.0	99	58	139	4.1	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	7.20	ug/L	1.0	144	60	140	3.4	20	S
1,2,3-Trichloropropane	5.04	ug/L	1.0	101	67	133	0.8	20	
Vinyl chloride	4.88	ug/L	1.0	98	66	140	2.5	20	
m+p-Xylenes	12.2	ug/L	1.0	122	78	133	2.3	20	
o-Xylene	6.36	ug/L	1.0	127	79	136	5.8	20	
Xylenes, Total	18.5	ug/L	1.0	123	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	93	76	127			
Surr: Toluene-d8			1.0	104	79	122			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/08/15

Client: Kennedy Jenks Consultants

Report Date: 07/06/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244948
Lab ID: CCV-062215	Continuing Calibration Verification Standard								06/22/15 11:37
Tetrachloroethene	5.68	ug/L	1.0	114	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	87	70	130			
Surr: Dibromofluoromethane			1.0	97	77	126			
Surr: p-Bromofluorobenzene			1.0	108	76	127			
Surr: Toluene-d8			1.0	103	79	122			
Method: SW8260B									Batch: R244948
Lab ID: LCS-062215	Laboratory Control Sample				Run: CS5972A.I_150622A				06/22/15 12:20
Tetrachloroethene	5.96	ug/L	1.0	119	78	137			
Surr: 1,2-Dichloroethane-d4			1.0	90	70	130			
Surr: Dibromofluoromethane			1.0	97	77	126			
Surr: p-Bromofluorobenzene			1.0	111	76	127			
Surr: Toluene-d8			1.0	106	79	122			
Lab ID: BLK-062215	Method Blank				Run: CS5972A.I_150622A				06/22/15 13:14
Tetrachloroethene	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	101	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	99	79	122			
Lab ID: B15061820-001Ems	Sample Matrix Spike				Run: CS5972A.I_150622A				06/22/15 17:56
Tetrachloroethene	5.36	ug/L	1.0	107	78	137			
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	102	77	126			
Surr: p-Bromofluorobenzene			1.0	98	76	127			
Surr: Toluene-d8			1.0	100	79	122			
Lab ID: B15061820-001Emsd	Sample Matrix Spike Duplicate				Run: CS5972A.I_150622A				06/22/15 18:23
Tetrachloroethene	4.96	ug/L	1.0	99	78	137	7.8	20	
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	99	76	127			
Surr: Toluene-d8			1.0	97	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/06/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Analytical Run: R244916
Lab ID: CCV_0619VAR02r-W	Continuing Calibration Verification Standard								06/19/15 09:45
1,2,4-Trimethylbenzene	21.2	ug/L	1.0	85	75	125			
2,2,4-Trimethylpentane	20.3	ug/L	1.0	81	75	125			
2-Methylpentane	20.2	ug/L	1.0	81	75	125			
n-Butylcyclohexane	19.8	ug/L	1.0	79	75	125			
n-Decane	19.0	ug/L	1.0	76	75	125			
Methyl tert-butyl ether (MTBE)	20.6	ug/L	1.0	83	75	125			
Benzene	21.3	ug/L	0.50	85	75	125			
Toluene	20.9	ug/L	0.50	84	75	125			
Ethylbenzene	21.3	ug/L	0.50	85	75	125			
m+p-Xylenes	42.9	ug/L	0.50	86	75	125			
o-Xylene	21.3	ug/L	0.50	85	75	125			
Naphthalene	21.8	ug/L	1.0	87	75	125			
n-Pentane	19.2	ug/L	1.0	77	75	125			
Surr: VPH Aromatics Surrogate			1.0	98	75	125			
Surr: VPH Aliphatics Surrogate			1.0	97	75	125			
Method: MA-VPH									Batch: R244916
Lab ID: LCS_0619VAR03r	Laboratory Control Sample				Run: VARIAN1_150619A				06/19/15 10:19
1,2,4-Trimethylbenzene	25.6	ug/L	1.0	102	70	130			
2,2,4-Trimethylpentane	25.2	ug/L	1.0	101	70	130			
2-Methylpentane	23.9	ug/L	1.0	95	70	130			
n-Butylcyclohexane	23.3	ug/L	1.0	93	70	130			
n-Decane	23.5	ug/L	1.0	94	70	130			
Methyl tert-butyl ether (MTBE)	24.2	ug/L	1.0	97	70	130			
Benzene	25.1	ug/L	0.50	100	70	130			
Toluene	24.9	ug/L	0.50	100	70	130			
Ethylbenzene	25.2	ug/L	0.50	101	70	130			
m+p-Xylenes	51.5	ug/L	0.50	103	70	130			
o-Xylene	25.5	ug/L	0.50	102	70	130			
Naphthalene	25.5	ug/L	1.0	102	70	130			
Total Purgeable Hydrocarbons	367	ug/L	20	98	70	130			
n-Pentane	21.4	ug/L	1.0	85	70	130			
Surr: VPH Aromatics Surrogate			1.0	96	70	130			
Surr: VPH Aliphatics Surrogate			1.0	101	70	130			
Lab ID: MBLK_0619VAR06r	Method Blank				Run: VARIAN1_150619A				06/19/15 12:02
Methyl tert-butyl ether (MTBE)	ND	ug/L	1.0						
Benzene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/06/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH								Batch: R244916	
Lab ID: MBLK_0619VAR06r	Method Blank				Run: VARIAN1_150619A			06/19/15 12:02	
Naphthalene	ND	ug/L	1.0						
C9 to C10 Aromatics	ND	ug/L	20						
C5 to C8 Aliphatics	ND	ug/L	20						
C9 to C12 Aliphatics	ND	ug/L	20						
Total Purgeable Hydrocarbons	ND	ug/L	20						
Surr: VPH Aromatics Surrogate			1.0	94	70	130			
Surr: VPH Aliphatics Surrogate			1.0	99	70	130			
Lab ID: B15061663-006AMS	Sample Matrix Spike				Run: VARIAN1_150619A			06/19/15 15:25	
Methyl tert-butyl ether (MTBE)	22.6	ug/L	1.0	90	70	130			
Benzene	23.2	ug/L	0.50	93	70	130			
Toluene	22.8	ug/L	0.50	91	70	130			
Ethylbenzene	23.3	ug/L	0.50	93	70	130			
m+p-Xylenes	47.4	ug/L	0.50	95	70	130			
o-Xylene	23.6	ug/L	0.50	94	70	130			
Naphthalene	22.8	ug/L	1.0	91	70	130			
Total Purgeable Hydrocarbons	337	ug/L	20	90	70	130			
Surr: VPH Aromatics Surrogate			1.0	102	70	130			
Surr: VPH Aliphatics Surrogate			1.0	104	70	130			
Lab ID: B15061663-006AMSD	Sample Matrix Spike Duplicate				Run: VARIAN1_150619A			06/19/15 15:59	
Methyl tert-butyl ether (MTBE)	24.9	ug/L	1.0	100	70	130	9.9	20	
Benzene	25.6	ug/L	0.50	103	70	130	9.8	20	
Toluene	25.4	ug/L	0.50	101	70	130	11	20	
Ethylbenzene	25.7	ug/L	0.50	103	70	130	10	20	
m+p-Xylenes	52.4	ug/L	0.50	105	70	130	9.9	20	
o-Xylene	26.0	ug/L	0.50	104	70	130	9.9	20	
Naphthalene	25.4	ug/L	1.0	102	70	130	11	20	
Total Purgeable Hydrocarbons	369	ug/L	20	98	70	130	9.0	20	
Surr: VPH Aromatics Surrogate			1.0	98	70	130			
Surr: VPH Aliphatics Surrogate			1.0	96	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Analytical Run: R245026
Lab ID: CCV_0622VAR02r-W	Continuing Calibration Verification Standard								06/22/15 09:52
1,2,4-Trimethylbenzene	24.6	ug/L	1.0	98	75	125			
2,2,4-Trimethylpentane	24.2	ug/L	1.0	97	75	125			
2-Methylpentane	24.2	ug/L	1.0	97	75	125			
n-Butylcyclohexane	23.8	ug/L	1.0	95	75	125			
n-Decane	22.9	ug/L	1.0	92	75	125			
Methyl tert-butyl ether (MTBE)	23.9	ug/L	1.0	95	75	125			
Benzene	24.7	ug/L	0.50	99	75	125			
Toluene	24.1	ug/L	0.50	96	75	125			
Ethylbenzene	24.2	ug/L	0.50	97	75	125			
m+p-Xylenes	49.6	ug/L	0.50	99	75	125			
o-Xylene	24.6	ug/L	0.50	98	75	125			
Naphthalene	24.9	ug/L	1.0	100	75	125			
n-Pentane	25.6	ug/L	1.0	102	75	125			
Surr: VPH Aromatics Surrogate			1.0	100	75	125			
Surr: VPH Aliphatics Surrogate			1.0	97	75	125			
Method: MA-VPH									Batch: R245026
Lab ID: LCS_0622VAR03r	Laboratory Control Sample				Run: VARIAN1_150622A				06/22/15 10:27
1,2,4-Trimethylbenzene	24.8	ug/L	1.0	99	70	130			
2,2,4-Trimethylpentane	26.0	ug/L	1.0	104	70	130			
2-Methylpentane	27.3	ug/L	1.0	109	70	130			
n-Butylcyclohexane	24.3	ug/L	1.0	97	70	130			
n-Decane	24.5	ug/L	1.0	98	70	130			
Methyl tert-butyl ether (MTBE)	24.6	ug/L	1.0	98	70	130			
Benzene	25.4	ug/L	0.50	102	70	130			
Toluene	24.7	ug/L	0.50	99	70	130			
Ethylbenzene	25.0	ug/L	0.50	100	70	130			
m+p-Xylenes	50.3	ug/L	0.50	101	70	130			
o-Xylene	25.0	ug/L	0.50	100	70	130			
Naphthalene	25.6	ug/L	1.0	102	70	130			
Total Purgeable Hydrocarbons	380	ug/L	20	101	70	130			
n-Pentane	28.4	ug/L	1.0	114	70	130			
Surr: VPH Aromatics Surrogate			1.0	96	70	130			
Surr: VPH Aliphatics Surrogate			1.0	95	70	130			
Lab ID: MBLK_0622VAR06r	Method Blank				Run: VARIAN1_150622A				06/22/15 12:09
Methyl tert-butyl ether (MTBE)	ND	ug/L	1.0						
Benzene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/06/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Batch: R245026
Lab ID: MBLK_0622VAR06r	Method Blank				Run: VARIAN1_150622A				06/22/15 12:09
Naphthalene	ND	ug/L	1.0						
C9 to C10 Aromatics	ND	ug/L	20						
C5 to C8 Aliphatics	ND	ug/L	20						
C9 to C12 Aliphatics	ND	ug/L	20						
Total Purgeable Hydrocarbons	ND	ug/L	20						
Surr: VPH Aromatics Surrogate			1.0	92	70	130			
Surr: VPH Aliphatics Surrogate			1.0	97	70	130			
Lab ID: B15061723-009FMS	Sample Matrix Spike				Run: VARIAN1_150622A				06/22/15 15:42
Methyl tert-butyl ether (MTBE)	19.6	ug/L	1.0	78	70	130			
Benzene	20.4	ug/L	0.50	82	70	130			
Toluene	19.8	ug/L	0.50	79	70	130			
Ethylbenzene	20.1	ug/L	0.50	80	70	130			
m+p-Xylenes	40.4	ug/L	0.50	81	70	130			
o-Xylene	20.2	ug/L	0.50	81	70	130			
Naphthalene	19.5	ug/L	1.0	78	70	130			
Total Purgeable Hydrocarbons	298	ug/L	20	80	70	130			
Surr: VPH Aromatics Surrogate			1.0	98	70	130			
Surr: VPH Aliphatics Surrogate			1.0	98	70	130			
Lab ID: B15061723-009FMSD	Sample Matrix Spike Duplicate				Run: VARIAN1_150622A				06/22/15 16:17
Methyl tert-butyl ether (MTBE)	22.1	ug/L	1.0	88	70	130	12	20	
Benzene	22.9	ug/L	0.50	92	70	130	11	20	
Toluene	22.3	ug/L	0.50	89	70	130	12	20	
Ethylbenzene	22.5	ug/L	0.50	90	70	130	11	20	
m+p-Xylenes	45.4	ug/L	0.50	91	70	130	12	20	
o-Xylene	22.3	ug/L	0.50	89	70	130	10	20	
Naphthalene	21.8	ug/L	1.0	87	70	130	11	20	
Total Purgeable Hydrocarbons	329	ug/L	20	88	70	130	9.7	20	
Surr: VPH Aromatics Surrogate			1.0	96	70	130			
Surr: VPH Aliphatics Surrogate			1.0	99	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

TB1_061615

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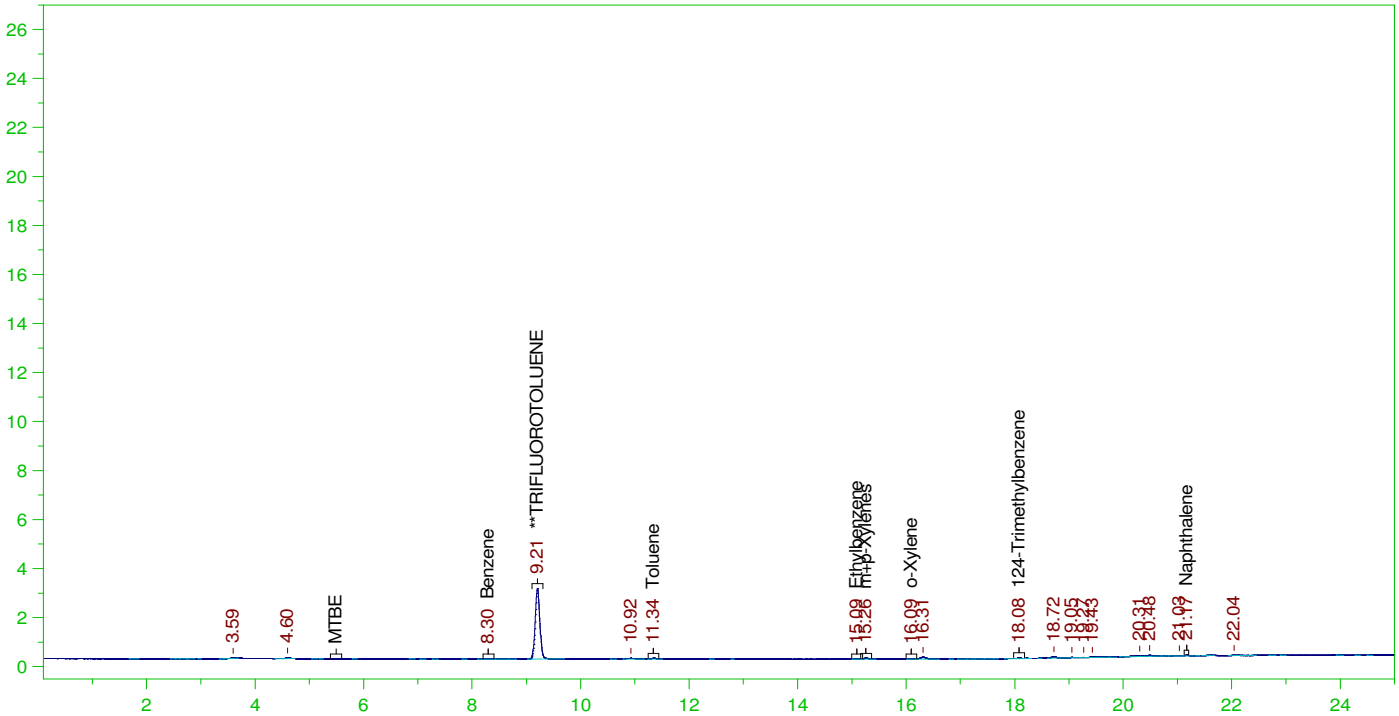


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

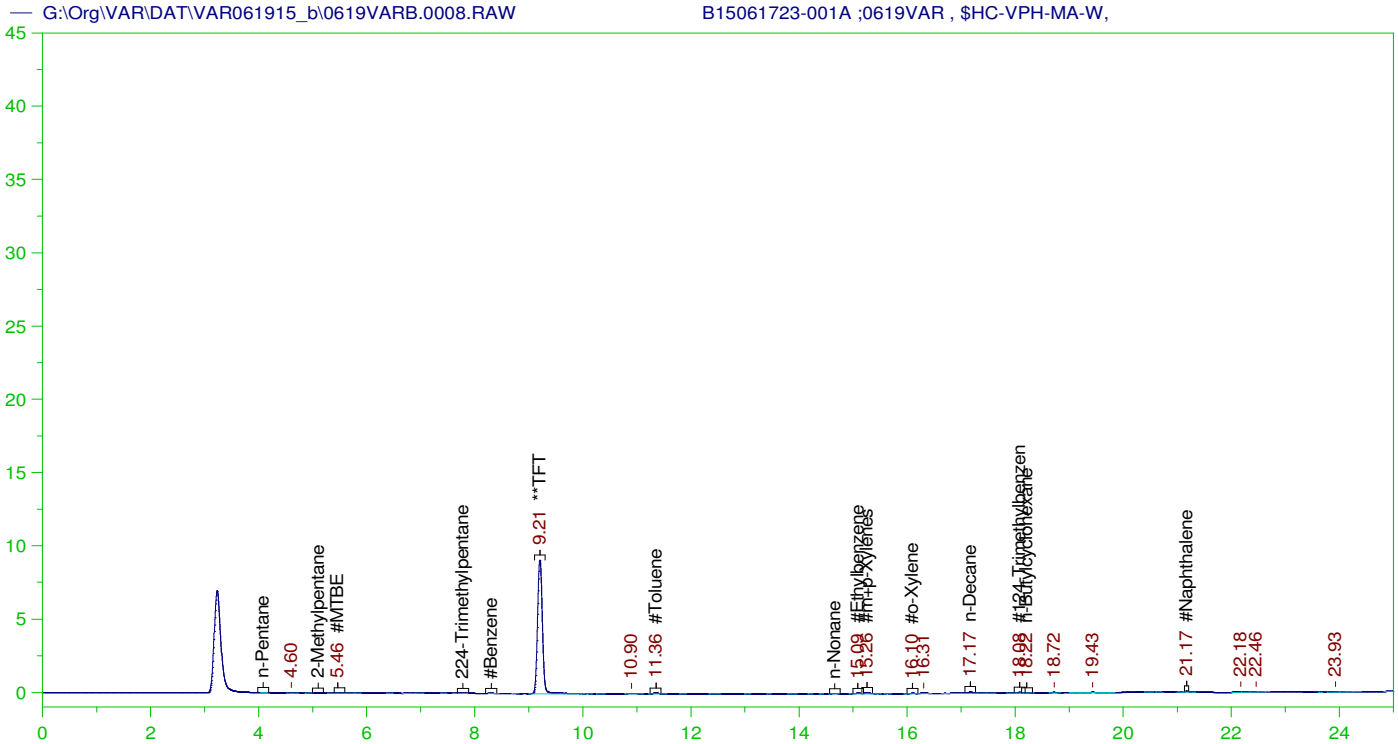
Sample Name: B15061723-001A ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0008.RAW
Date & Time Acquired: 6/19/2015 1:09:45 PM
Method File: G:\Org\VAR\Methods\150513M1723-1.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2462.301 C9-C10 Aromatics Amount: 1.388961

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.302	8.302	8.302	106	.5	U
Toluene	11.339	11.339	11.339	208	.5	U
Ethylbenzene	15.094	15.094	15.094	115	.5	U
m+p-Xylenes	15.262	15.262	15.262	274	.5	U
o-Xylene	16.093	16.093	16.093	95	.5	U
124-Trimethylbenzene	18.085	18.085	18.085	139	.5	U
Naphthalene	21.174	21.174	21.174	116	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.206	25.	23.686	94.74	70-130

TB1_061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-001A ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0008.RAW
Date & Time Acquired: 6/19/2015 1:09:45 PM
Method File: G:\Org\VAR\Methods\150513M1723-1B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.206	25.	23.906	95.63 -

GRO Area:4535.973 GRO Amount: 1.398008
TPH Area:8011.566 TPH Amount: 2.469202

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2490.785 C5-C8 Amount: 1.045112
C9-C12 Area:4173.411 C9-C12 Amount: 1.627918

LS-6_061615

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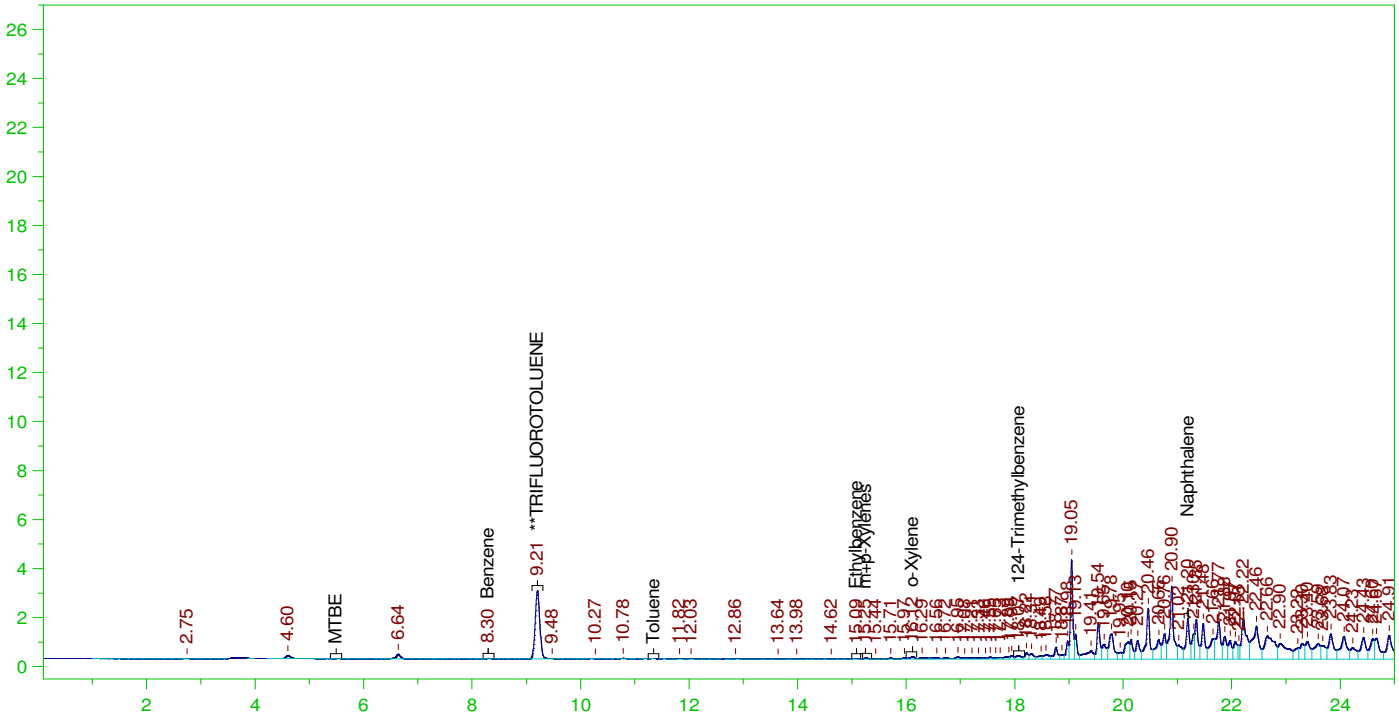

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-002D ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0026.RAW
Date & Time Acquired: 6/19/2015 11:16:01 PM
Method File: G:\Org\VAR\Methods\150513M1723-2.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:103443.9 C9-C10 Aromatics Amount: 58.35176

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.298	8.298	8.298	160	.5	U
Toluene	.	.	.		.5	U
Ethylbenzene	15.085	15.085	15.085	175	.5	U
m+p-Xylenes	15.253	15.253	15.253	244	.5	U
o-Xylene	16.119	16.119	16.119	582	.5	U
124-Trimethylbenzene	18.074	-8.877	-8.869	1044	.605	
Naphthalene	21.195	-11.964	-11.99	7660	~~4.085~~ NO pf6/23/15	

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.205	25.	22.935	91.74	70-130

LS-6_061615

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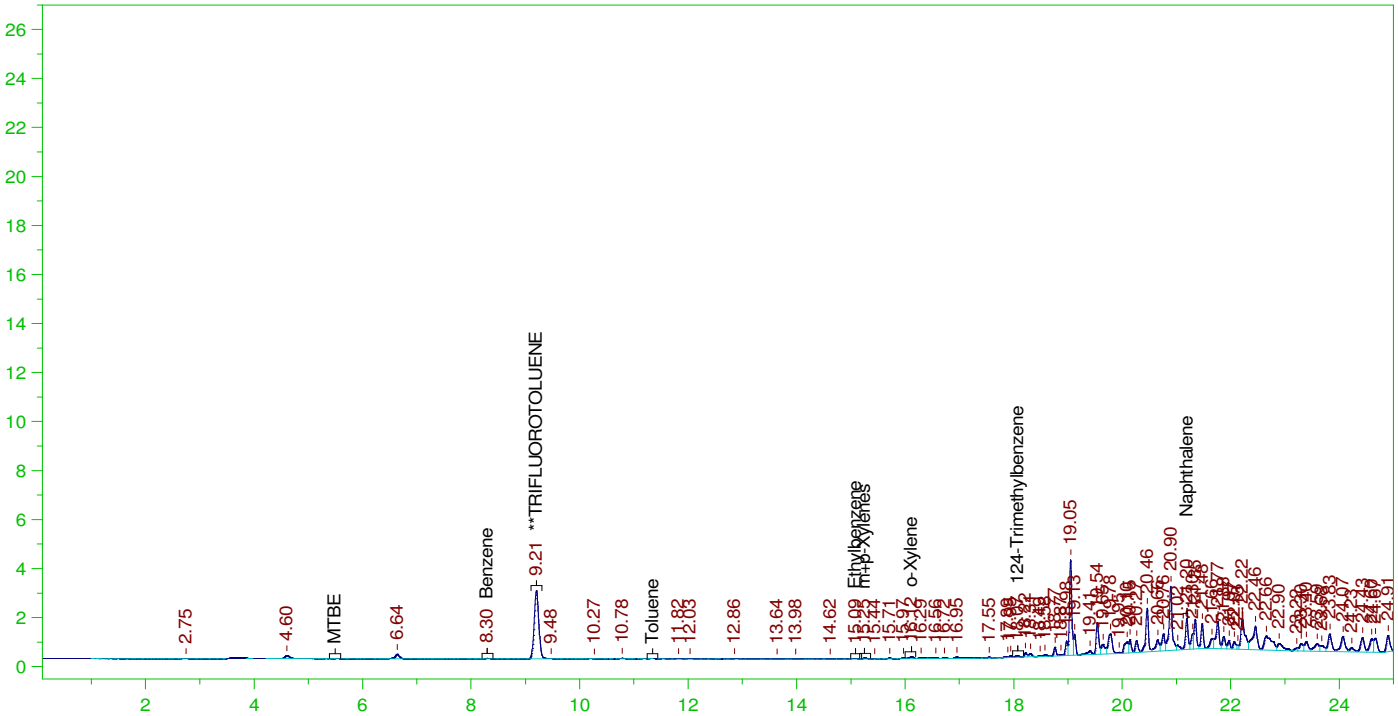

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-002D ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0026.RAW
Date & Time Acquired: 6/19/2015 11:16:01 PM
Method File: G:\Org\VAR\Methods\150513M1723-2N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:61414.14 C9-C10 Aromatics Amount: 34.64314

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.298~~	~~8.298~~	~~8.298~~	~~160~~	~~.5~~	~~U~~
~~Toluene~~	~~.~~	~~.~~	~~.~~		~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.085~~	~~15.085~~	~~15.085~~	~~150~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.253~~	~~15.253~~	~~15.253~~	~~197~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.119~~	~~16.119~~	~~16.119~~	~~443~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.074~~	~~18.074~~	~~18.074~~	~~330~~	~~.5~~	~~U~~
Naphthalene	21.195	-11.964	-11.99	4377	~~2.334~~	<2.5 wb07/06/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.205	25.	22.935	91.74	70-130

LS-6_061615

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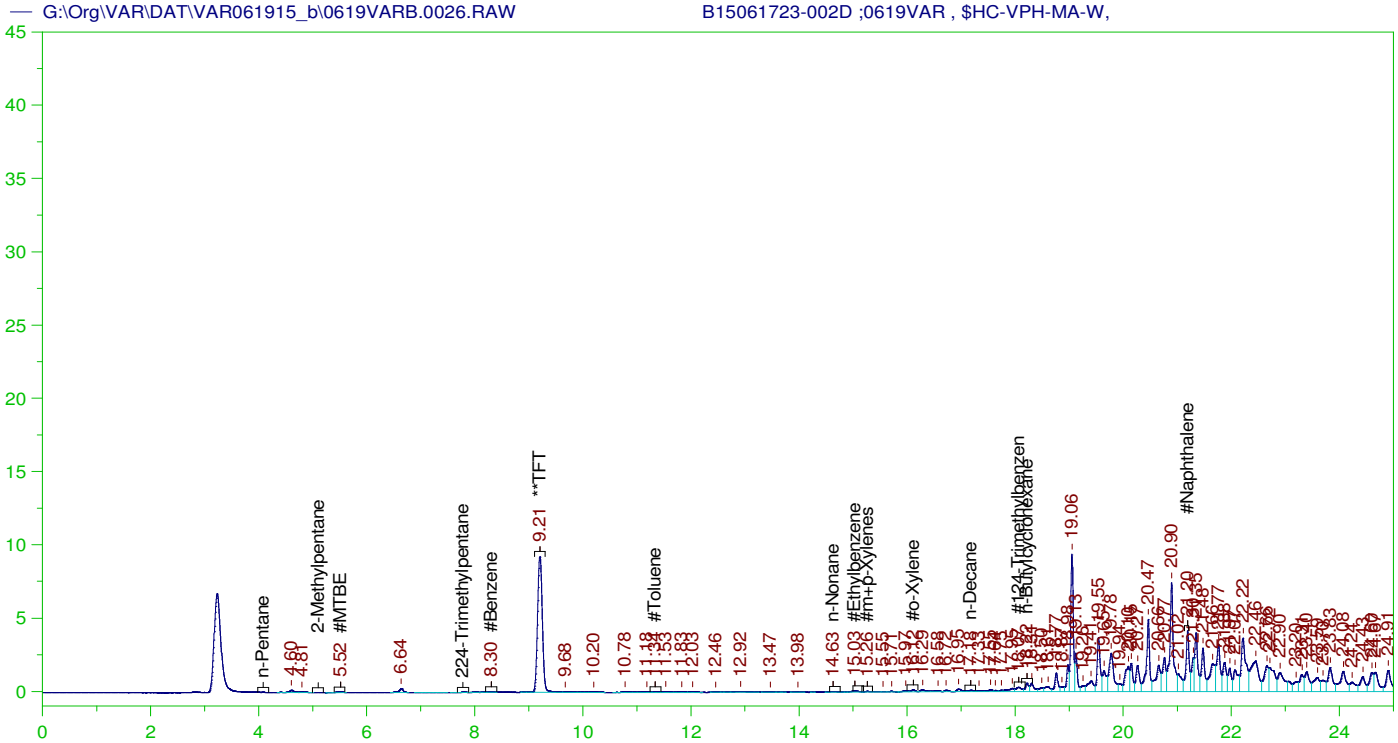


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-002D ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0026.RAW
Date & Time Acquired: 6/19/2015 11:16:01 PM
Method File: G:\Org\VAR\Methods\150513M1723-2B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

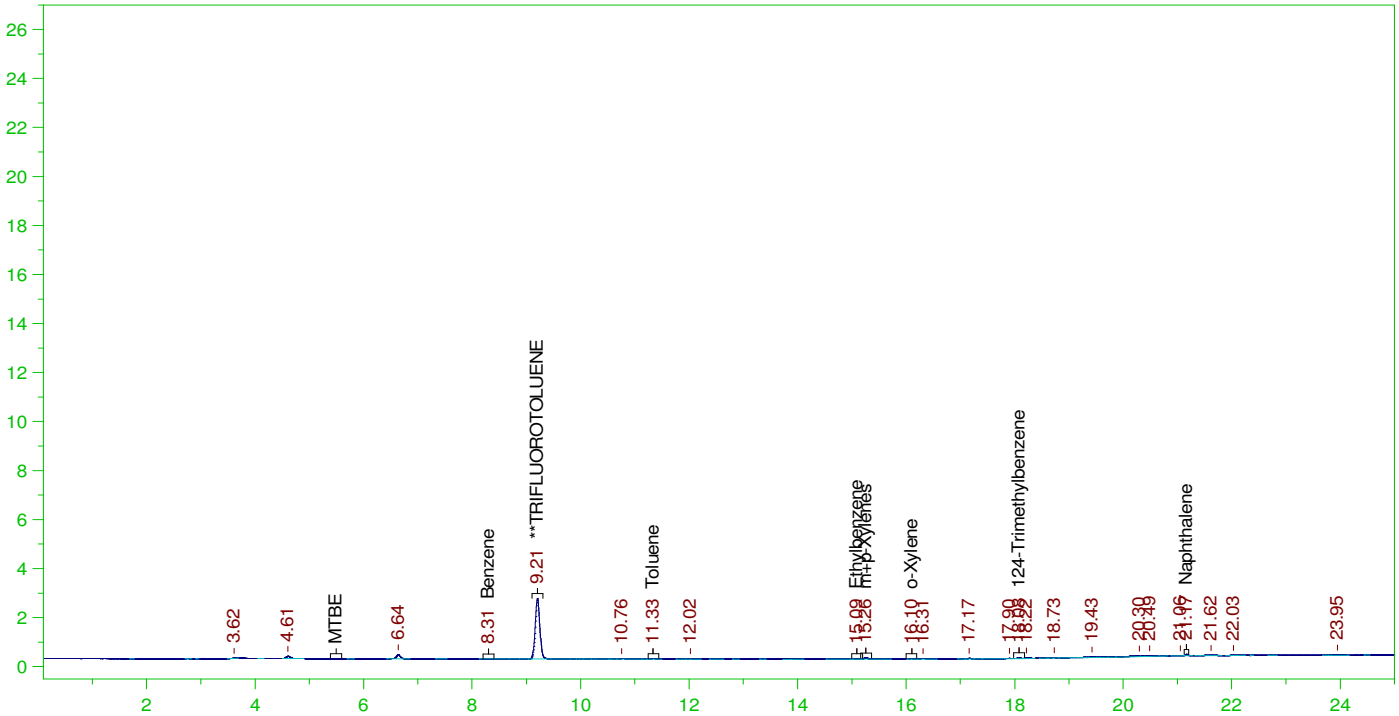
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.206	25.	24.298	97.19 -

GRO Area:16947 GRO Amount: 5.223144
TPH Area:518994.9 TPH Amount: 159.9566

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:10288.2 C5-C8 Amount: 4.316843
C9-C12 Area:233650.1 C9-C12 Amount: 91.13963

L-88-9_061615

— G:\Org\VAR\DAT\VAR061915_b\0619VAR.0016.RAW B15061723-003B ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-003B ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0016.RAW
Date & Time Acquired: 6/19/2015 5:39:51 PM
Method File: G:\Org\VAR\Methods\150513M1723-3.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

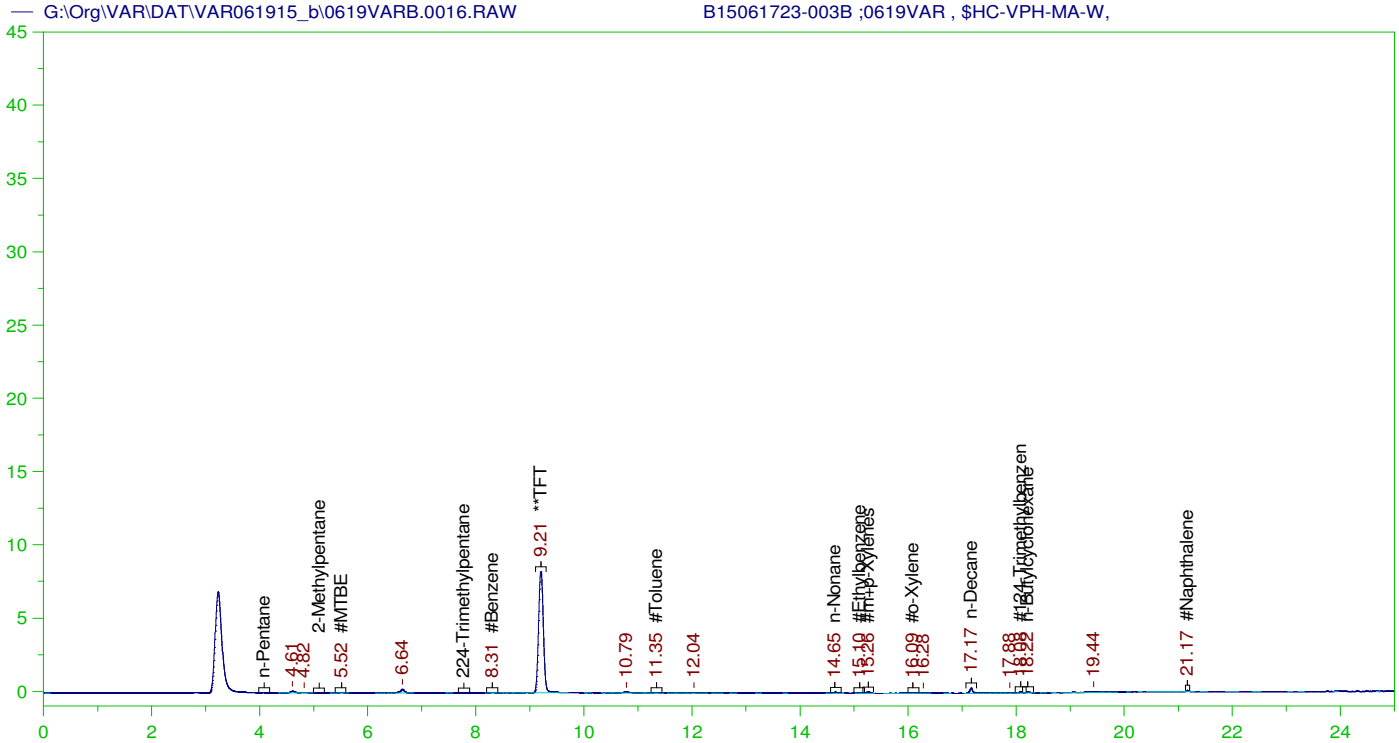
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1806.729 C9-C10 Aromatics Amount: 1.019159

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.308	8.308	8.308	88	.5	U
Toluene	11.33	11.33	11.33	120	.5	U
Ethylbenzene	15.091	15.091	15.091	128	.5	U
m+p-Xylenes	15.26	15.26	15.26	339	.5	U
o-Xylene	16.103	16.103	16.103	106	.5	U
124-Trimethylbenzene	18.082	18.082	18.082	154	.5	U
Naphthalene	21.168	21.168	21.168	177	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.206	25.	20.287	81.15	70-130

L-88-9_061615

— G:\Org\VAR\DAT\VAR061915_b\0619VARB.0016.RAW B15061723-003B ;0619VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-003B ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0016.RAW
Date & Time Acquired: 6/19/2015 5:39:51 PM
Method File: G:\Org\VAR\Methods\150513M1723-3B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

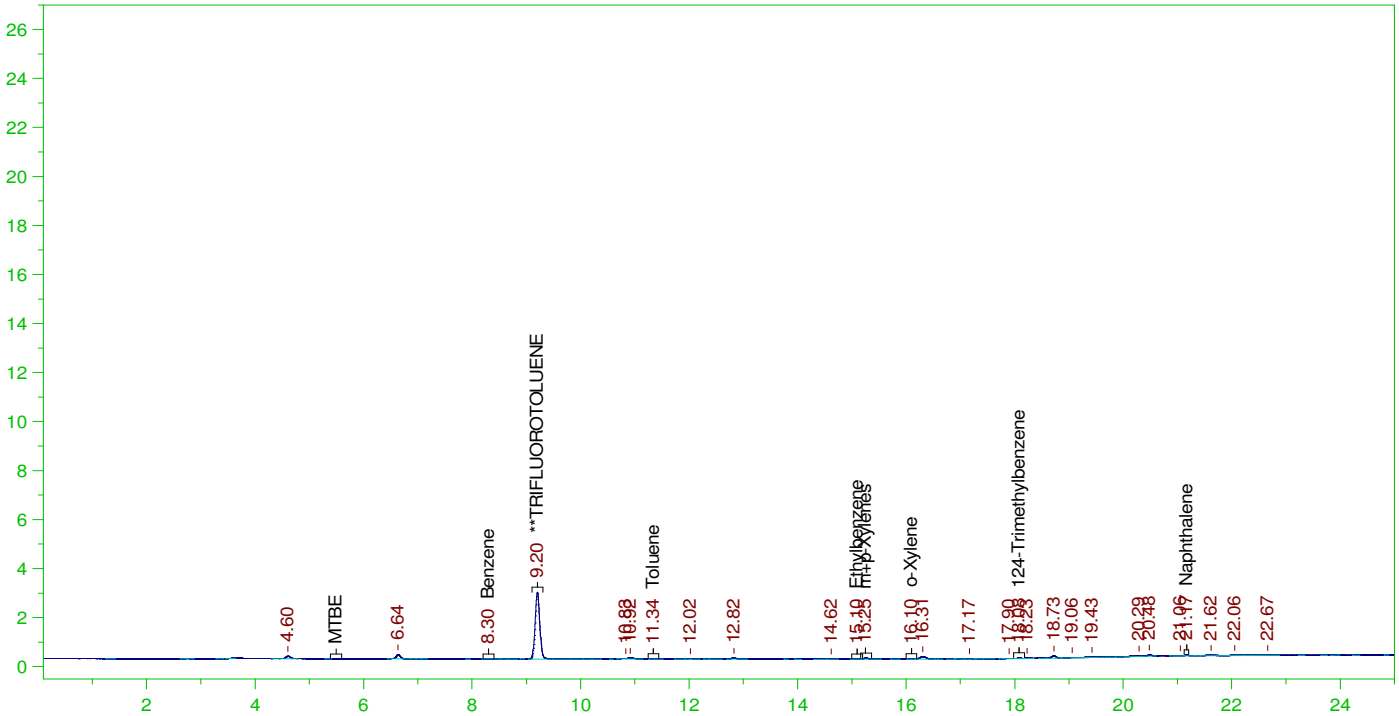
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.206	25.	21.57	86.28 -

GRO Area:7745.246 GRO Amount: 2.387121
TPH Area:11561.86 TPH Amount: 3.563419

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5288.246 C5-C8 Amount: 2.218903
C9-C12 Area:5700.911 C9-C12 Amount: 2.223748

EX-3_061615

G:\Org\VAR\DAT\VAR061915_b\0619VAR.0017.RAW B15061723-004B ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

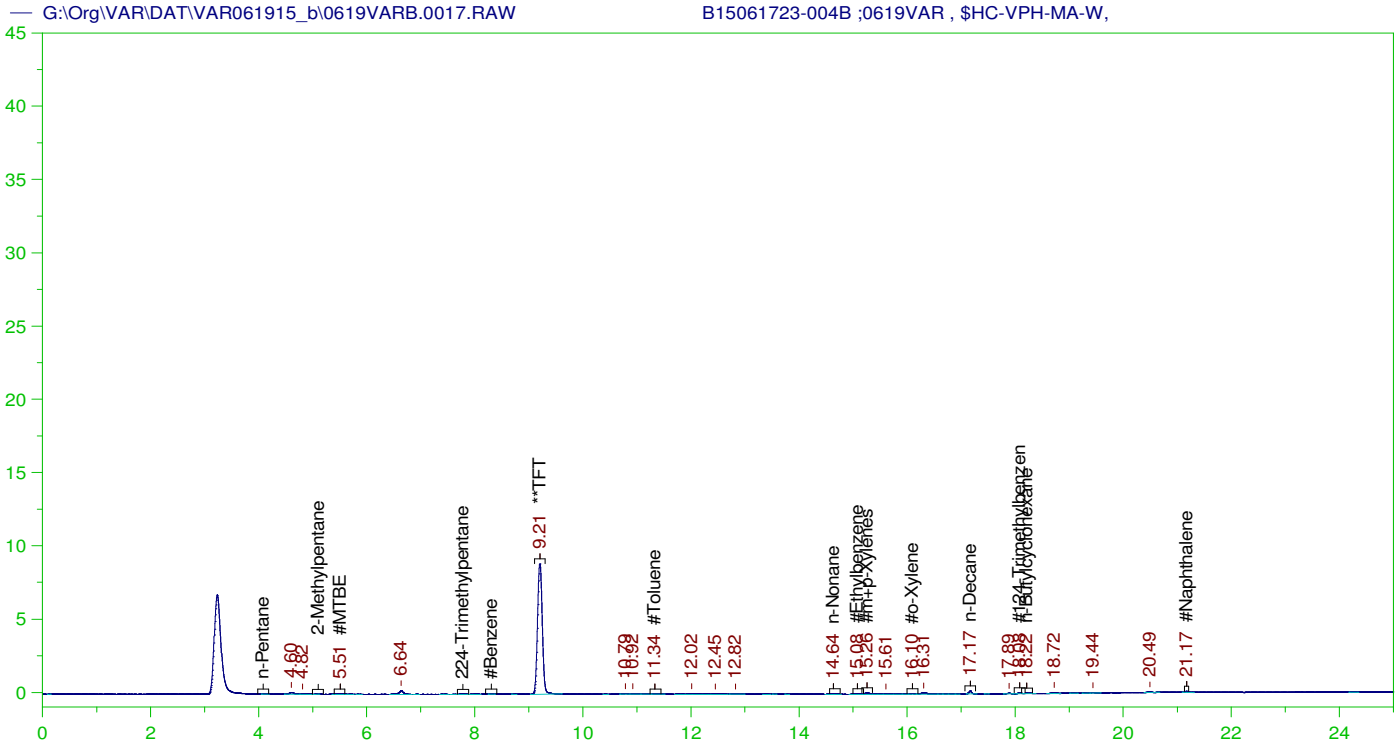
Sample Name: B15061723-004B ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0017.RAW
Date & Time Acquired: 6/19/2015 6:13:30 PM
Method File: G:\Org\VAR\Methods\150513M1723-4.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2701.656 C9-C10 Aromatics Amount: 1.523979

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.303	8.303	8.303	68	.5	U
Toluene	11.338	11.338	11.338	113	.5	U
Ethylbenzene	15.1	15.1	15.1	116	.5	U
m+p-Xylenes	15.254	15.254	15.254	277	.5	U
o-Xylene	16.098	16.098	16.098	95	.5	U
124-Trimethylbenzene	18.085	18.085	18.085	146	.5	U
Naphthalene	21.172	21.172	21.172	146	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.205	25.	22.443	89.77	70-130

EX-3_061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-004B ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0017.RAW
Date & Time Acquired: 6/19/2015 6:13:30 PM
Method File: G:\Org\VAR\Methods\150513M1723-4B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

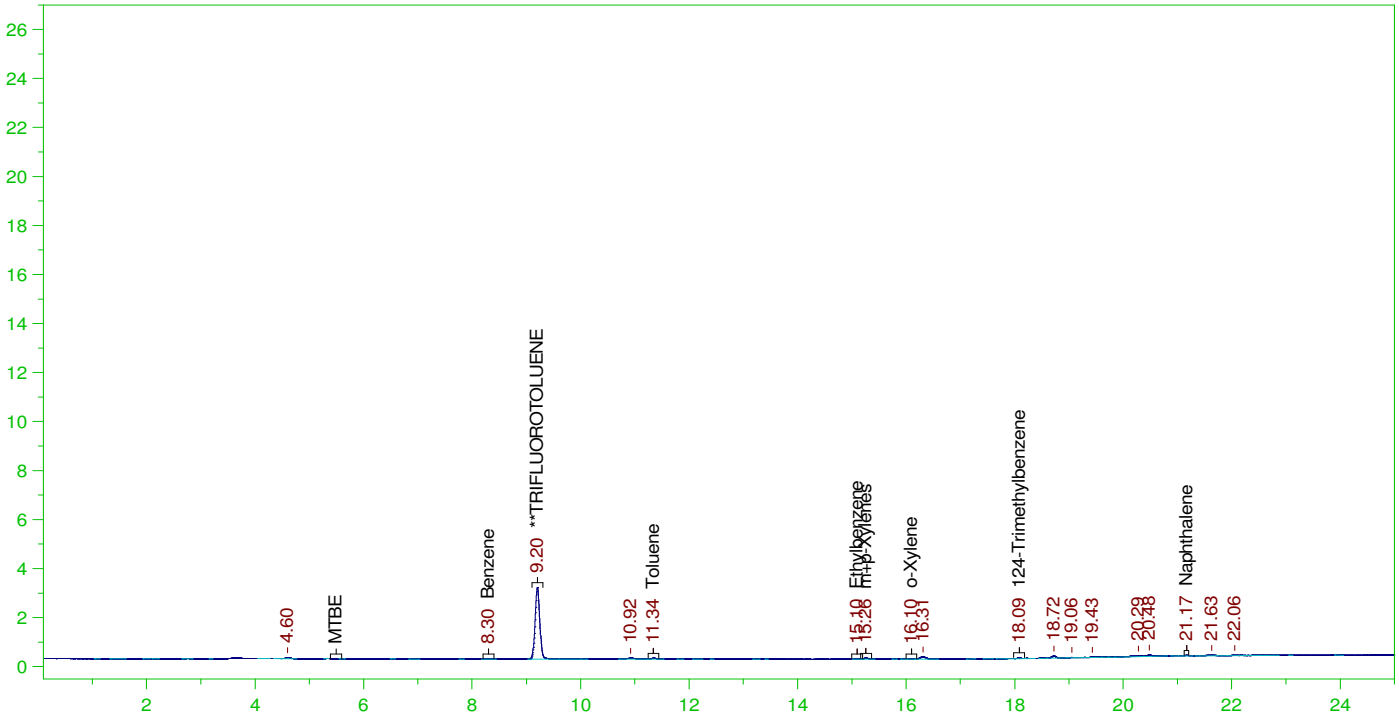
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.205	25.	23.11	92.44 -

GRO Area:8749.262 GRO Amount: 2.696563
TPH Area:12182.48 TPH Amount: 3.754698

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5623.09 C5-C8 Amount: 2.359401
C9-C12 Area:6250.984 C9-C12 Amount: 2.438314

TB1_061715

— G:\Org\VAR\DAT\VAR061915_b\0619VAR.0009.RAW B15061723-005A ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-005A ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0009.RAW
Date & Time Acquired: 6/19/2015 1:43:33 PM
Method File: G:\Org\VAR\Methods\150513M1723-5.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2696.072 C9-C10 Aromatics Amount: 1.520829

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.303	8.303	8.303	72	.5	U
Toluene	11.341	11.341	11.341	223	.5	U
Ethylbenzene	15.1	15.1	15.1	90	.5	U
m+p-Xylenes	15.257	15.257	15.257	256	.5	U
o-Xylene	16.096	16.096	16.096	89	.5	U
124-Trimethylbenzene	18.087	18.087	18.087	144	.5	U
Naphthalene	21.171	21.171	21.171	100	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.204	25.	24.149	96.59	70-130

TB1_061715

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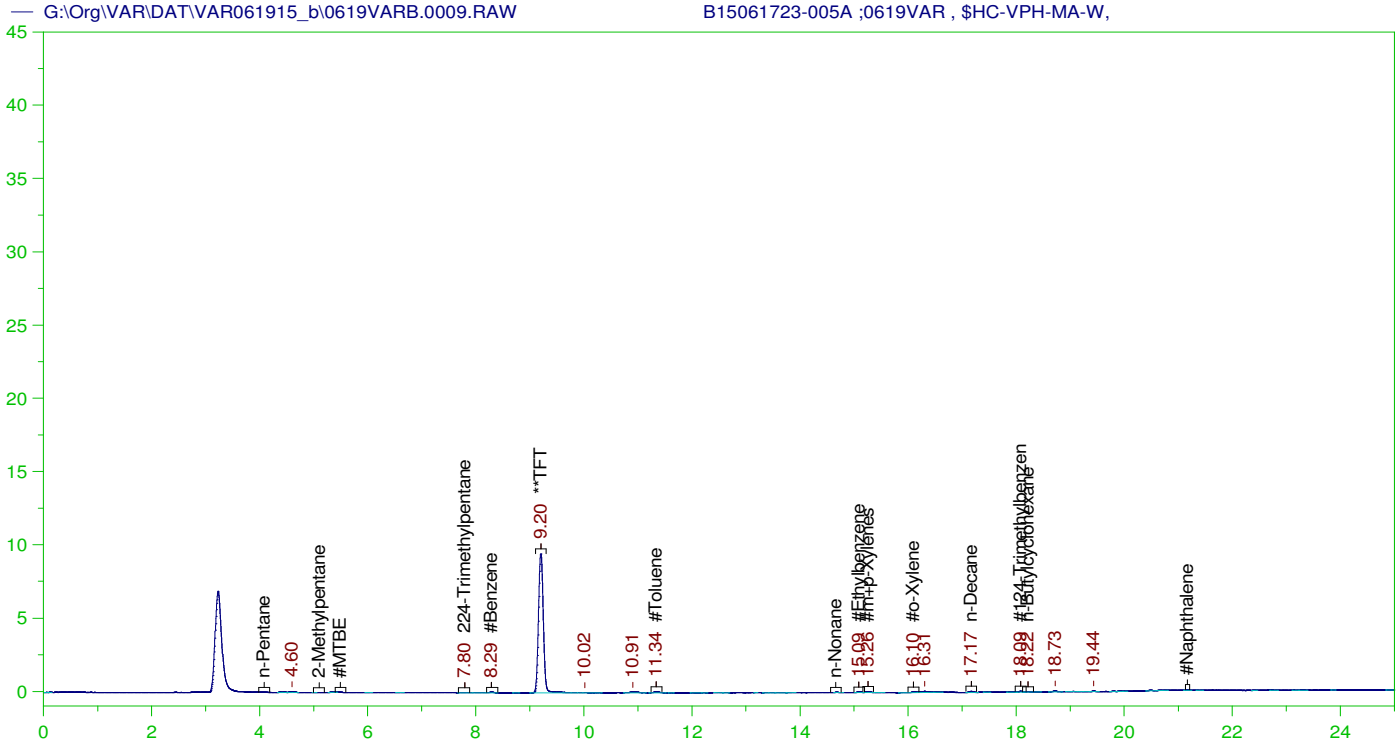


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-005A ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0009.RAW
Date & Time Acquired: 6/19/2015 1:43:33 PM
Method File: G:\Org\VAR\Methods\150513M1723-5B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

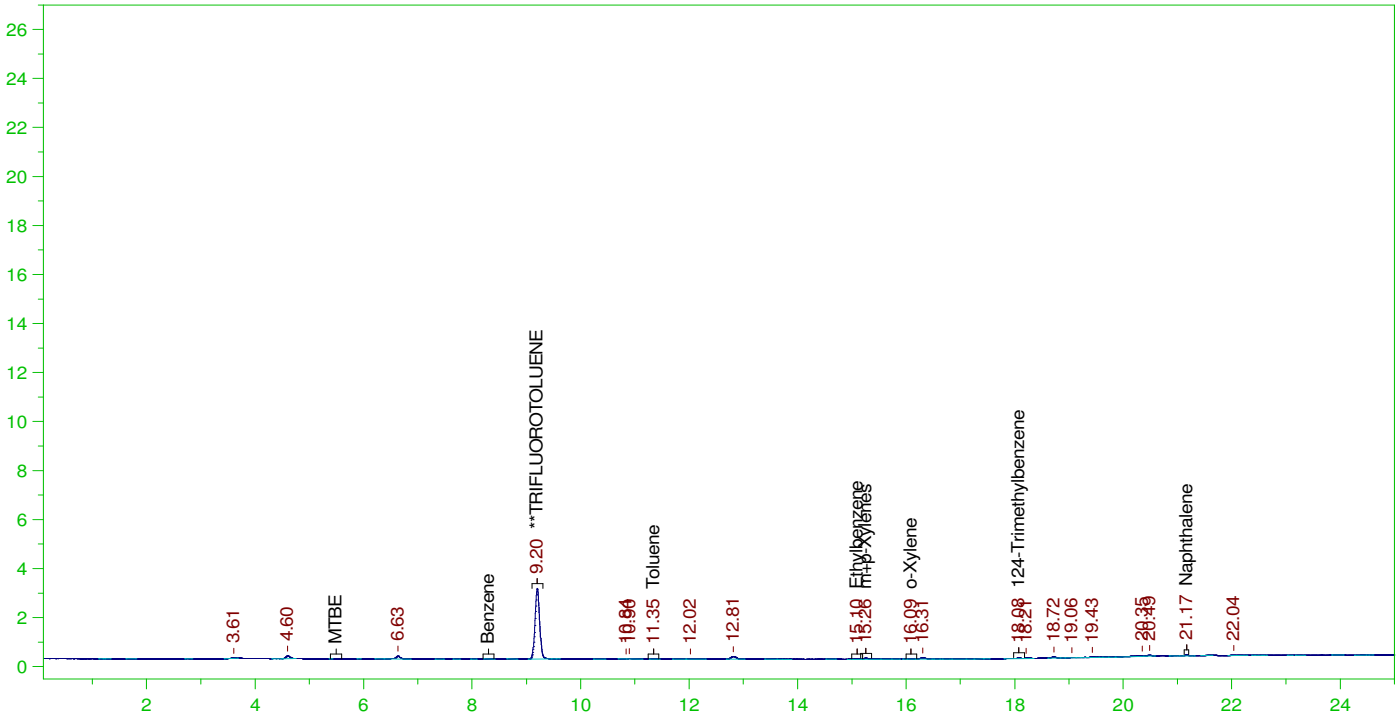
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.205	25.	24.942	99.77 -

GRO Area:4967.633 GRO Amount: 1.531048
TPH Area:7702.246 TPH Amount: 2.373868

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2924.137 C5-C8 Amount: 1.226943
C9-C12 Area:4405.208 C9-C12 Amount: 1.718334

D1_061715

G:\Org\VAR\DAT\VAR061915_b\0619VAR.0018.RAW B15061723-006F ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

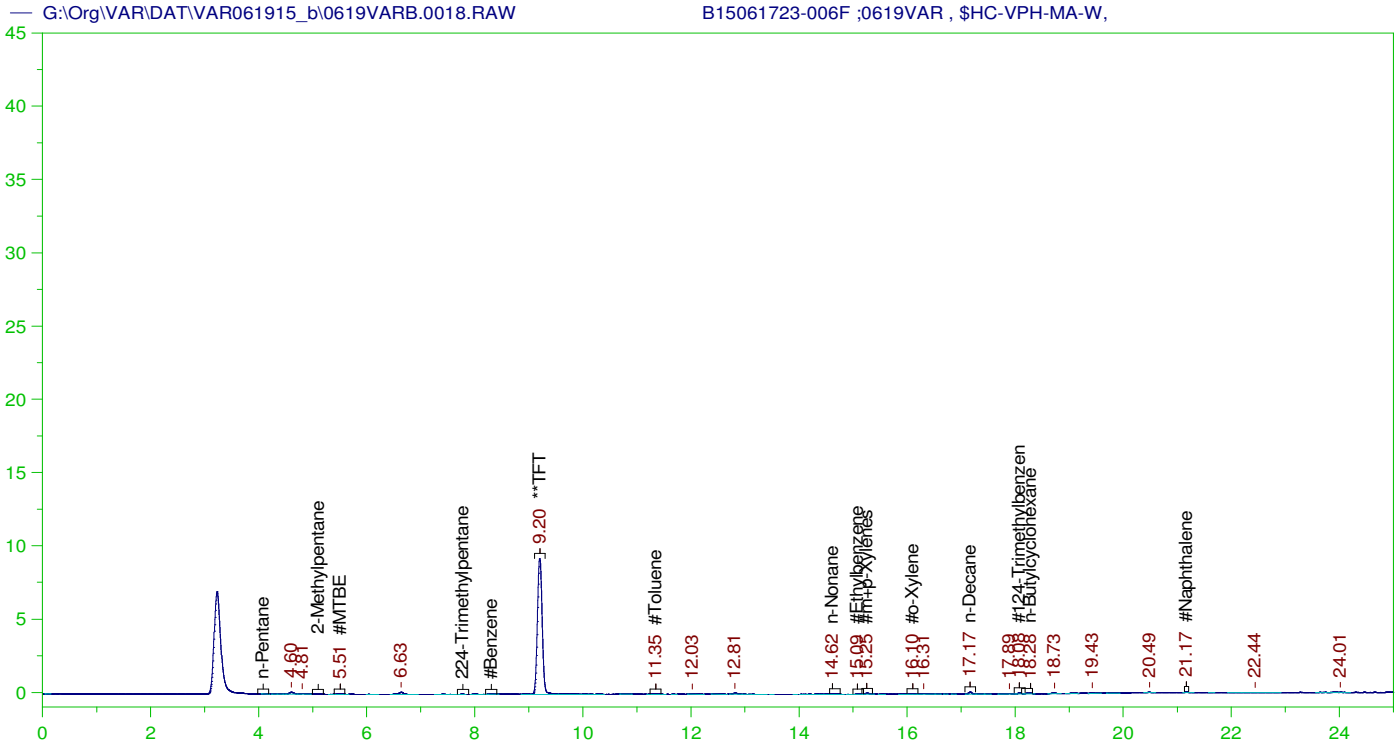
Sample Name: B15061723-006F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0018.RAW
Date & Time Acquired: 6/19/2015 6:47:39 PM
Method File: G:\Org\VAR\Methods\150513M1723-6.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1856.392 C9-C10 Aromatics Amount: 1.047173

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.345	11.345	11.345	71	.5	U
Ethylbenzene	15.101	15.101	15.101	101	.5	U
m+p-Xylenes	15.26	15.26	15.26	274	.5	U
o-Xylene	16.088	16.088	16.088	99	.5	U
124-Trimethylbenzene	18.077	18.077	18.077	141	.5	U
Naphthalene	21.169	21.169	21.169	147	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.202	25.	23.53	94.12	70-130

D1_061715



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-006F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0018.RAW
Date & Time Acquired: 6/19/2015 6:47:39 PM
Method File: G:\Org\VAR\Methods\150513M1723-6B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

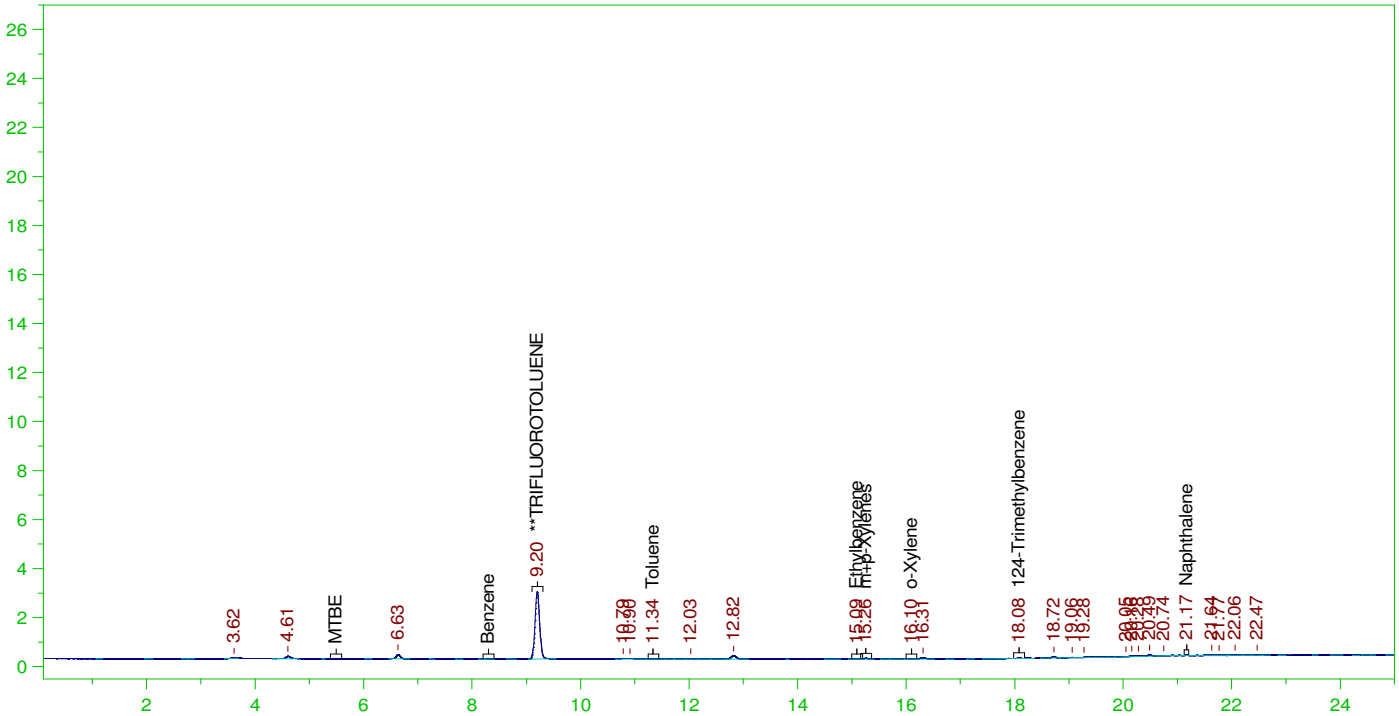
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	24.092	96.37 -

GRO Area:6444.824 GRO Amount: 1.986325
TPH Area:10917.16 TPH Amount: 3.364718

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5267.23 C5-C8 Amount: 2.210085
C9-C12 Area:4618.75 C9-C12 Amount: 1.801631

EX-17_061715

G:\Org\VAR\DAT\VAR061915_b\0619VAR.0019.RAW B15061723-007F ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

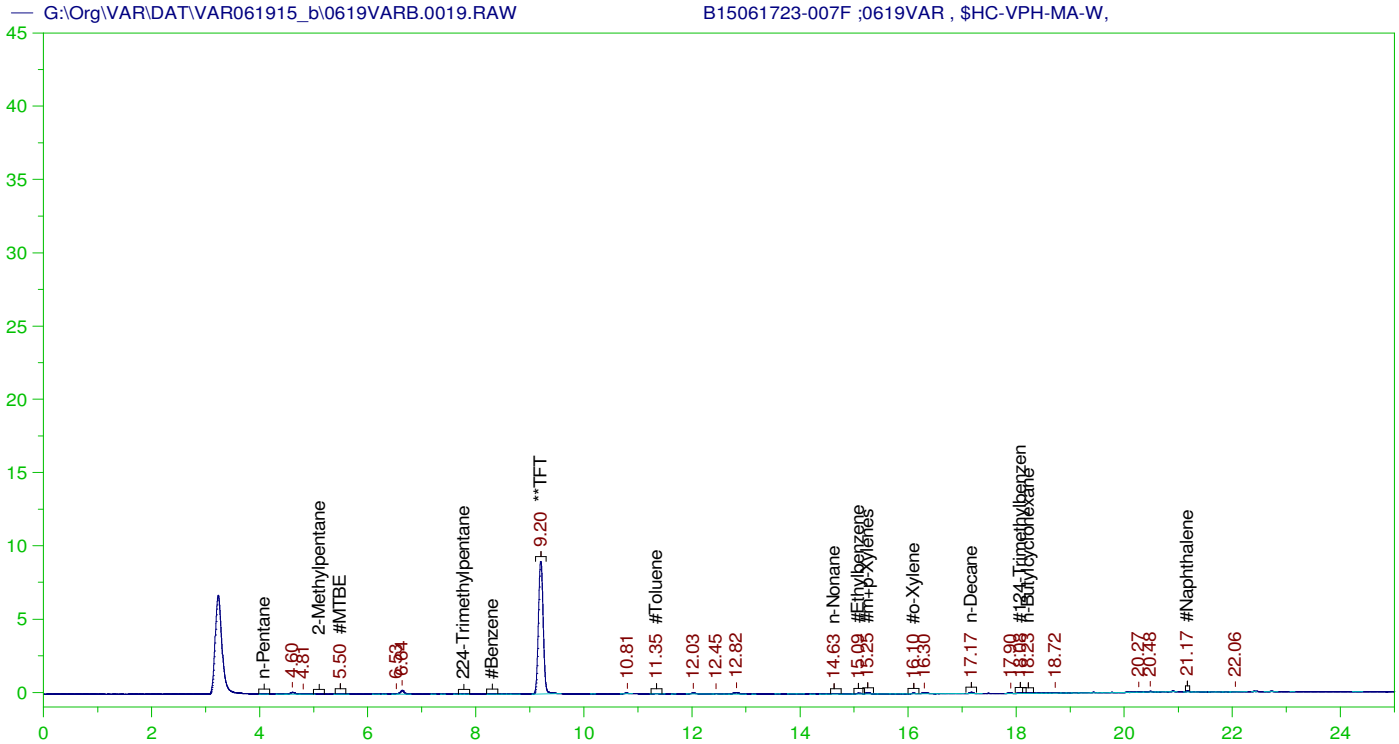
Sample Name: B15061723-007F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0019.RAW
Date & Time Acquired: 6/19/2015 7:21:35 PM
Method File: G:\Org\VAR\Methods\150513M1723-7.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2302.597 C9-C10 Aromatics Amount: 1.298874

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.335	11.335	11.335	96	.5	U
Ethylbenzene	15.091	15.091	15.091	100	.5	U
m+p-Xylenes	15.261	15.261	15.261	207	.5	U
o-Xylene	16.096	16.096	16.096	88	.5	U
124-Trimethylbenzene	18.082	18.082	18.082	122	.5	U
Naphthalene	21.169	21.169	21.169	108	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.203	25.	22.552	90.21	70-130

EX-17_061715



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-007F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0019.RAW
Date & Time Acquired: 6/19/2015 7:21:35 PM
Method File: G:\Org\VAR\Methods\150513M1723-7B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

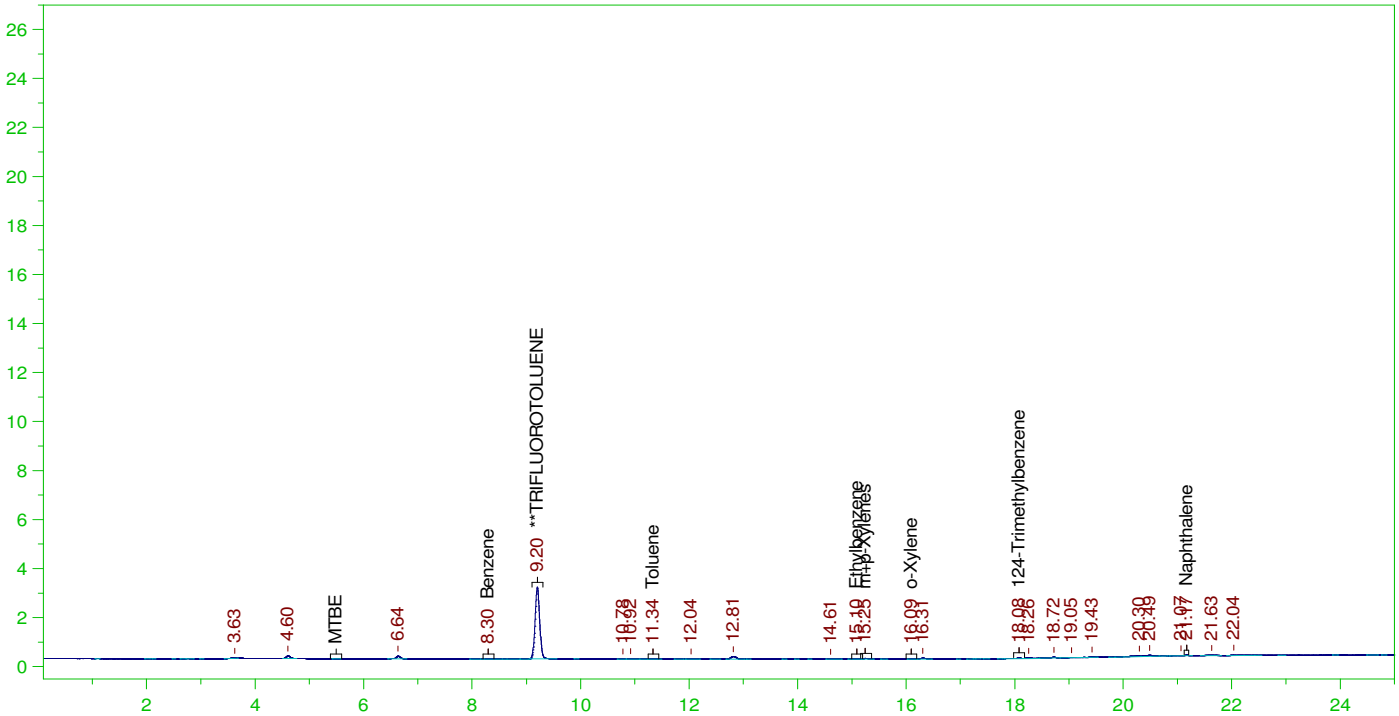
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	23.443	93.77 -

GRO Area:7290.973 GRO Amount: 2.247112
TPH Area:12445.02 TPH Amount: 3.835612

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5955.938 C5-C8 Amount: 2.499061
C9-C12 Area:5568.628 C9-C12 Amount: 2.172148

EX-16_061715

G:\Org\VAR\DAT\VAR061915_b\0619VAR.0020.RAW B15061723-008F ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-008F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0020.RAW
Date & Time Acquired: 6/19/2015 7:55:12 PM
Method File: G:\Org\VAR\Methods\150513M1723-8.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1834.22 C9-C10 Aromatics Amount: 1.034666

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.298	8.298	8.298	107	.5	U
Toluene	11.335	11.335	11.335	88	.5	U
Ethylbenzene	15.095	15.095	15.095	102	.5	U
m+p-Xylenes	15.249	15.249	15.249	199	.5	U
o-Xylene	16.089	16.089	16.089	87	.5	U
124-Trimethylbenzene	18.084	18.084	18.084	127	.5	U
Naphthalene	21.171	21.171	21.171	105	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.203	25.	23.824	95.29	70-130

EX-16_061715

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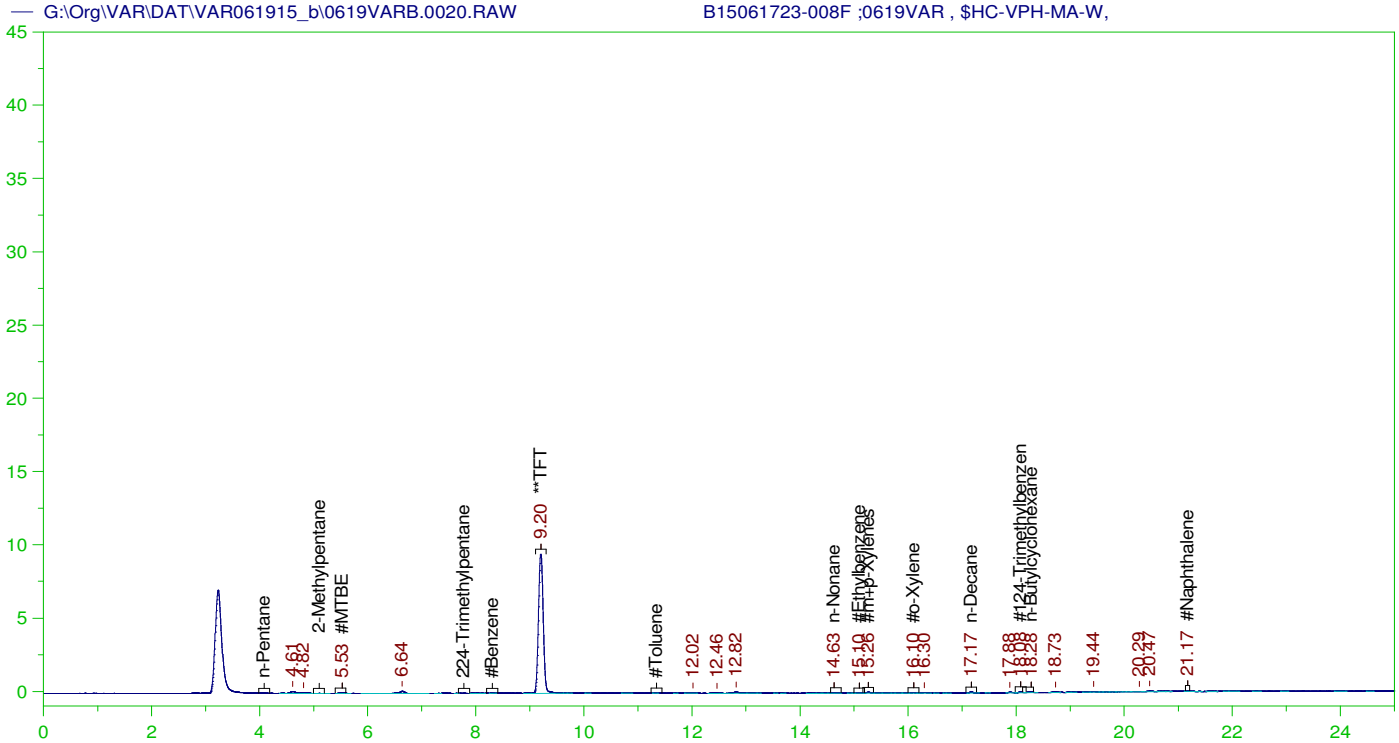


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-008F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0020.RAW
Date & Time Acquired: 6/19/2015 7:55:12 PM
Method File: G:\Org\VAR\Methods\150513M1723-8B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

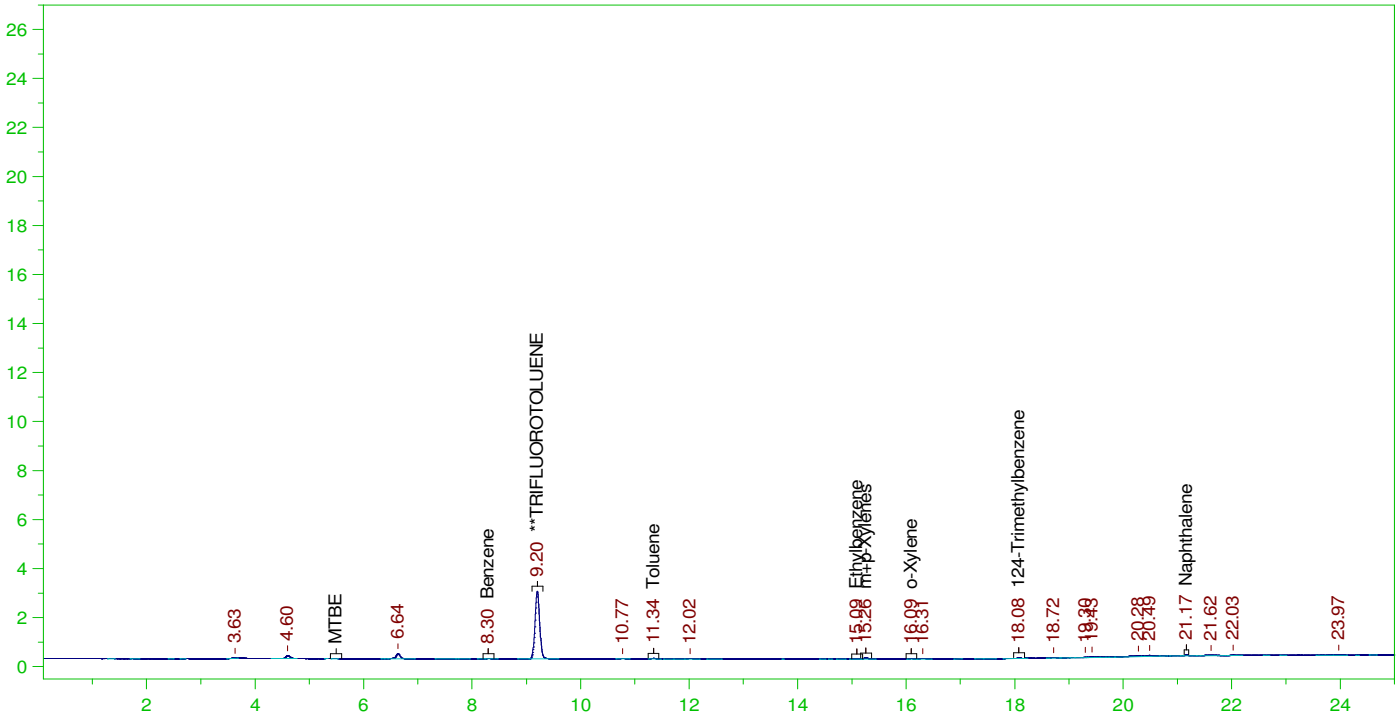
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.204	25.	24.631	98.52 -

GRO Area:5552.035 GRO Amount: 1.711163
TPH Area:9942.84 TPH Amount: 3.064429

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5028.156 C5-C8 Amount: 2.109772
C9-C12 Area:4324.063 C9-C12 Amount: 1.686682

RX_061715

G:\Org\VAR\DAT\VAR061915_b\0619VAR.0022.RAW B15061723-009F ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-009F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0022.RAW
Date & Time Acquired: 6/19/2015 9:01:55 PM
Method File: G:\Org\VAR\Methods\150513M1723-9.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

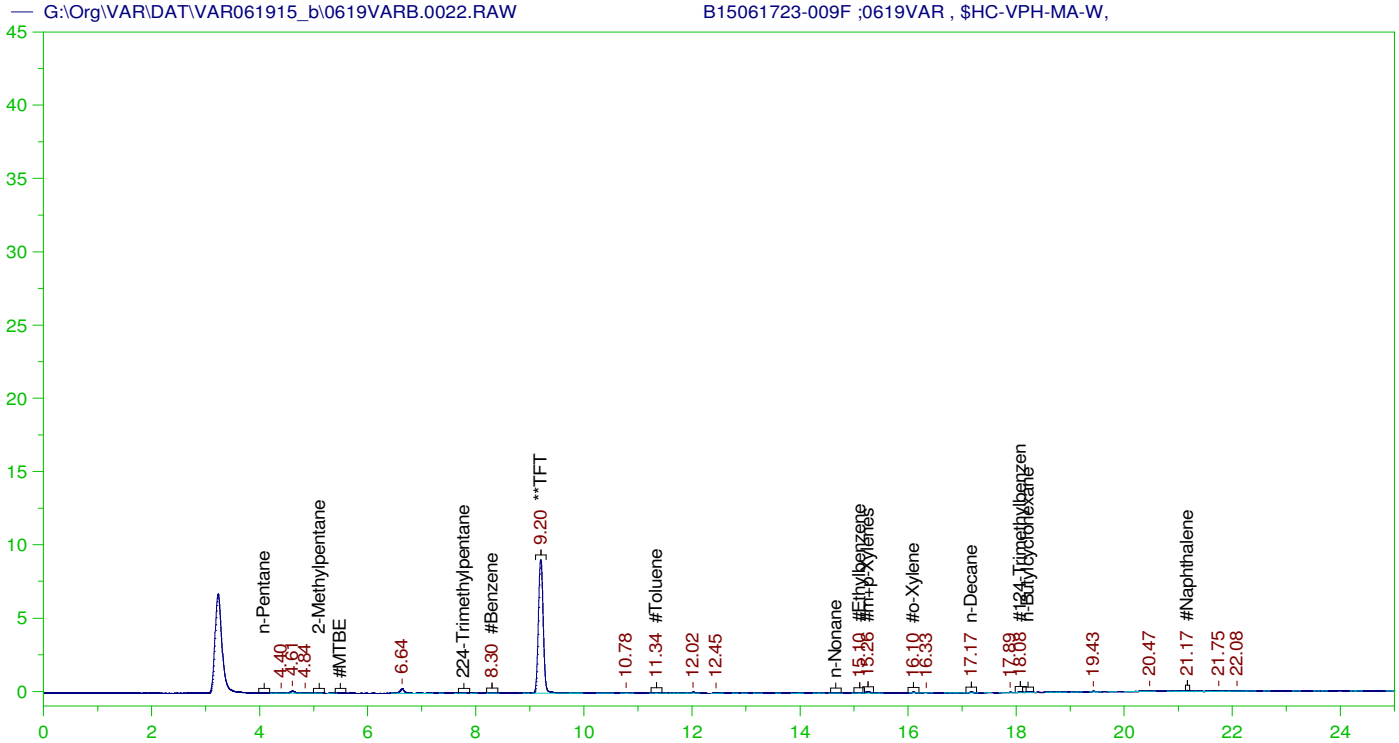
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1638.911 C9-C10 Aromatics Amount: 0.9244946

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.297	8.297	8.297	93	.5	U
Toluene	11.344	11.344	11.344	159	.5	U
Ethylbenzene	15.091	15.091	15.091	101	.5	U
m+p-Xylenes	15.26	15.26	15.26	300	.5	U
o-Xylene	16.09	16.09	16.09	108	.5	U
124-Trimethylbenzene	18.08	18.08	18.08	134	.5	U
Naphthalene	21.167	21.167	21.167	126	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.203	25.	22.773	91.09	70-130

RX_061715

— G:\Org\VAR\DAT\VAR061915_b\0619VARB.0022.RAW B15061723-009F ;0619VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-009F ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0022.RAW
Date & Time Acquired: 6/19/2015 9:01:55 PM
Method File: G:\Org\VAR\Methods\150513M1723-9B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

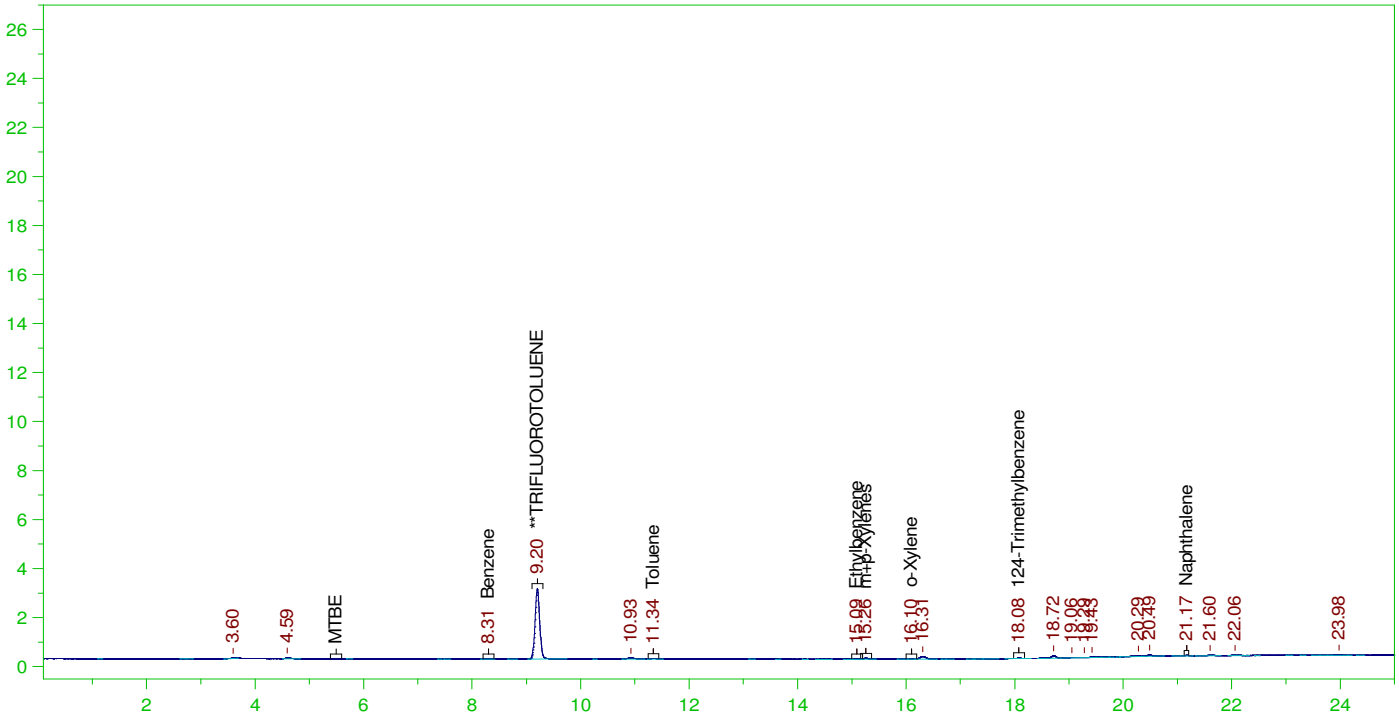
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	23.789	95.16 -

GRO Area:6302.02 GRO Amount: 1.942312
TPH Area:10743.4 TPH Amount: 3.311165

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5920.008 C5-C8 Amount: 2.483985
C9-C12 Area:3832.706 C9-C12 Amount: 1.495019

TB5_061615

G:\Org\VAR\DAT\VAR061915_b\0619VAR.0010.RAW B15061723-010A ;0619VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-010A ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VAR.0010.RAW
Date & Time Acquired: 6/19/2015 2:17:41 PM
Method File: G:\Org\VAR\Methods\150513M1723-10.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

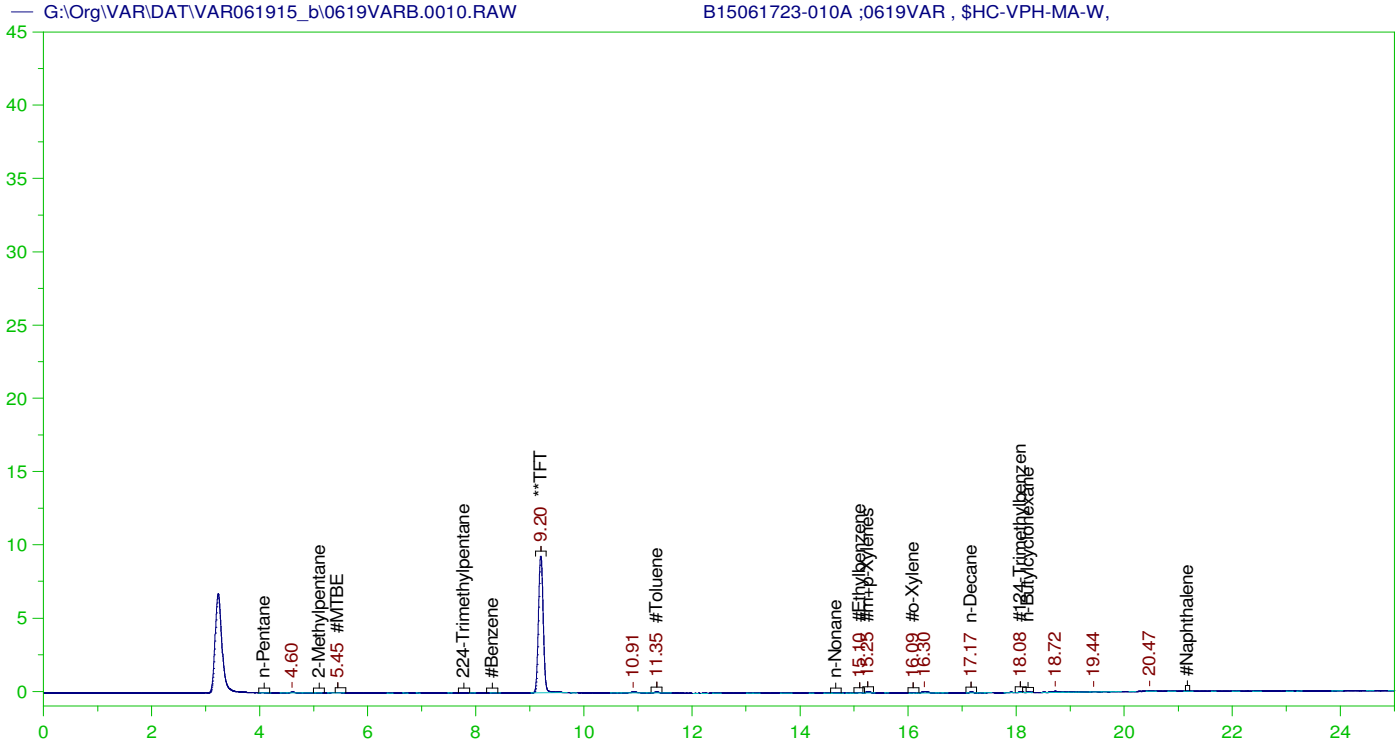
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2803.892 C9-C10 Aromatics Amount: 1.581649

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.308	8.308	8.308	76	.5	U
Toluene	11.337	11.337	11.337	183	.5	U
Ethylbenzene	15.094	15.094	15.094	98	.5	U
m+p-Xylenes	15.259	15.259	15.259	241	.5	U
o-Xylene	16.1	16.1	16.1	78	.5	U
124-Trimethylbenzene	18.079	18.079	18.079	129	.5	U
Naphthalene	21.17	21.17	21.17	85	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.203	25.	23.533	94.13	70-130

TB5_061615

G:\Org\VAR\DAT\VAR061915_b\0619VARB.0010.RAW B15061723-010A ;0619VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-010A ;0619VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR061915_b\0619VARB.0010.RAW
Date & Time Acquired: 6/19/2015 2:17:41 PM
Method File: G:\Org\VAR\Methods\150513M1723-10B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

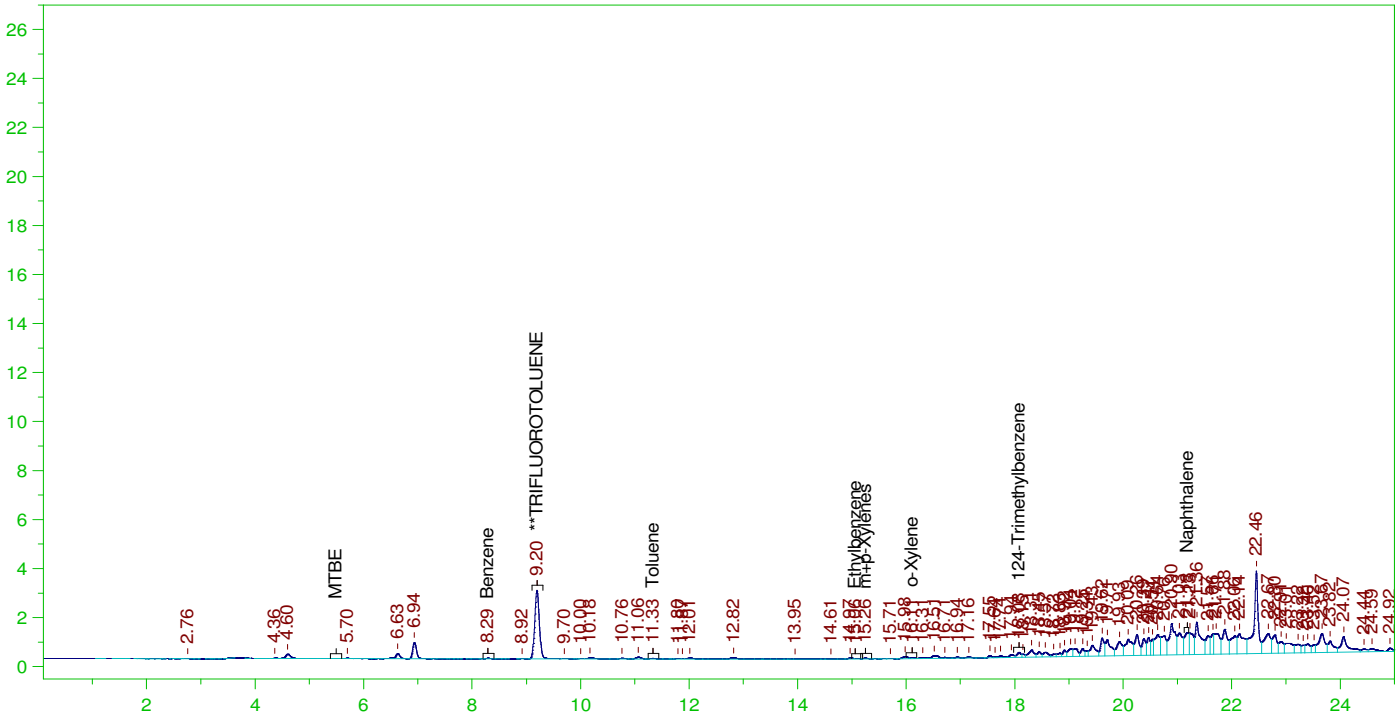
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.204	25.	24.193	96.77 -

GRO Area:4104.691 GRO Amount: 1.265085
TPH Area:7040.742 TPH Amount: 2.169989

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2463.164 C5-C8 Amount: 1.033523
C9-C12 Area:4191.411 C9-C12 Amount: 1.634939

D1_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0032.RAW B15061723-011B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-011B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0032.RAW
Date & Time Acquired: 6/23/2015 3:05:32 AM
Method File: G:\Org\VAR\Methods\150513M1723-11.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:80768.16 C9-C10 Aromatics Amount: 45.56057

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.291	8.291	8.291	131	.5	U
Toluene	11.331	11.331	11.331	210	.5	U
Ethylbenzene	15.062	15.062	15.062	110	.5	U
m+p-Xylenes	15.256	15.256	15.256	152	.5	U
o-Xylene	16.113	16.113	16.113	248	.5	U
124-Trimethylbenzene	18.08	-8.877	-8.883	1117	.648	
Naphthalene	21.184	-11.964	-11.987	5129	~~2.735~~ NO pf6/24/15	

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	23.137	92.55	70-130

D1_061615

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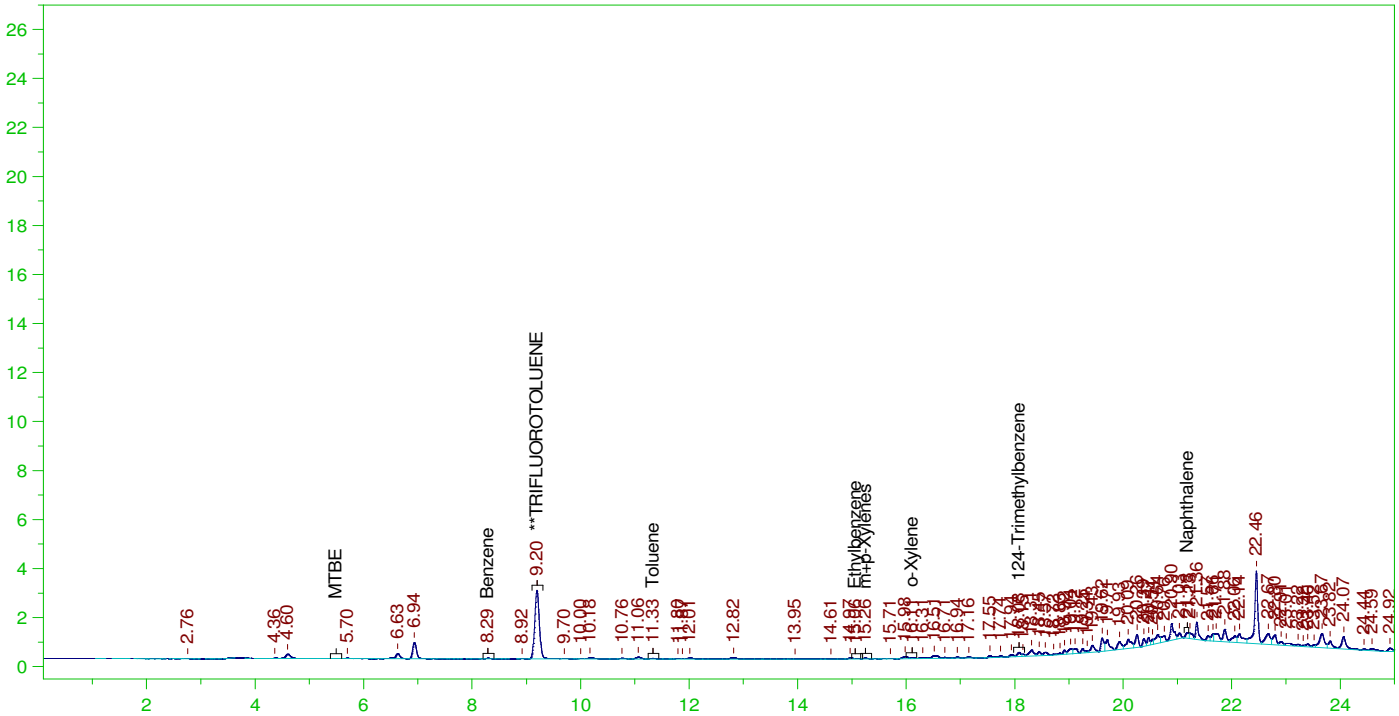


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-011B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0032.RAW
Date & Time Acquired: 6/23/2015 3:05:32 AM
Method File: G:\Org\VAR\Methods\150513M1723-11N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

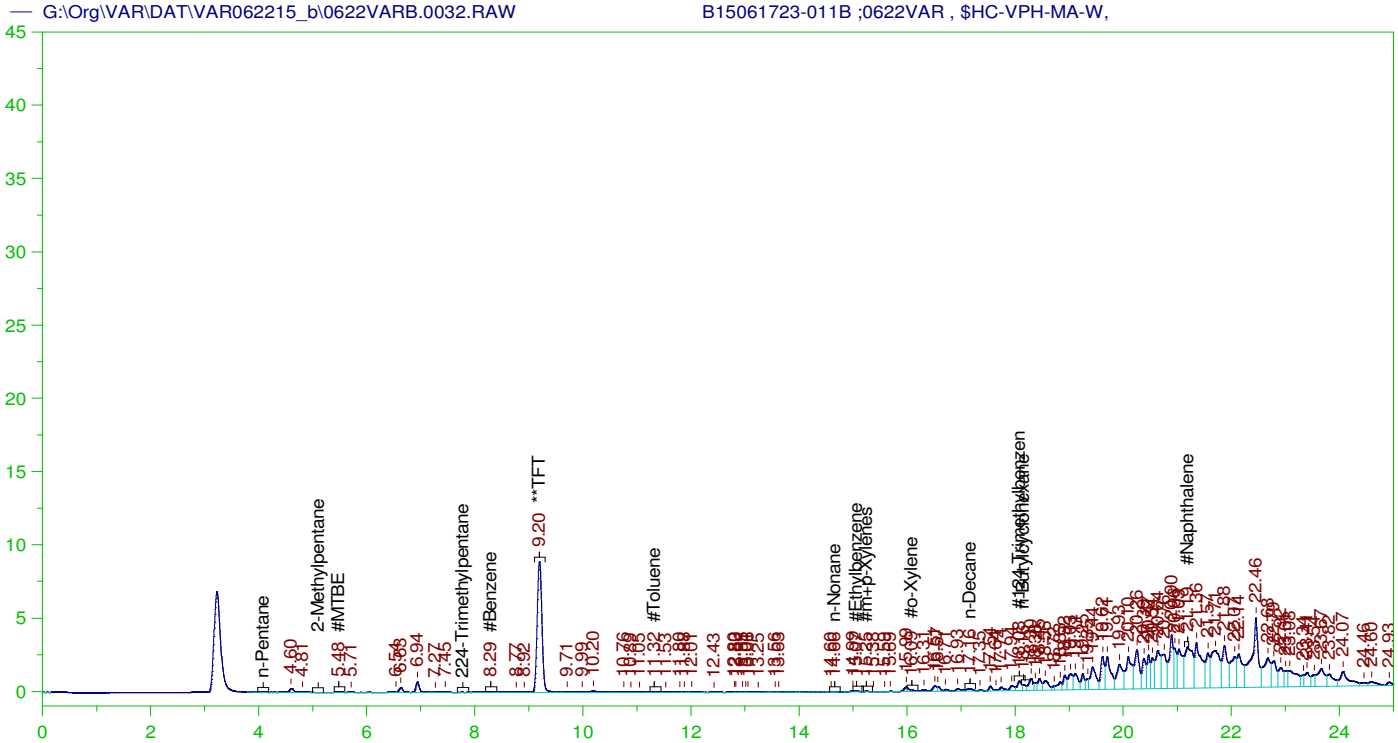
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:34915.15 C9-C10 Aromatics Amount: 19.69531

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.291~~	~~8.291~~	~~8.291~~	~~131~~	~~.5~~	~~U~~
~~Toluene~~	~~11.331~~	~~11.331~~	~~11.331~~	~~210~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.062~~	~~15.062~~	~~15.062~~	~~110~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.256~~	~~15.256~~	~~15.256~~	~~152~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.113~~	~~16.113~~	~~16.113~~	~~248~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.08~~	~~8.877~~	~~8.883~~	~~874~~	~~.506~~	
Naphthalene	21.184	21.184	21.184	980	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	23.137	92.55	70-130

D1_061615

G:\Org\VAR\DAT\VAR062215_b\0622VARB.0032.RAW B15061723-011B ;0622VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-011B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0032.RAW
Date & Time Acquired: 6/23/2015 3:05:32 AM
Method File: G:\Org\VAR\Methods\150513M1723-11B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

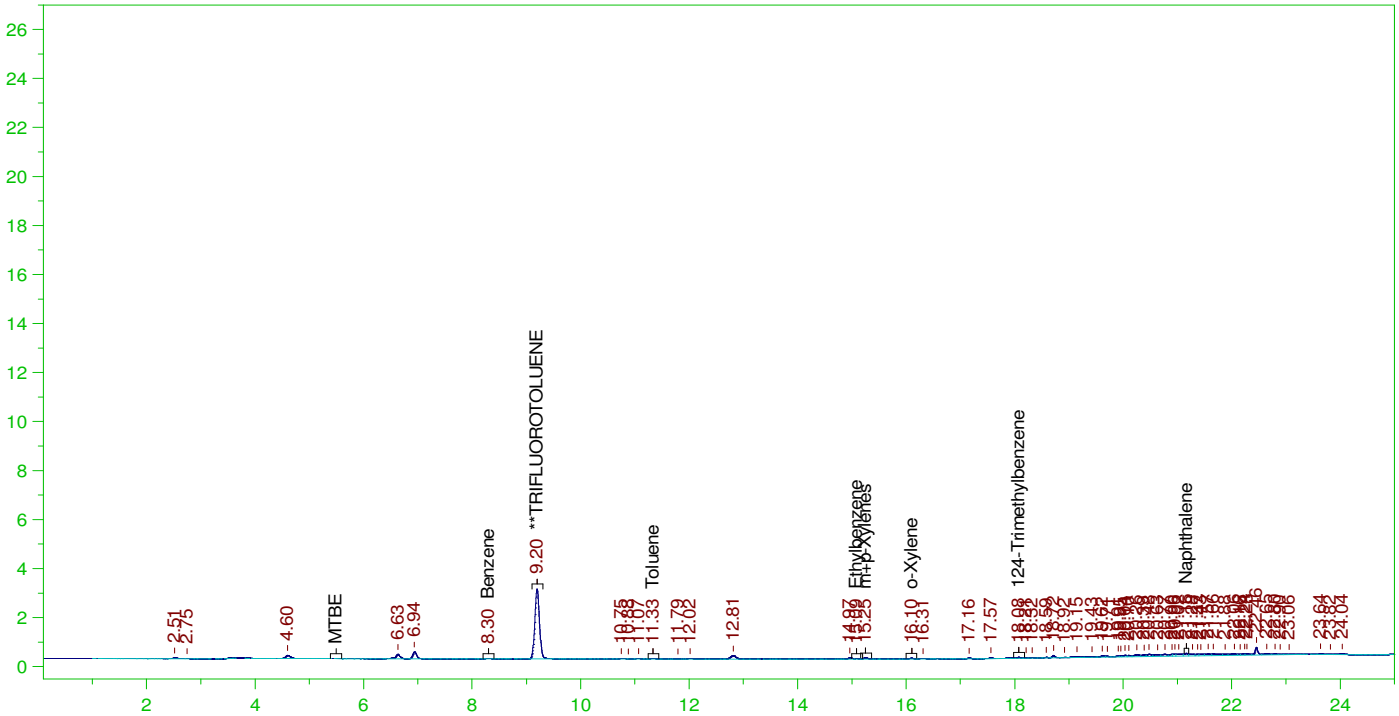
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.198	25.	23.334	93.34 -

GRO Area:31407.91 GRO Amount: 9.680062
TPH Area:571774.2 TPH Amount: 176.2235

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:21917.86 C5-C8 Amount: 9.196548
C9-C12 Area:255953 C9-C12 Amount: 99.83931

EX-51_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0016.RAW B15061723-012B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-012B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0016.RAW
Date & Time Acquired: 6/22/2015 5:59:44 PM
Method File: G:\Org\VAR\Methods\150513M1723-12.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

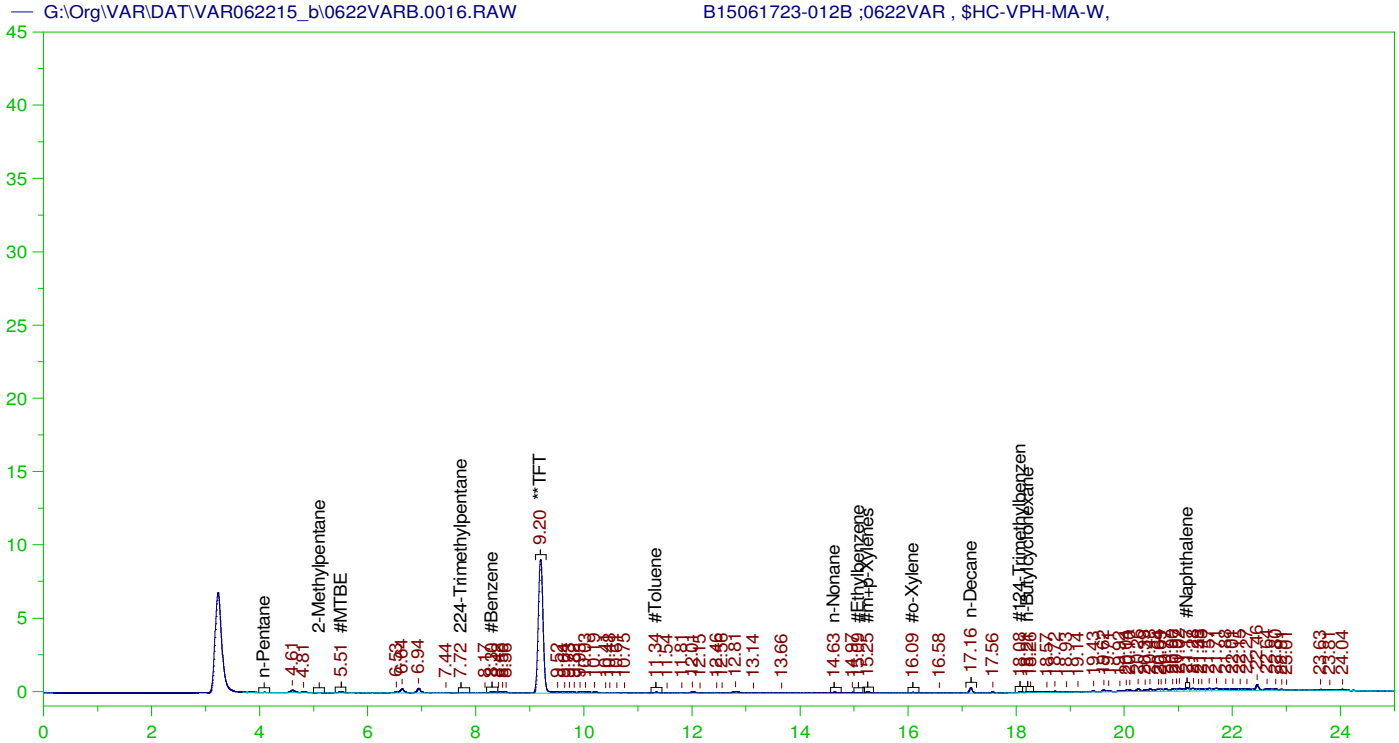
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:7396.522 C9-C10 Aromatics Amount: 4.172309

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.304	8.304	8.304	93	.5	U
Toluene	11.332	11.332	11.332	169	.5	U
Ethylbenzene	15.087	15.087	15.087	102	.5	U
m+p-Xylenes	15.253	15.253	15.253	256	.5	U
o-Xylene	16.103	16.103	16.103	175	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	157	.5	U
Naphthalene	21.163	21.163	21.163	552	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.199	25.	23.479	93.92	70-130

EX-51_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VARB.0016.RAW B15061723-012B ;0622VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-012B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0016.RAW
Date & Time Acquired: 6/22/2015 5:59:44 PM
Method File: G:\Org\VAR\Methods\150513M1723-12B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

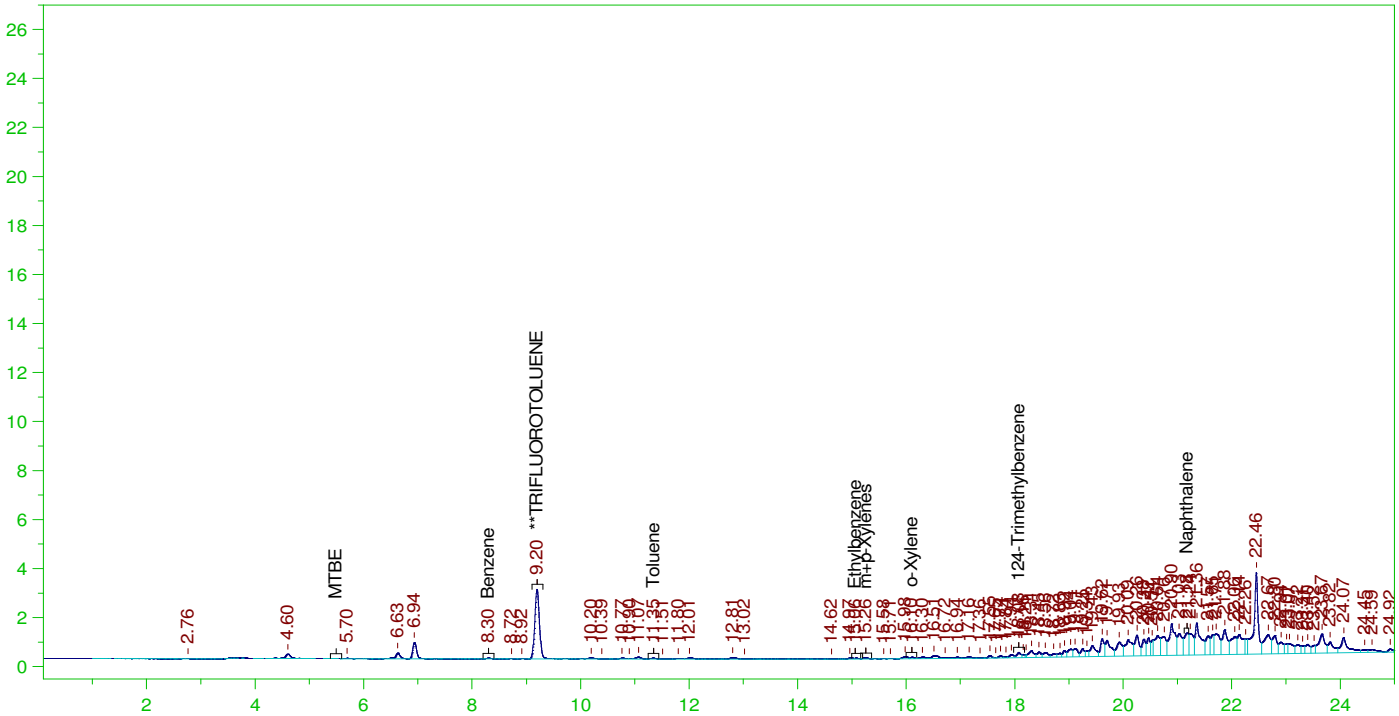
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	23.801	95.2 -

GRO Area:24152.79 GRO Amount: 7.444003
TPH Area:53993.54 TPH Amount: 16.64106

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:21189.44 C5-C8 Amount: 8.89091
C9-C12 Area:18775.82 C9-C12 Amount: 7.323865

EX-59_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0017.RAW B15061723-013B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-013B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0017.RAW
Date & Time Acquired: 6/22/2015 6:34:07 PM
Method File: G:\Org\VAR\Methods\150513M1723-13.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:79470.31 C9-C10 Aromatics Amount: 44.82846

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.303	8.303	8.303	161	.5	U
Toluene	11.346	11.346	11.346	238	.5	U
Ethylbenzene	15.064	15.064	15.064	137	.5	U
m+p-Xylenes	15.256	15.256	15.256	285	.5	U
o-Xylene	16.103	16.103	16.103	278	.5	U
124-Trimethylbenzene	18.079	-8.877	-8.881	1136	.658	
Naphthalene	21.178	-11.964	-11.98	5137	~~2.74~~ NO pf6/24/15	

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	23.405	93.62	70-130

EX-59_061615

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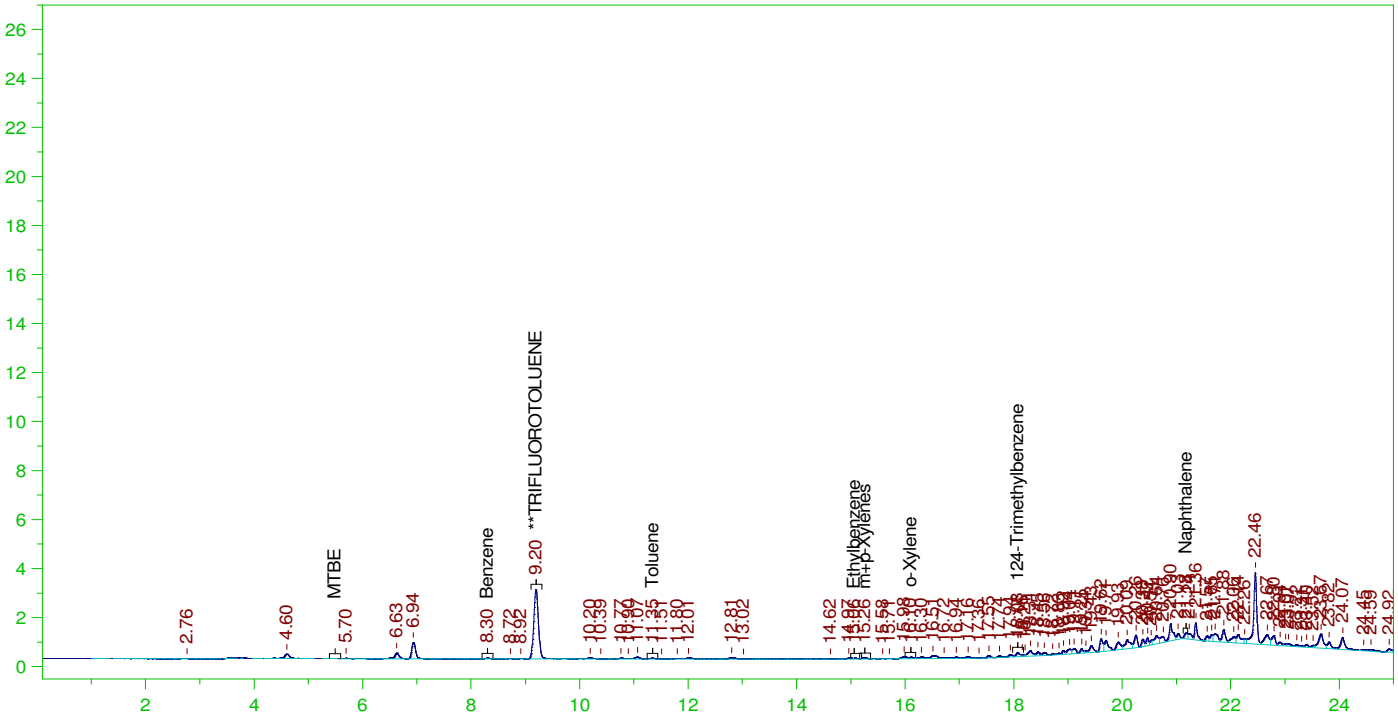


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-013B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0017.RAW
Date & Time Acquired: 6/22/2015 6:34:07 PM
Method File: G:\Org\VAR\Methods\150513M1723-13N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

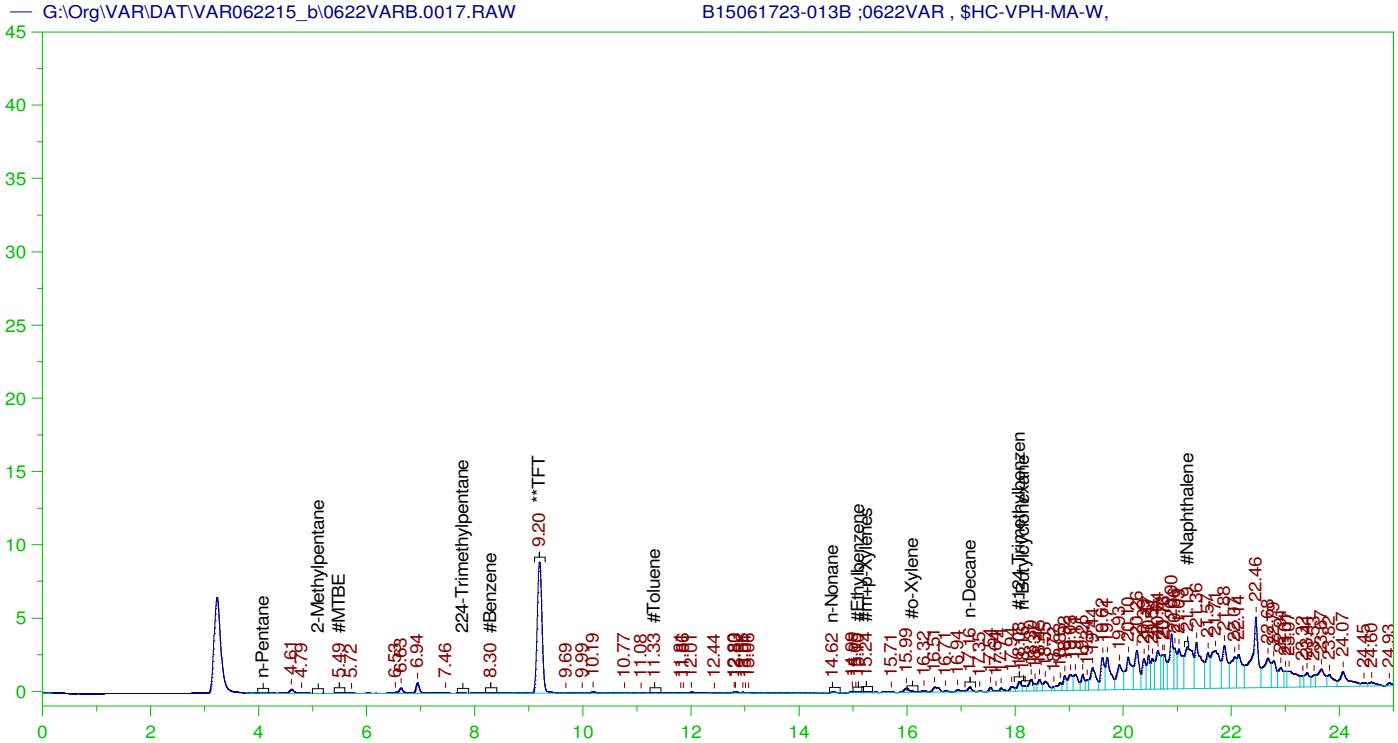
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:34025.92 C9-C10 Aromatics Amount: 19.19371

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.303~~	~~8.303~~	~~8.303~~	~~161~~	~~.5~~	~~U~~
~~Toluene~~	~~11.346~~	~~11.346~~	~~11.346~~	~~238~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.064~~	~~15.064~~	~~15.064~~	~~137~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.256~~	~~15.256~~	~~15.256~~	~~285~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.103~~	~~16.103~~	~~16.103~~	~~278~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.079~~	~~8.877~~	~~8.881~~	~~850~~	~~.493~~	~~J~~
Naphthalene	21.178	21.178	21.178	1012	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	23.405	93.62	70-130

EX-59_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VARB.0017.RAW B15061723-013B ;0622VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-013B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0017.RAW
Date & Time Acquired: 6/22/2015 6:34:07 PM
Method File: G:\Org\VAR\Methods\150513M1723-13B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

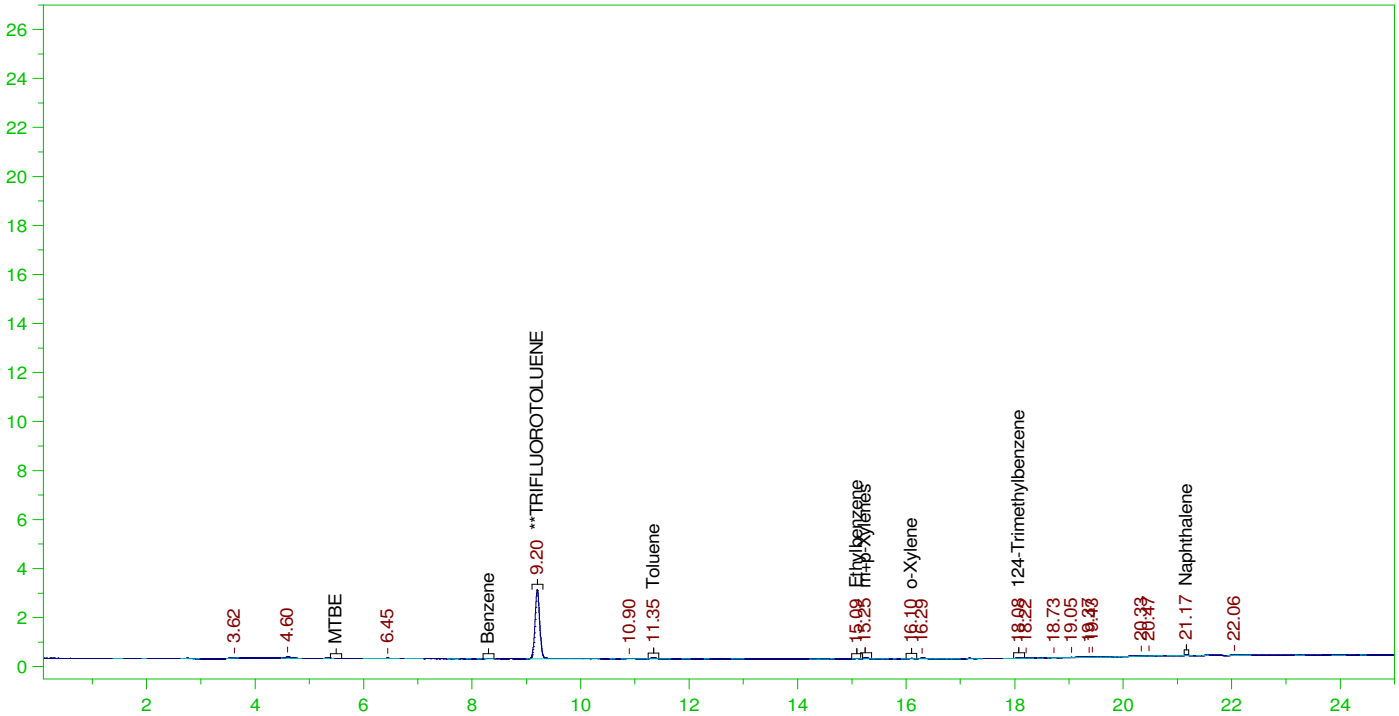
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	23.28	93.12 -

GRO Area:29472.61 GRO Amount: 9.083593
TPH Area:578483.3 TPH Amount: 178.2912

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:19063.74 C5-C8 Amount: 7.998983
C9-C12 Area:260614.2 C9-C12 Amount: 101.6575

TB2_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0007.RAW B15061723-014A ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-014A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0007.RAW
Date & Time Acquired: 6/22/2015 12:43:22 PM
Method File: G:\Org\VAR\Methods\150513M1723-14.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1458.135 C9-C10 Aromatics Amount: 0.8225201

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.347	11.347	11.347	250	.5	U
Ethylbenzene	15.091	15.091	15.091	95	.5	U
m+p-Xylenes	15.249	15.249	15.249	282	.5	U
o-Xylene	16.1	16.1	16.1	110	.5	U
124-Trimethylbenzene	18.08	18.08	18.08	130	.5	U
Naphthalene	21.167	21.167	21.167	139	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.203	25.	23.342	93.37	70-130

TB2_061615

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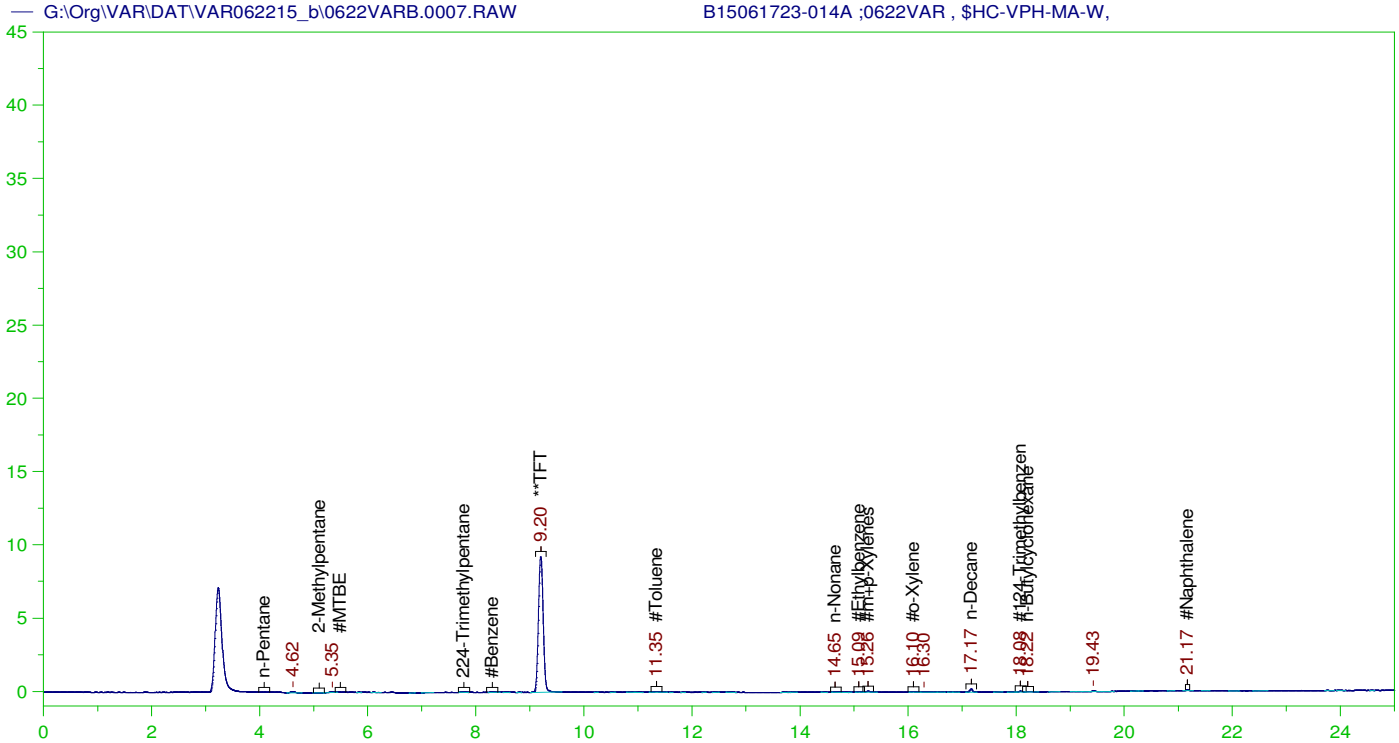


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-014A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0007.RAW
Date & Time Acquired: 6/22/2015 12:43:22 PM
Method File: G:\Org\VAR\Methods\150513M1723-14B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

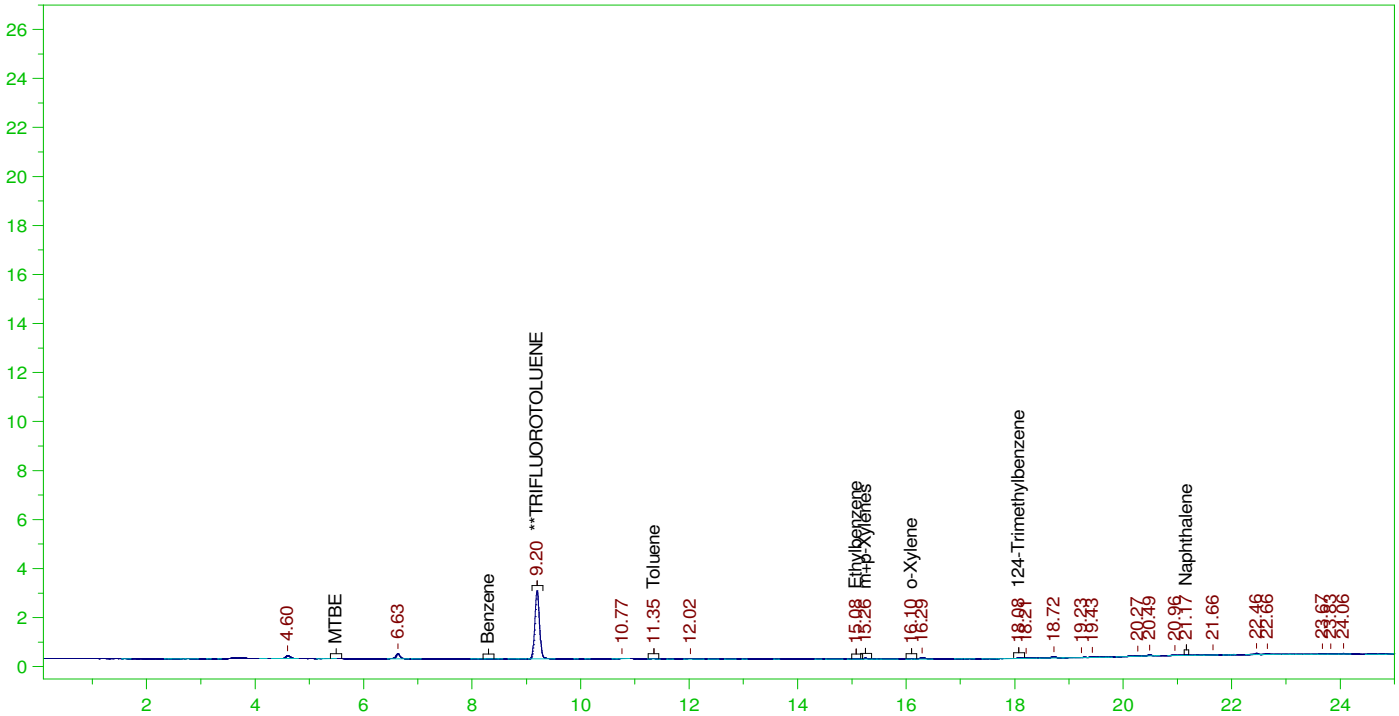
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	24.006	96.02 -

GRO Area:4098.473 GRO Amount: 1.263168
TPH Area:6244.699 TPH Amount: 1.924645

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2082.945 C5-C8 Amount: 0.8739861
C9-C12 Area:3696.571 C9-C12 Amount: 1.441917

RX-061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0018.RAW B15061723-015B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

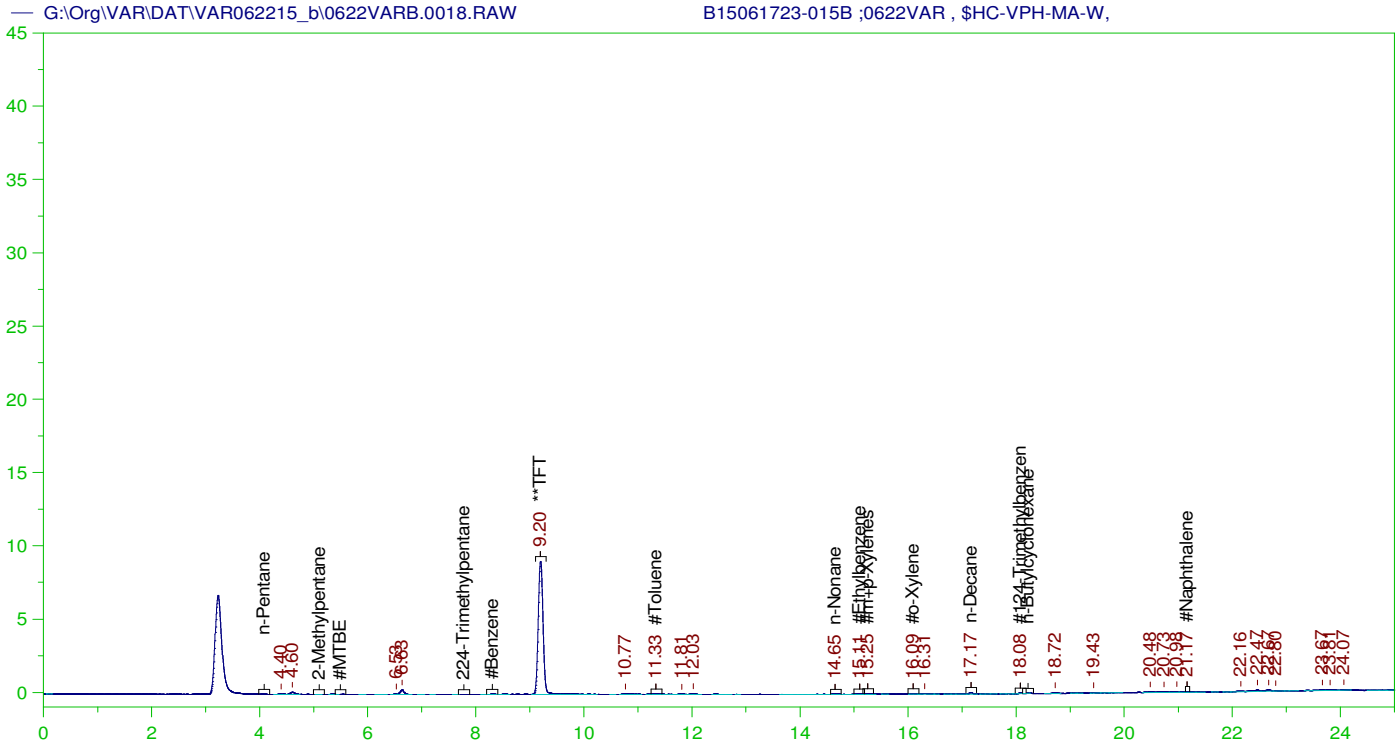
Sample Name: B15061723-015B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0018.RAW
Date & Time Acquired: 6/22/2015 7:08:23 PM
Method File: G:\Org\VAR\Methods\150513M1723-15.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1908.276 C9-C10 Aromatics Amount: 1.076441

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.348	11.348	11.348	101	.5	U
Ethylbenzene	15.083	15.083	15.083	96	.5	U
m+p-Xylenes	15.255	15.255	15.255	195	.5	U
o-Xylene	16.097	16.097	16.097	81	.5	U
124-Trimethylbenzene	18.077	18.077	18.077	118	.5	U
Naphthalene	21.165	21.165	21.165	146	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	22.805	91.22	70-130

RX-061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-015B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0018.RAW
Date & Time Acquired: 6/22/2015 7:08:23 PM
Method File: G:\Org\VAR\Methods\150513M1723-15B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

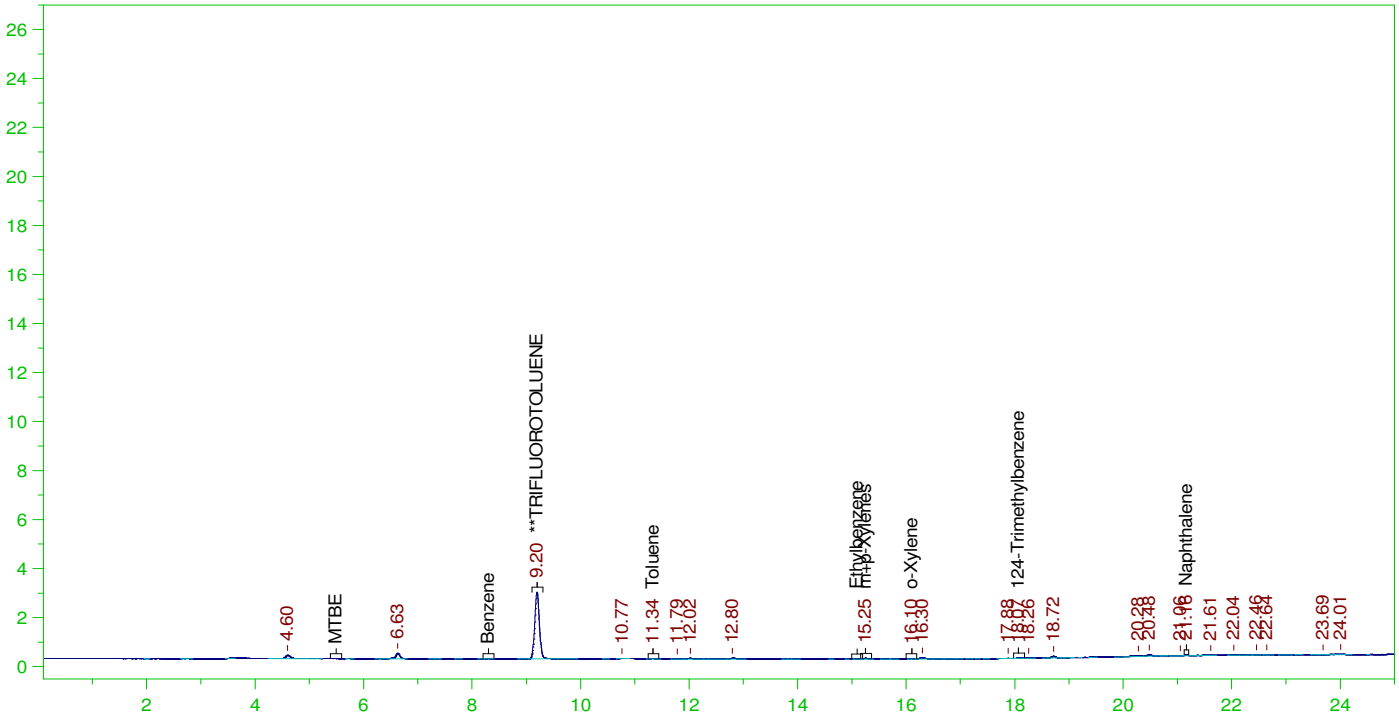
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	23.648	94.59 -

GRO Area:6550.691 GRO Amount: 2.018954
TPH Area:13736.63 TPH Amount: 4.233692

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5628.871 C5-C8 Amount: 2.361826
C9-C12 Area:4562.646 C9-C12 Amount: 1.779746

EX-11_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0019.RAW B15061723-016B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

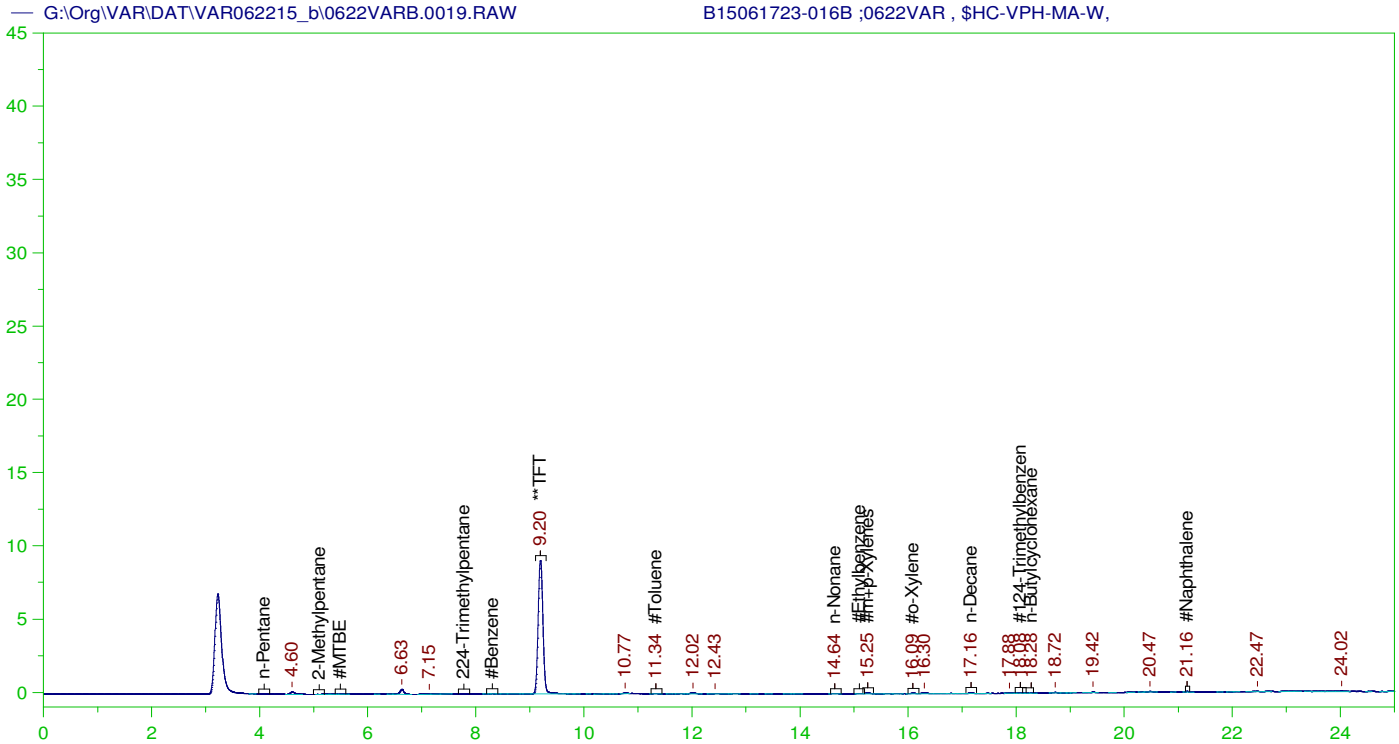
Sample Name: B15061723-016B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0019.RAW
Date & Time Acquired: 6/22/2015 7:42:17 PM
Method File: G:\Org\VAR\Methods\150513M1723-16.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2071.694 C9-C10 Aromatics Amount: 1.168623

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.335	11.335	11.335	93	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.254	15.254	15.254	161	.5	U
o-Xylene	16.104	16.104	16.104	82	.5	U
124-Trimethylbenzene	18.073	18.073	18.073	113	.5	U
Naphthalene	21.163	21.163	21.163	140	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	22.506	90.03	70-130

EX-11_061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-016B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0019.RAW
Date & Time Acquired: 6/22/2015 7:42:17 PM
Method File: G:\Org\VAR\Methods\150513M1723-16B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

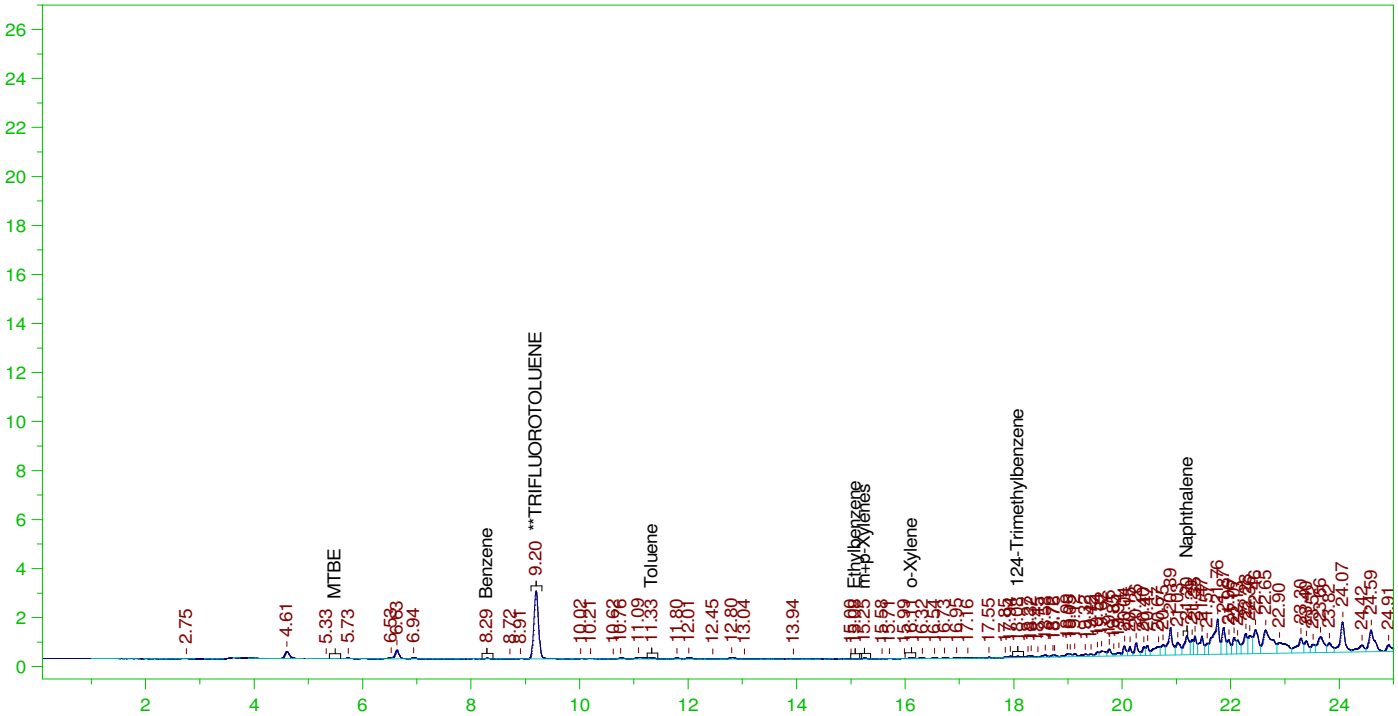
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.198	25.	23.88	95.52 -

GRO Area:6931.336 GRO Amount: 2.13627
TPH Area:11025.49 TPH Amount: 3.398107

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5924.121 C5-C8 Amount: 2.485711
C9-C12 Area:3870.553 C9-C12 Amount: 1.509782

HRO-13_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0034.RAW B15061723-017B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-017B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0034.RAW
Date & Time Acquired: 6/23/2015 4:13:40 AM
Method File: G:\Org\VAR\Methods\150513M1723-17.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:33589.85 C9-C10 Aromatics Amount: 18.94772

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.291	8.291	8.291	158	.5	U
Toluene	11.329	11.329	11.329	420	.5	U
Ethylbenzene	15.078	15.078	15.078	70	.5	U
m+p-Xylenes	15.252	15.252	15.252	193	.5	U
o-Xylene	16.115	16.115	16.115	287	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	298	.5	U
Naphthalene	21.196	-11.964	-11.997	5001	~~2.667~~ NO pf6/24/15	

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.199	25.	22.976	91.91	70-130

HRO-13_061615

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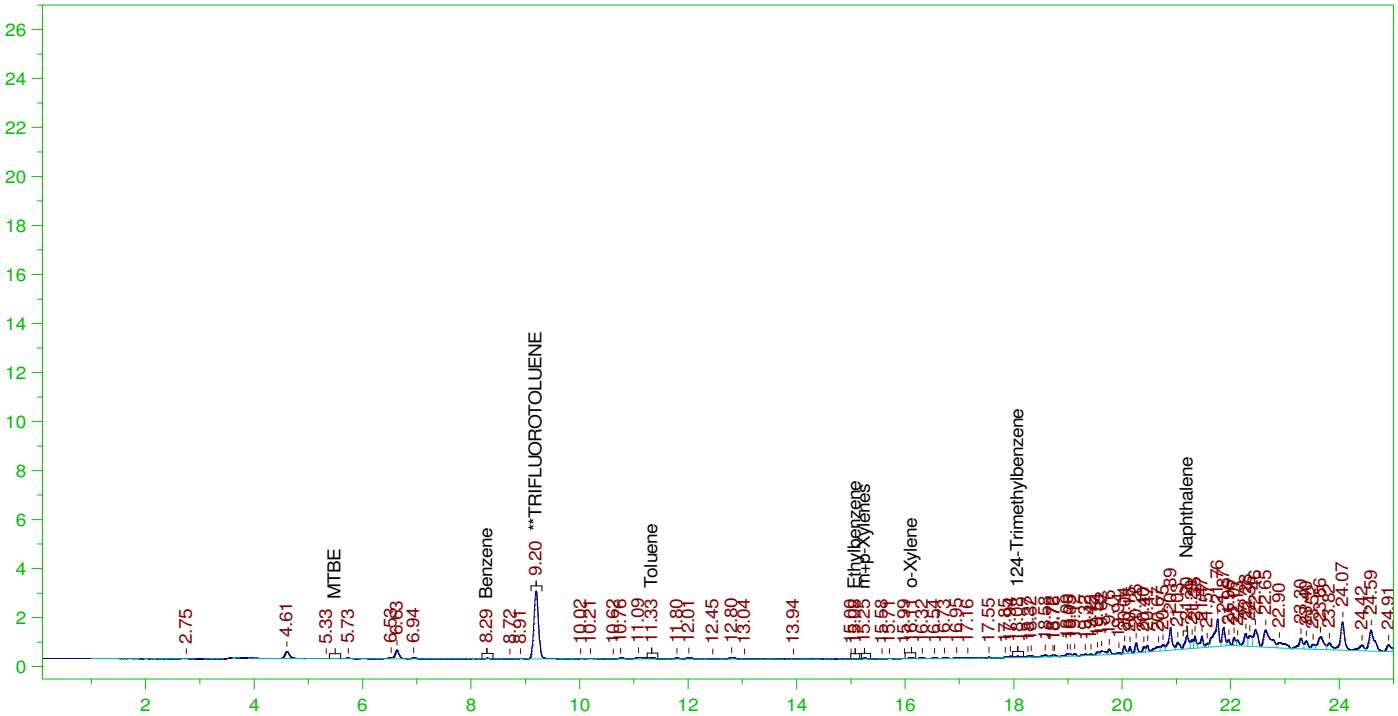

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-017B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0034.RAW
Date & Time Acquired: 6/23/2015 4:13:40 AM
Method File: G:\Org\VAR\Methods\150513M1723-17N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:19629.05 C9-C10 Aromatics Amount: 11.07257

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.291~~	~~8.291~~	~~8.291~~	~~158~~	~~.5~~	~~U~~
~~Toluene~~	~~11.329~~	~~11.329~~	~~11.329~~	~~420~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.078~~	~~15.078~~	~~15.078~~	~~70~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.252~~	~~15.252~~	~~15.252~~	~~193~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.115~~	~~16.115~~	~~16.115~~	~~287~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.078~~	~~18.078~~	~~18.078~~	~~238~~	~~.5~~	~~U~~
Naphthalene	21.196	-11.964	-11.997	2842	~~1.515~~ <2	wb07/06/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.199	25.	22.976	91.91	70-130

HRO-13_061615

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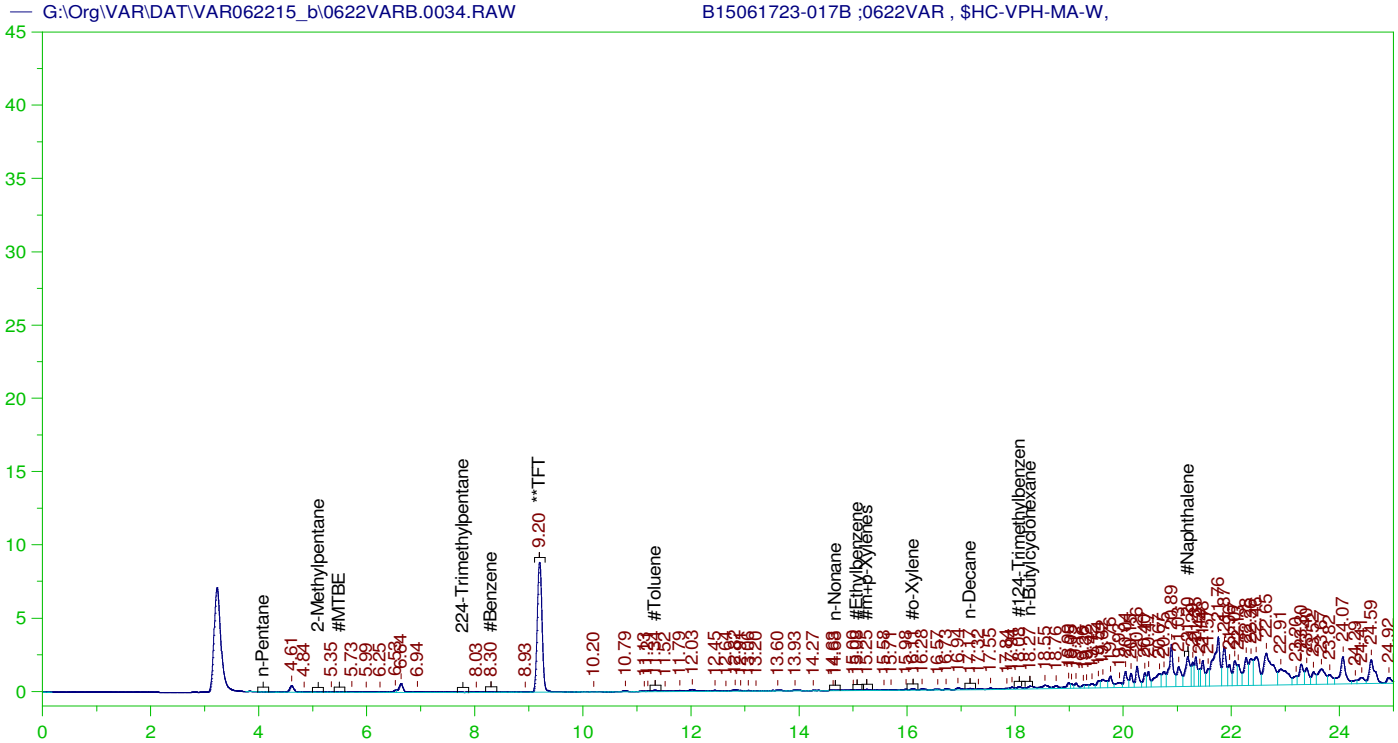


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-017B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0034.RAW
Date & Time Acquired: 6/23/2015 4:13:40 AM
Method File: G:\Org\VAR\Methods\150513M1723-17B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

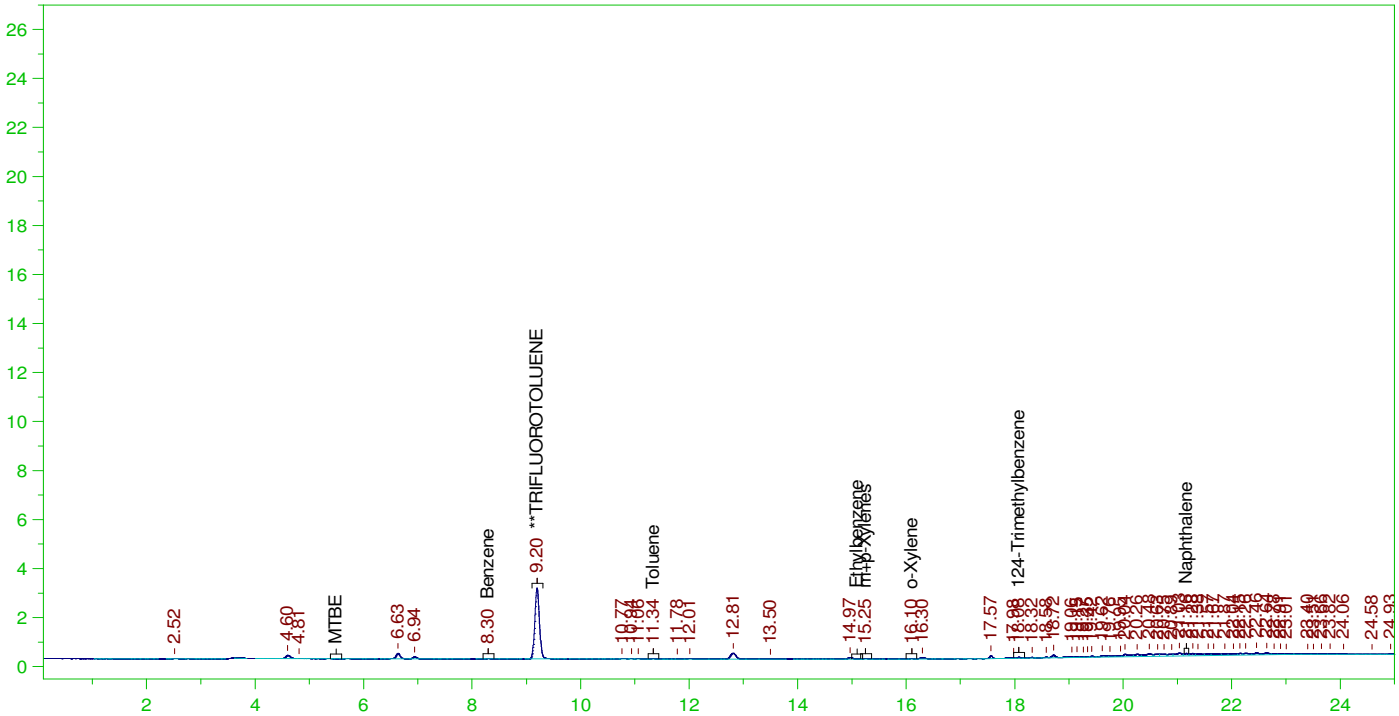
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.201	25.	23.136	92.55 -

GRO Area:27814.66 GRO Amount: 8.572607
TPH Area:362507.6 TPH Amount: 111.7265

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:25181.35 C5-C8 Amount: 10.56588
C9-C12 Area:93060.63 C9-C12 Amount: 36.30006

L-87-6_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0020.RAW B15061723-018B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

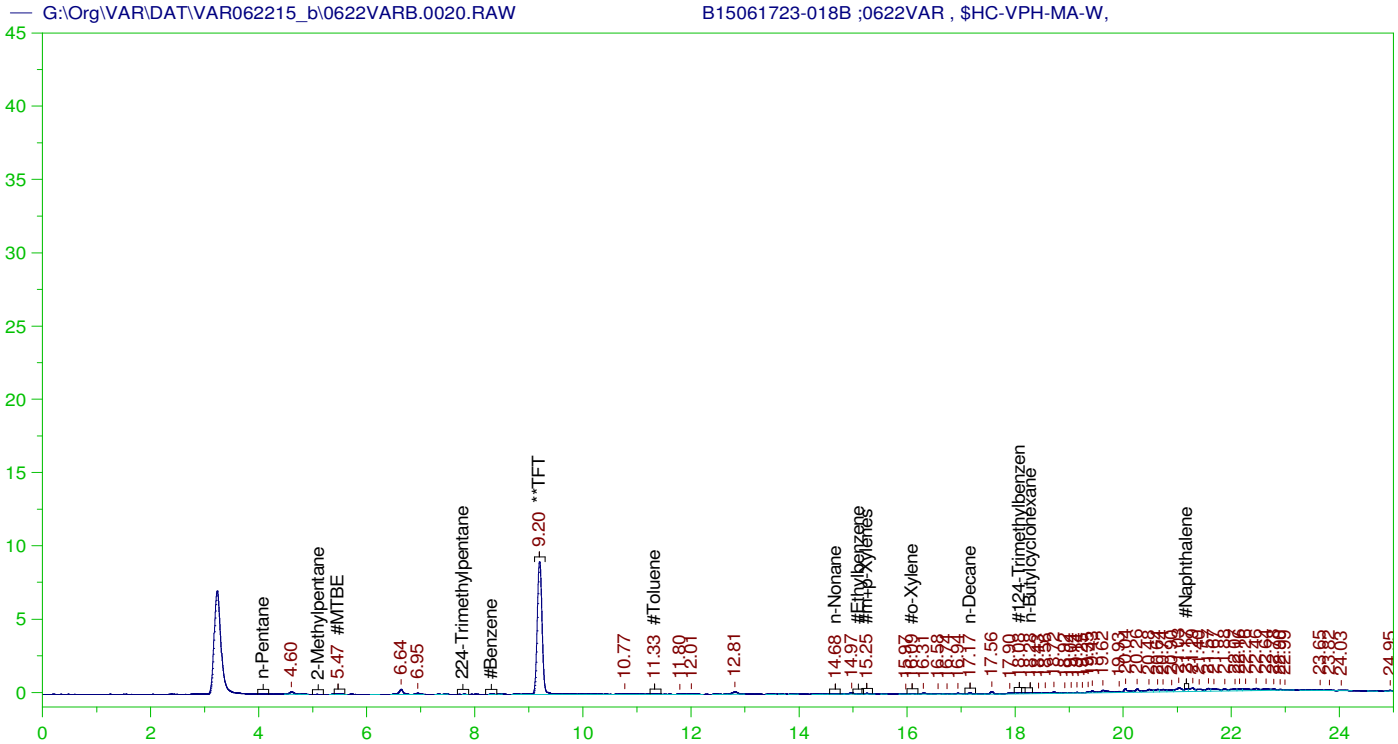
Sample Name: B15061723-018B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0020.RAW
Date & Time Acquired: 6/22/2015 8:16:56 PM
Method File: G:\Org\VAR\Methods\150513M1723-18.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:8015.831 C9-C10 Aromatics Amount: 4.521656

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.301	8.301	8.301	94	.5	U
Toluene	11.34	11.34	11.34	122	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.255	15.255	15.255	161	.5	U
o-Xylene	16.104	16.104	16.104	107	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	150	.5	U
Naphthalene	21.163	21.163	21.163	483	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	23.676	94.7	70-130

L-87-6_061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-018B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0020.RAW
Date & Time Acquired: 6/22/2015 8:16:56 PM
Method File: G:\Org\VAR\Methods\150513M1723-18B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	23.686	94.74 -

GRO Area:10586.29 GRO Amount: 3.262744
TPH Area:43847.72 TPH Amount: 13.51407

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:8041.328 C5-C8 Amount: 3.374073
C9-C12 Area:21198.61 C9-C12 Amount: 8.268915

TB4_061615

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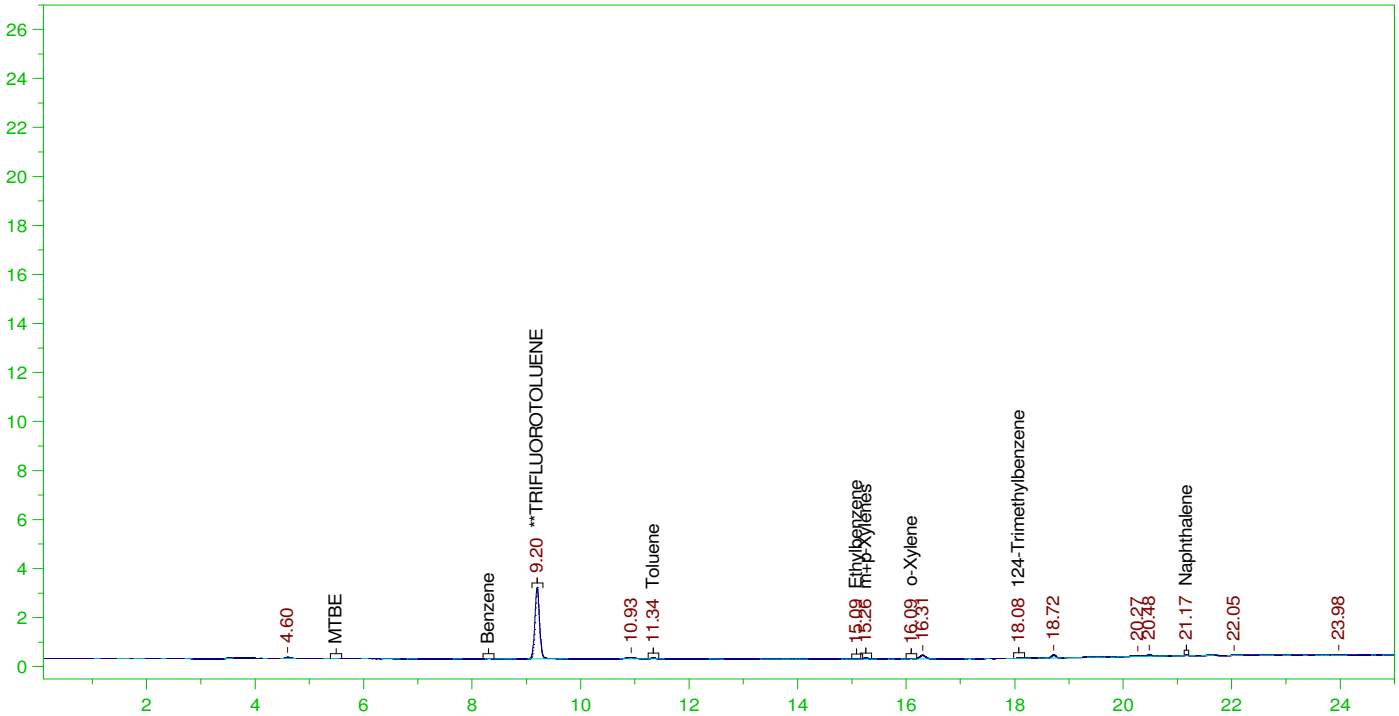


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-019A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0008.RAW
Date & Time Acquired: 6/22/2015 1:17:32 PM
Method File: G:\Org\VAR\Methods\150513M1723-19.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

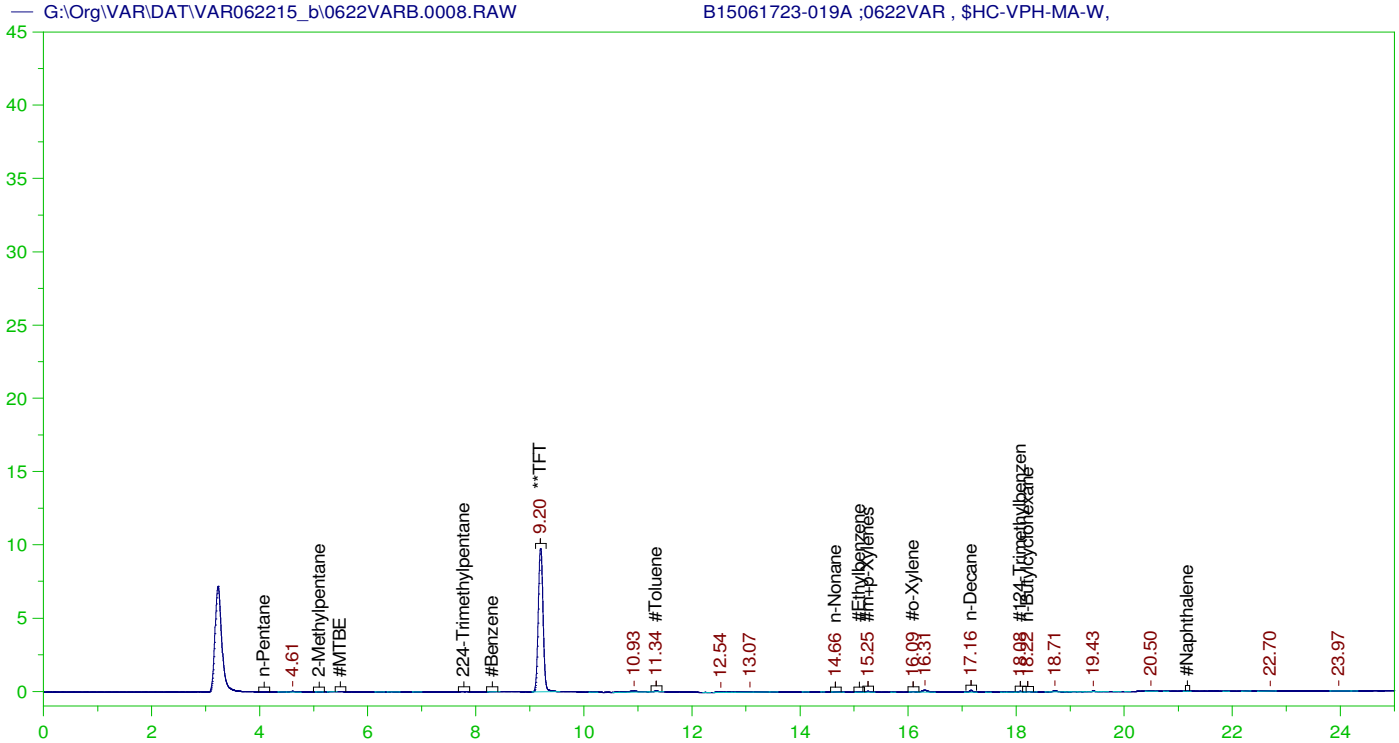
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2852.147 C9-C10 Aromatics Amount: 1.608869

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.341	11.341	11.341	230	.5	U
Ethylbenzene	15.087	15.087	15.087	99	.5	U
m+p-Xylenes	15.26	15.26	15.26	258	.5	U
o-Xylene	16.092	16.092	16.092	105	.5	U
124-Trimethylbenzene	18.079	18.079	18.079	103	.5	U
Naphthalene	21.167	21.167	21.167	131	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	23.795	95.18	70-130

TB4_061615

G:\Org\VAR\DAT\VAR062215_b\0622VARB.0008.RAW B15061723-019A ;0622VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-019A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0008.RAW
Date & Time Acquired: 6/22/2015 1:17:32 PM
Method File: G:\Org\VAR\Methods\150513M1723-19B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

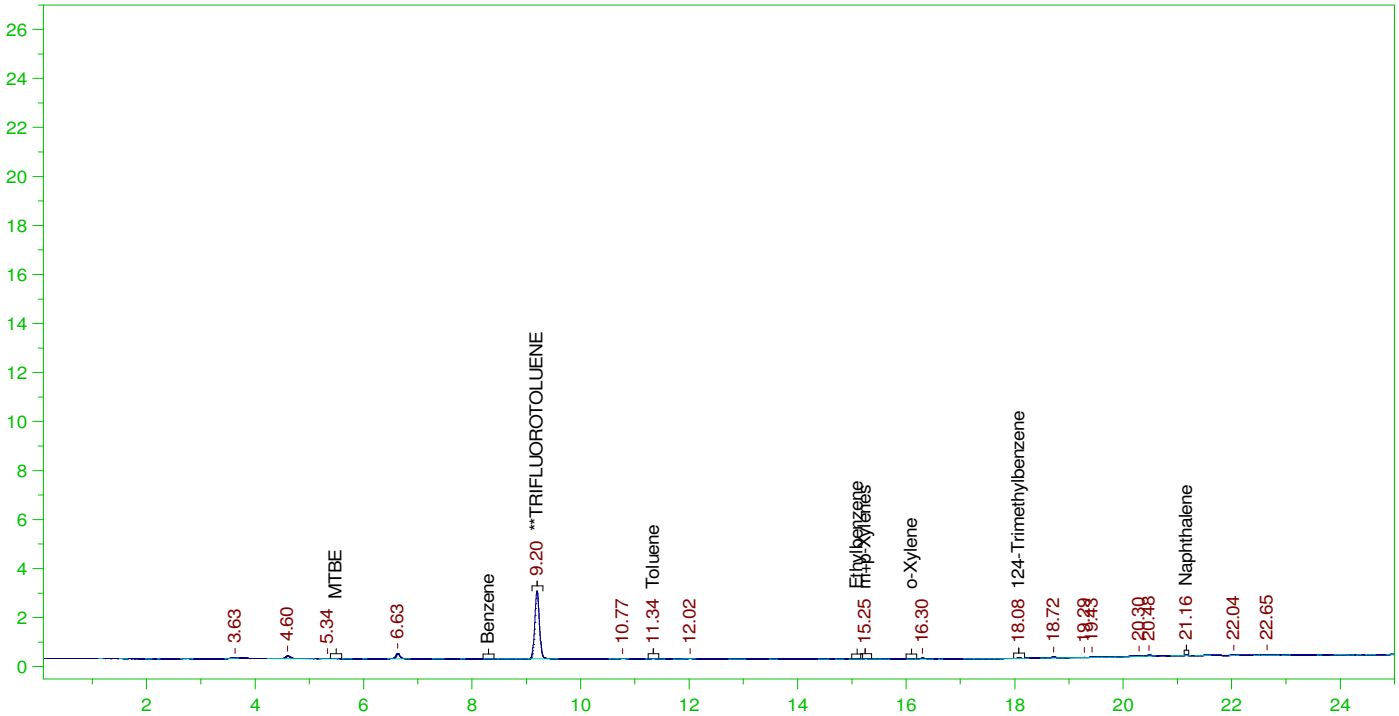
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	25.297	101.19 -

GRO Area:5820.59 GRO Amount: 1.793933
TPH Area:8950.527 TPH Amount: 2.758594

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:3687.391 C5-C8 Amount: 1.547198
C9-C12 Area:4635.226 C9-C12 Amount: 1.808057

EX-1_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0021.RAW B15061723-020B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

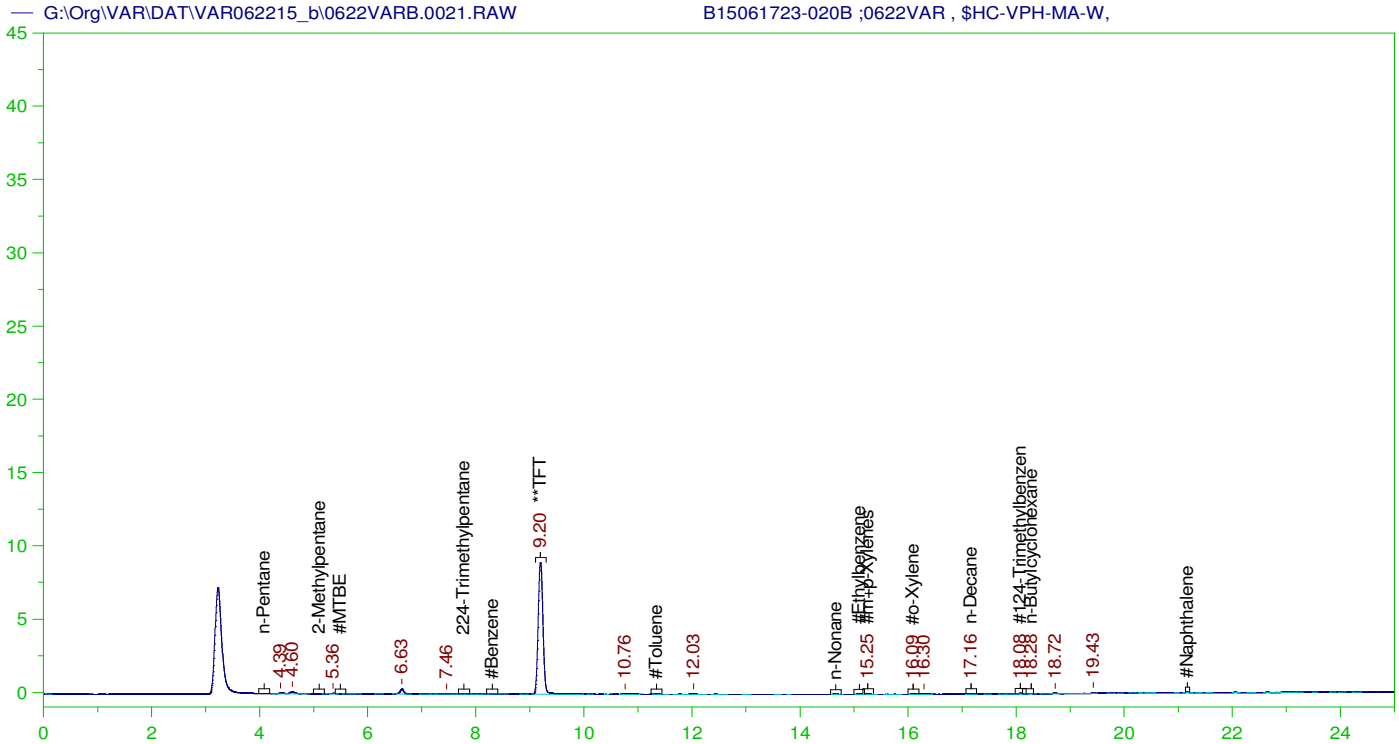
Sample Name: B15061723-020B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0021.RAW
Date & Time Acquired: 6/22/2015 8:50:45 PM
Method File: G:\Org\VAR\Methods\150513M1723-20.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1465.781 C9-C10 Aromatics Amount: 0.8268334

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.341	11.341	11.341	120	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.25	15.25	15.25	150	.5	U
o-Xylene	.	.	.		.5	U
124-Trimethylbenzene	18.078	18.078	18.078	92	.5	U
Naphthalene	21.165	21.165	21.165	90	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	22.79	91.16	70-130

EX-1_061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-020B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0021.RAW
Date & Time Acquired: 6/22/2015 8:50:45 PM
Method File: G:\Org\VAR\Methods\150513M1723-20B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

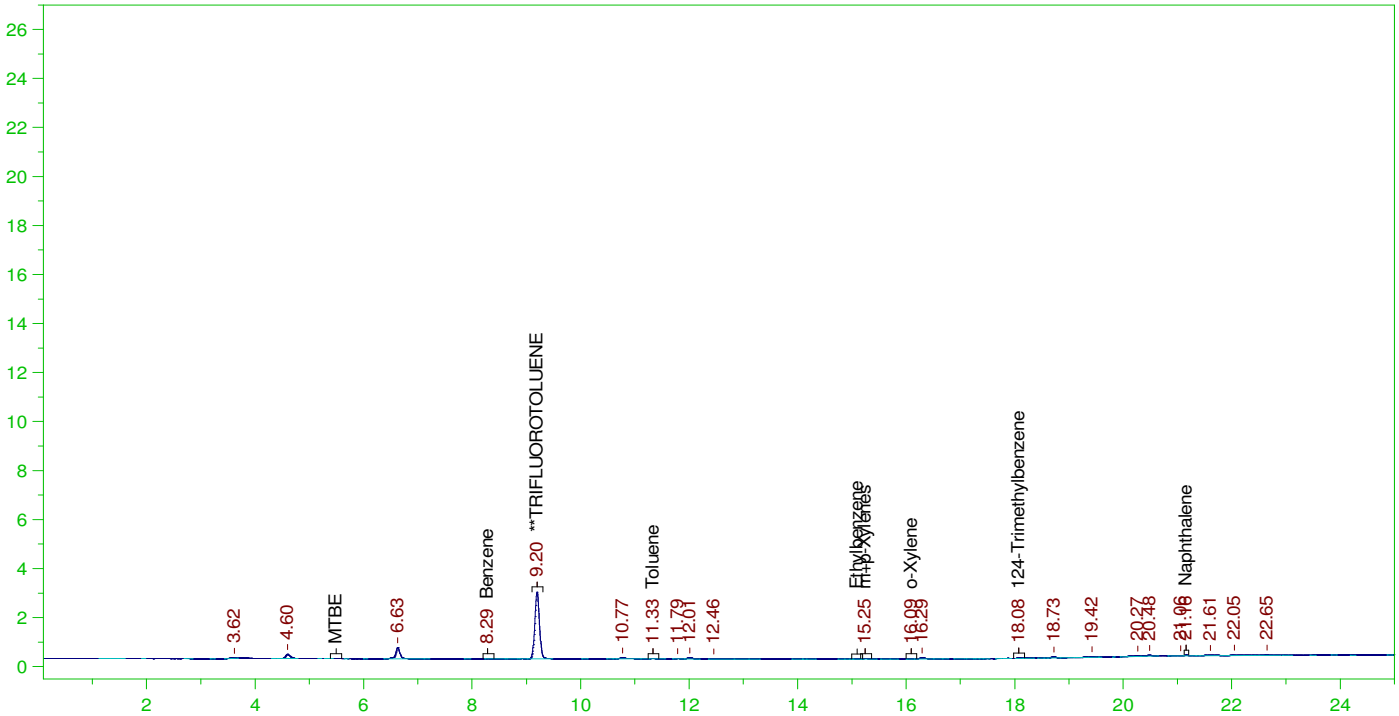
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	23.578	94.31 -

GRO Area:5838.477 GRO Amount: 1.799446
TPH Area:9789.715 TPH Amount: 3.017236

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5918.648 C5-C8 Amount: 2.483415
C9-C12 Area:3007.635 C9-C12 Amount: 1.173185

LS-10_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0022.RAW B15061723-021B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-021B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0022.RAW
Date & Time Acquired: 6/22/2015 9:25:17 PM
Method File: G:\Org\VAR\Methods\150513M1723-21.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1695.047 C9-C10 Aromatics Amount: 0.9561602

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.288	8.288	8.288	75	.5	U
Toluene	11.333	11.333	11.333	116	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.25	15.25	15.25	156	.5	U
o-Xylene	16.093	16.093	16.093	65	.5	U
124-Trimethylbenzene	18.077	18.077	18.077	92	.5	U
Naphthalene	21.161	21.161	21.161	99	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.199	25.	22.311	89.24	70-130

LS-10_061615

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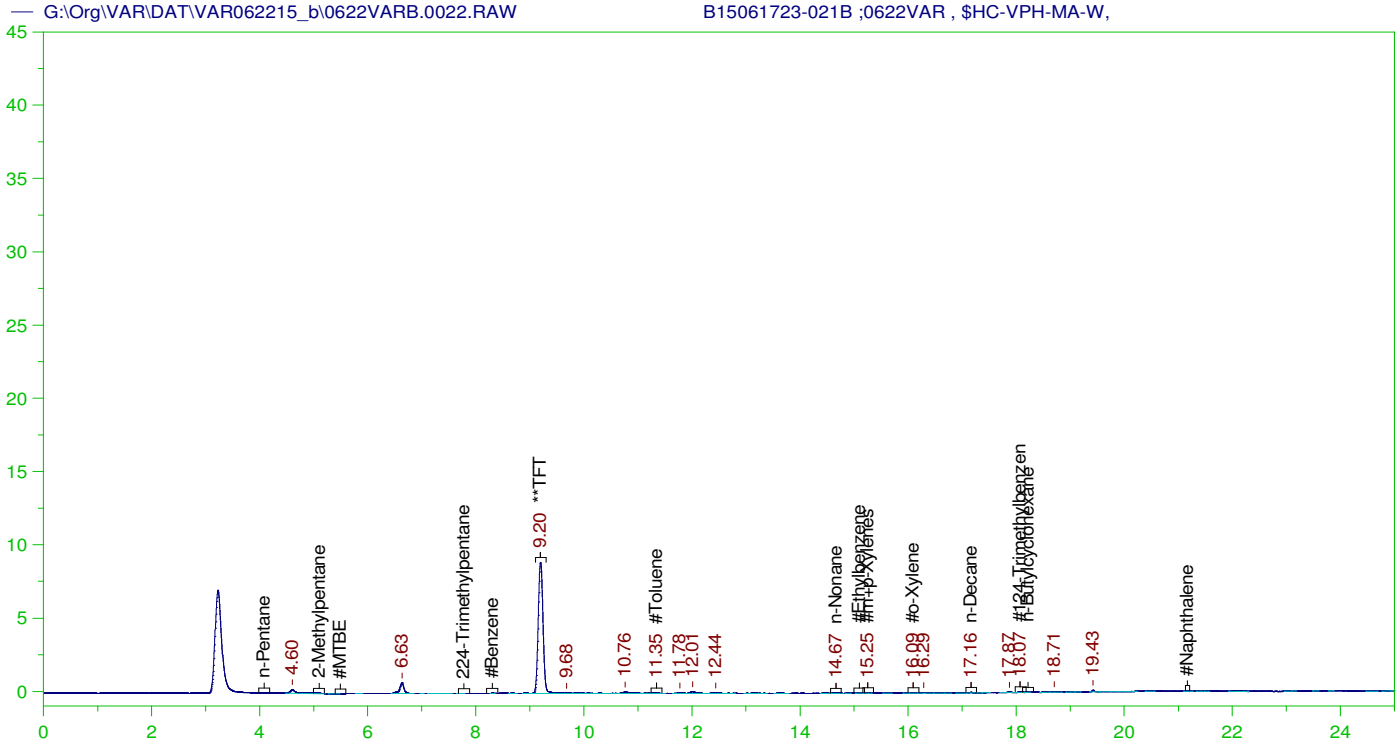


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-021B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0022.RAW
Date & Time Acquired: 6/22/2015 9:25:17 PM
Method File: G:\Org\VAR\Methods\150513M1723-21B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

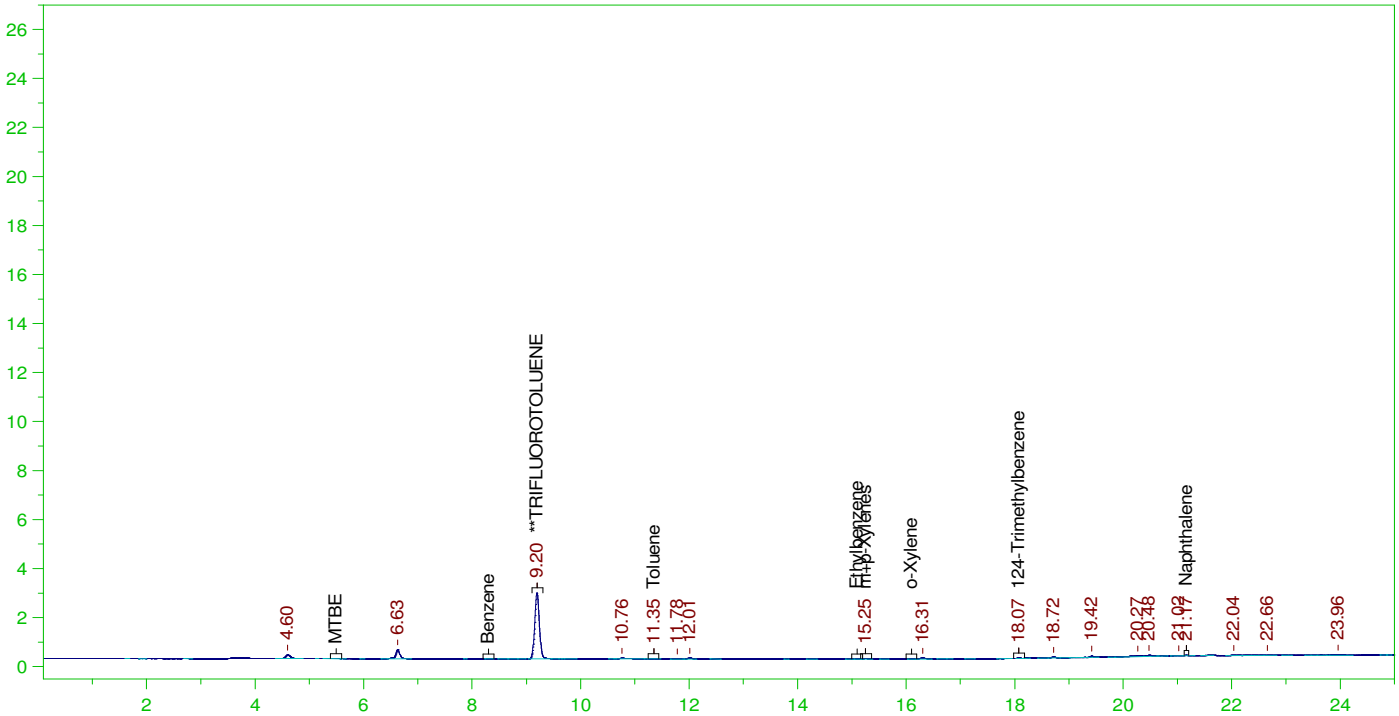
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	23.27	93.08 -

GRO Area:9780.844 GRO Amount: 3.014501
TPH Area:14357.07 TPH Amount: 4.424914

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:10242.69 C5-C8 Amount: 4.297747
C9-C12 Area:3344.671 C9-C12 Amount: 1.304652

EX-54_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0023.RAW B15061723-022B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

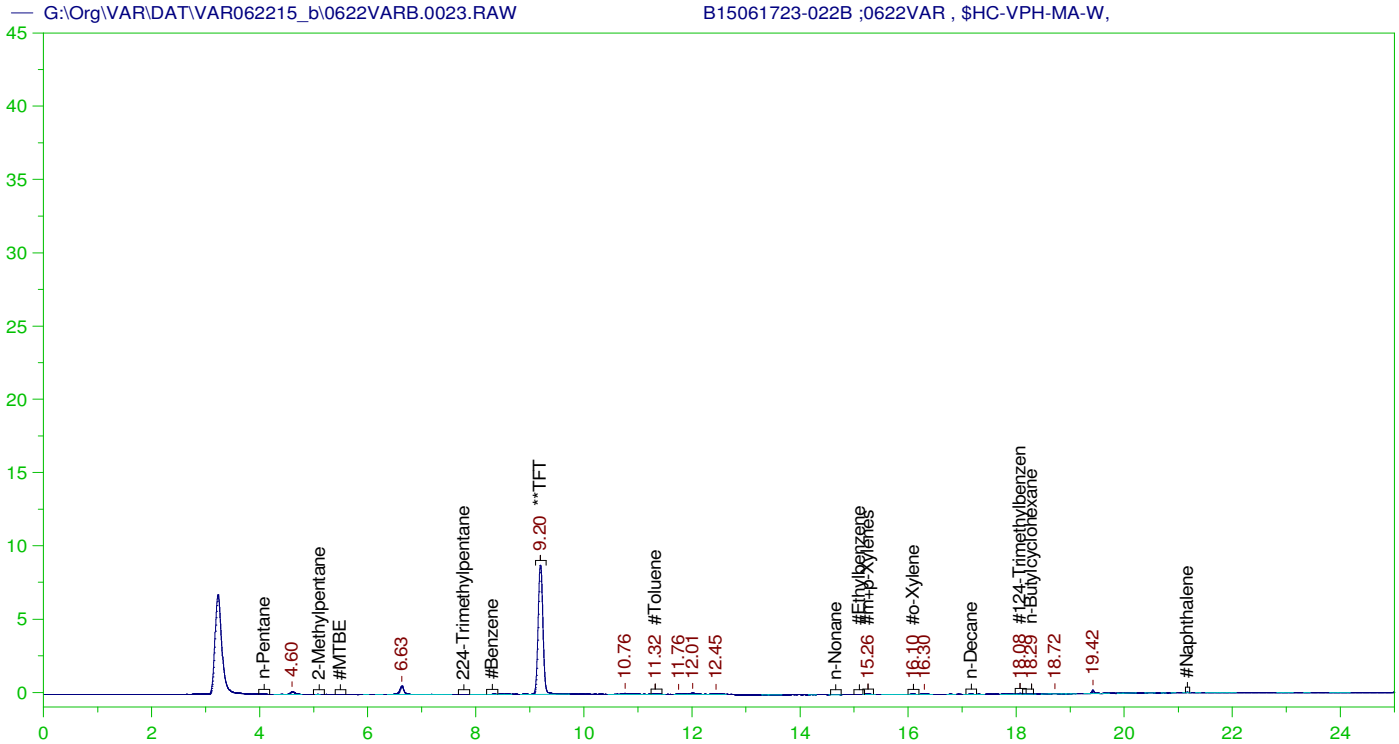
Sample Name: B15061723-022B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0023.RAW
Date & Time Acquired: 6/22/2015 9:59:09 PM
Method File: G:\Org\VAR\Methods\150513M1723-22.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1775.408 C9-C10 Aromatics Amount: 1.001491

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.35	11.35	11.35	95	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.251	15.251	15.251	132	.5	U
o-Xylene	.	.	.		.5	U
124-Trimethylbenzene	18.075	18.075	18.075	79	.5	U
Naphthalene	21.168	21.168	21.168	100	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	22.18	88.72	70-130

EX-54_061615



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-022B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0023.RAW
Date & Time Acquired: 6/22/2015 9:59:09 PM
Method File: G:\Org\VAR\Methods\150513M1723-22B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

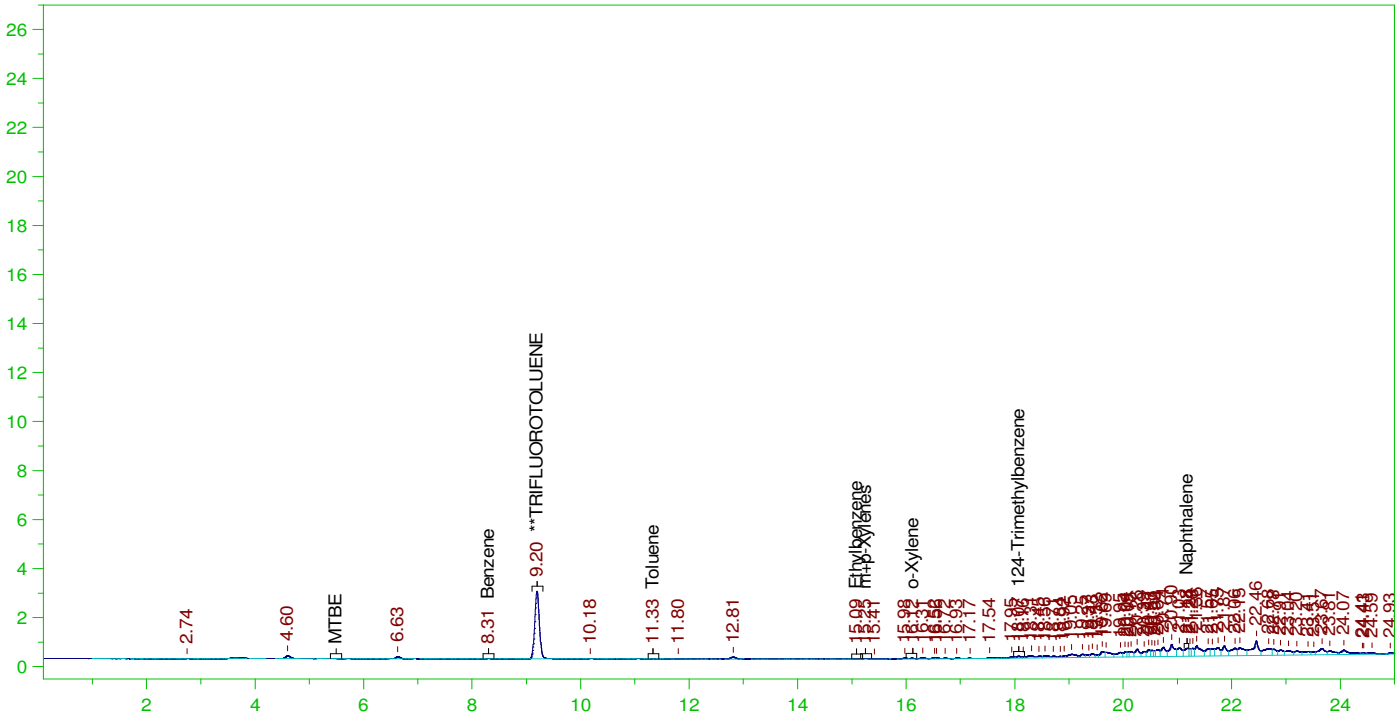
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.198	25.	23.018	92.07 -

GRO Area:7787.227 GRO Amount: 2.400059
TPH Area:11743 TPH Amount: 3.619246

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:7690.758 C5-C8 Amount: 3.226977
C9-C12 Area:3402.193 C9-C12 Amount: 1.32709

EX-24_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0024.RAW B15061723-023B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-023B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0024.RAW
Date & Time Acquired: 6/22/2015 10:33:42 PM
Method File: G:\Org\VAR\Methods\150513M1723-23.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:29418.9 C9-C10 Aromatics Amount: 16.59493

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.306	8.306	8.306	90	.5	U
Toluene	11.332	11.332	11.332	68	.5	U
Ethylbenzene	15.087	15.087	15.087	83	.5	U
m+p-Xylenes	15.255	15.255	15.255	160	.5	U
o-Xylene	16.12	16.12	16.12	168	.5	U
124-Trimethylbenzene	18.074	18.074	18.074	384	.5	U
Naphthalene	21.181	-11.964	-11.983	1772	~~.945~~	NO pf6/24/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	22.73	90.92	70-130

EX-24_061615

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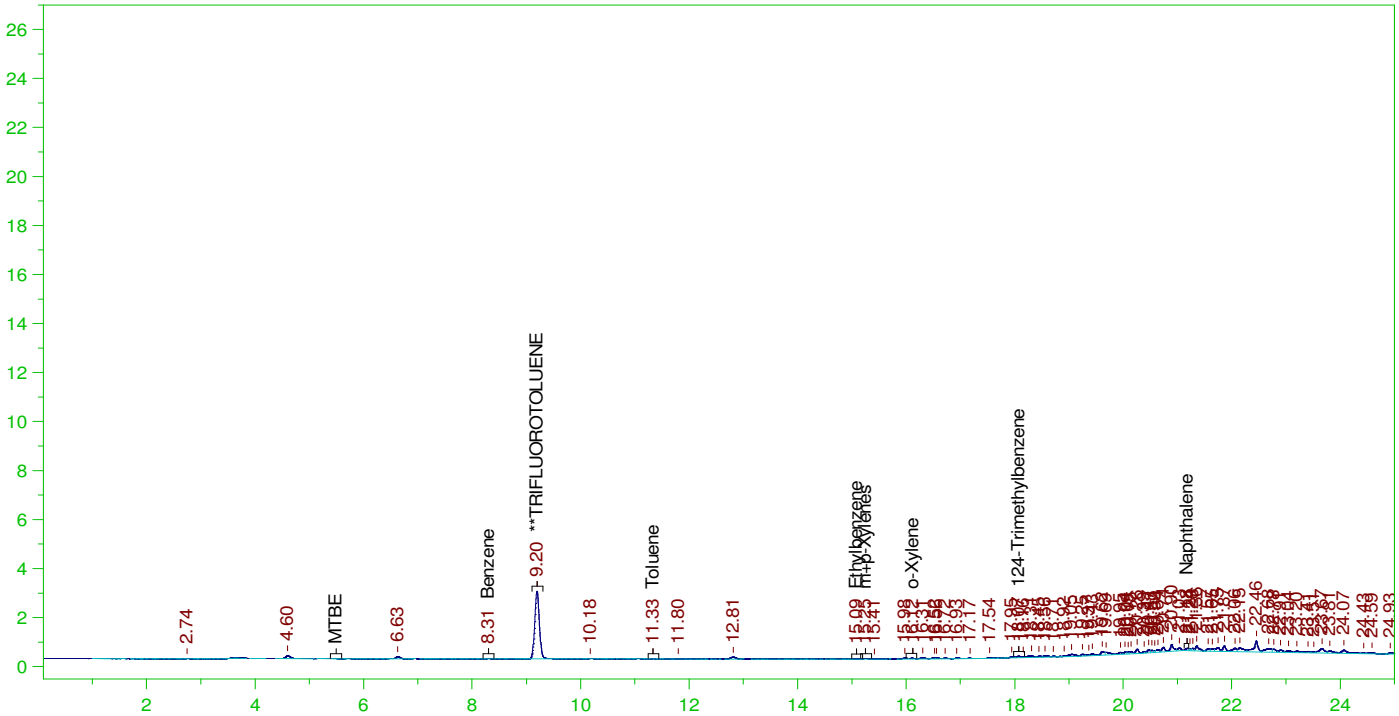

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-023B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0024.RAW
Date & Time Acquired: 6/22/2015 10:33:42 PM
Method File: G:\Org\VAR\Methods\150513M1723-23N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:11570.96 C9-C10 Aromatics Amount: 6.527071

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.306~~	~~8.306~~	~~8.306~~	~~90~~	~~.5~~	~~U~~
~~Toluene~~	~~11.332~~	~~11.332~~	~~11.332~~	~~68~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.087~~	~~15.087~~	~~15.087~~	~~83~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.255~~	~~15.255~~	~~15.255~~	~~160~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.12~~	~~16.12~~	~~16.12~~	~~168~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.074~~	~~18.074~~	~~18.074~~	~~274~~	~~.5~~	~~U~~
Naphthalene	21.181	21.181	21.181	337	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	22.73	90.92	70-130

EX-24_061615

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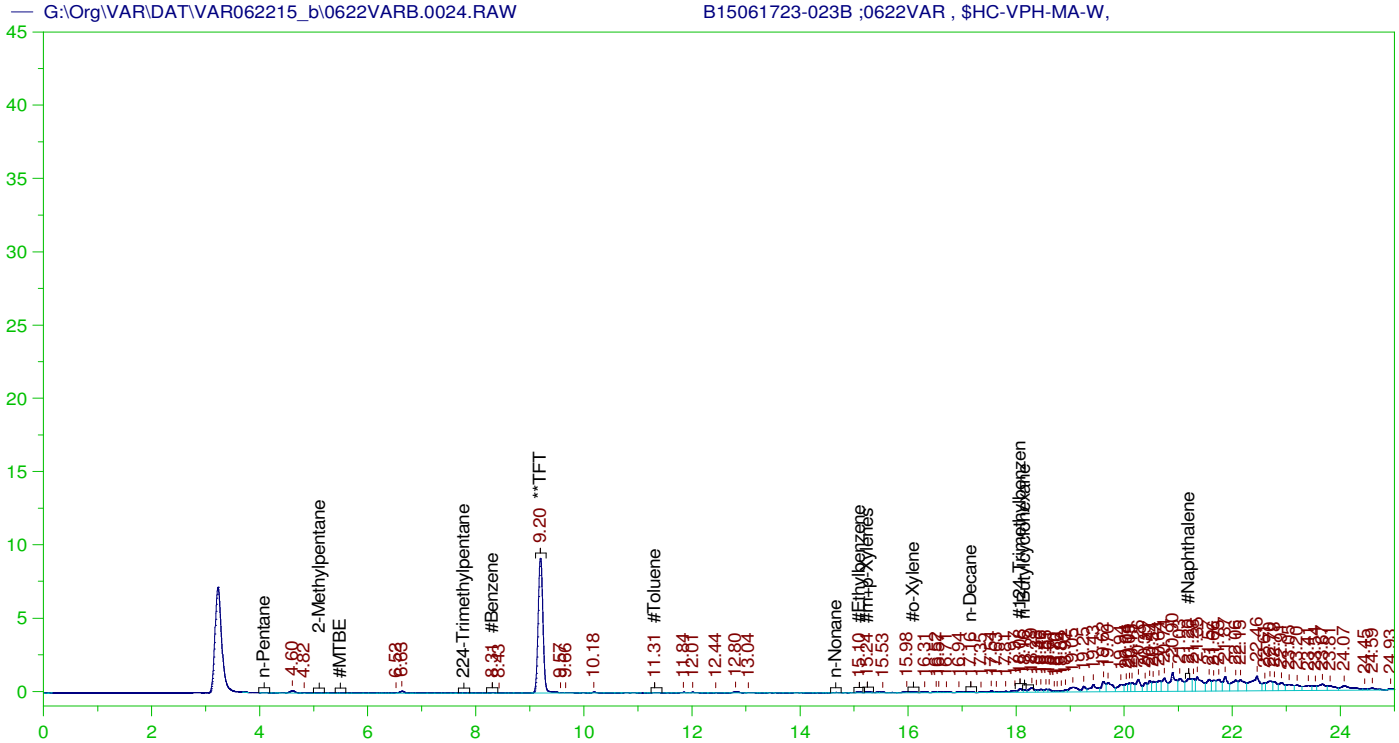


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-023B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0024.RAW
Date & Time Acquired: 6/22/2015 10:33:42 PM
Method File: G:\Org\VAR\Methods\150513M1723-23B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

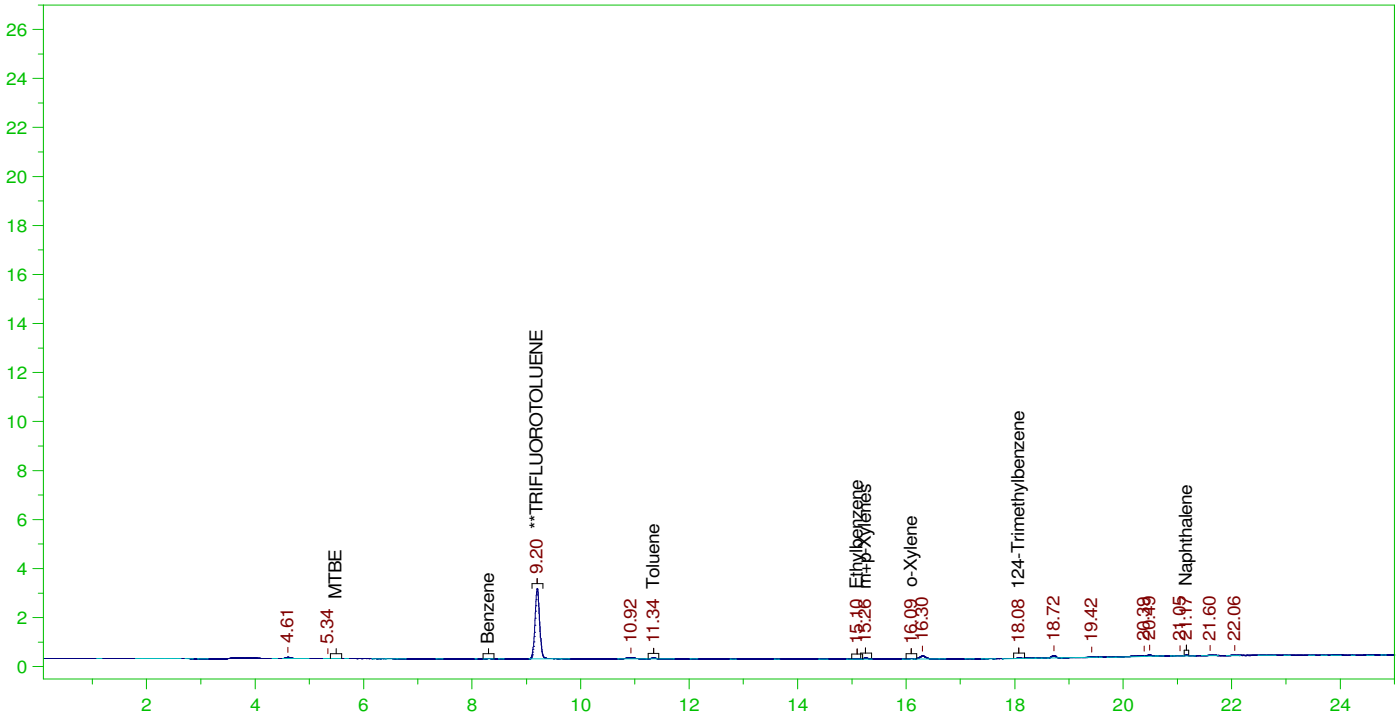
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.198	25.	24.055	96.22 -

GRO Area:12860.26 GRO Amount: 3.963593
TPH Area:188693.6 TPH Amount: 58.15623

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:9177.613 C5-C8 Amount: 3.850849
C9-C12 Area:82226.5 C9-C12 Amount: 32.074

TB3_061615

G:\Org\VAR\DAT\VAR062215_b\0622VAR.0009.RAW B15061723-025A ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-025A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0009.RAW
Date & Time Acquired: 6/22/2015 1:51:28 PM
Method File: G:\Org\VAR\Methods\150513M1723-25.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

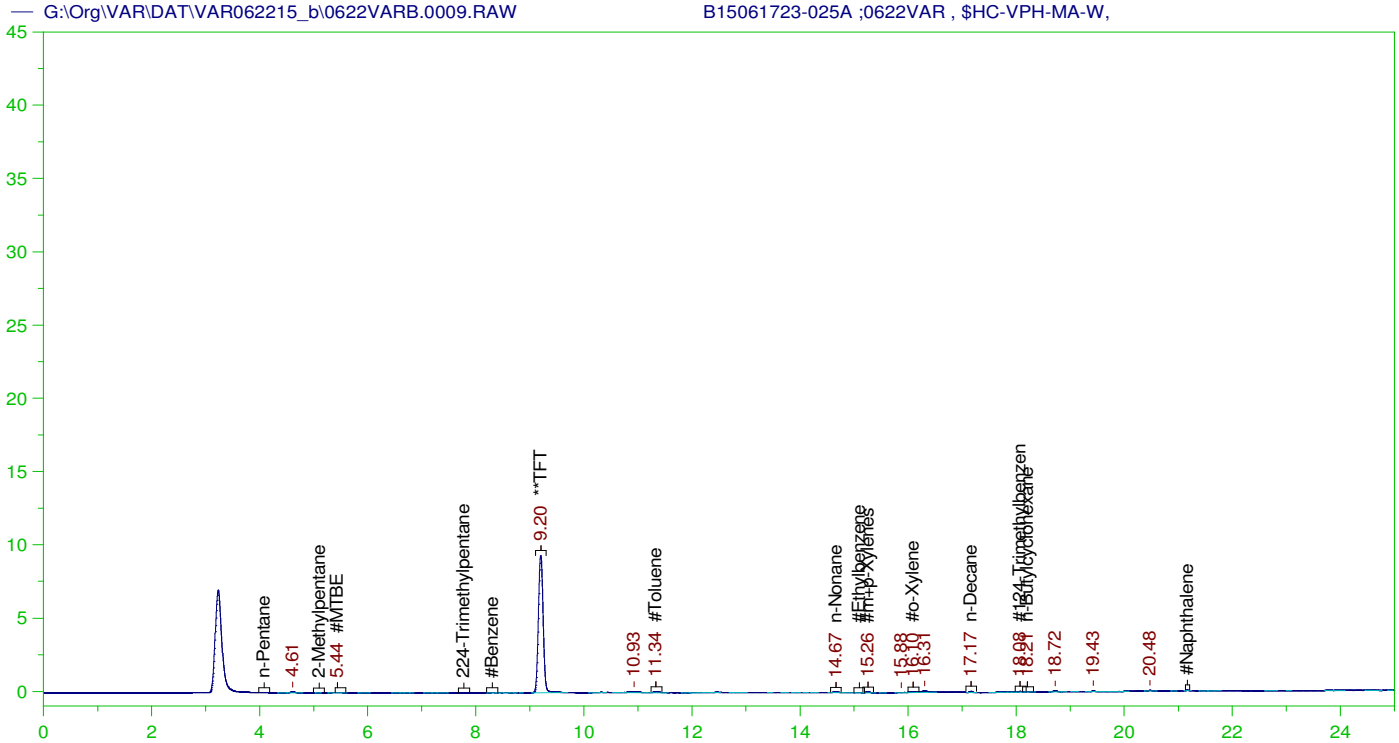
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2695.349 C9-C10 Aromatics Amount: 1.520421

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.344	11.344	11.344	235	.5	U
Ethylbenzene	15.099	15.099	15.099	84	.5	U
m+p-Xylenes	15.256	15.256	15.256	215	.5	U
o-Xylene	16.09	16.09	16.09	119	.5	U
124-Trimethylbenzene	18.08	18.08	18.08	118	.5	U
Naphthalene	21.168	21.168	21.168	115	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.202	25.	23.326	93.3	70-130

TB3_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VARB.0009.RAW B15061723-025A ;0622VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-025A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0009.RAW
Date & Time Acquired: 6/22/2015 1:51:28 PM
Method File: G:\Org\VAR\Methods\150513M1723-25B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

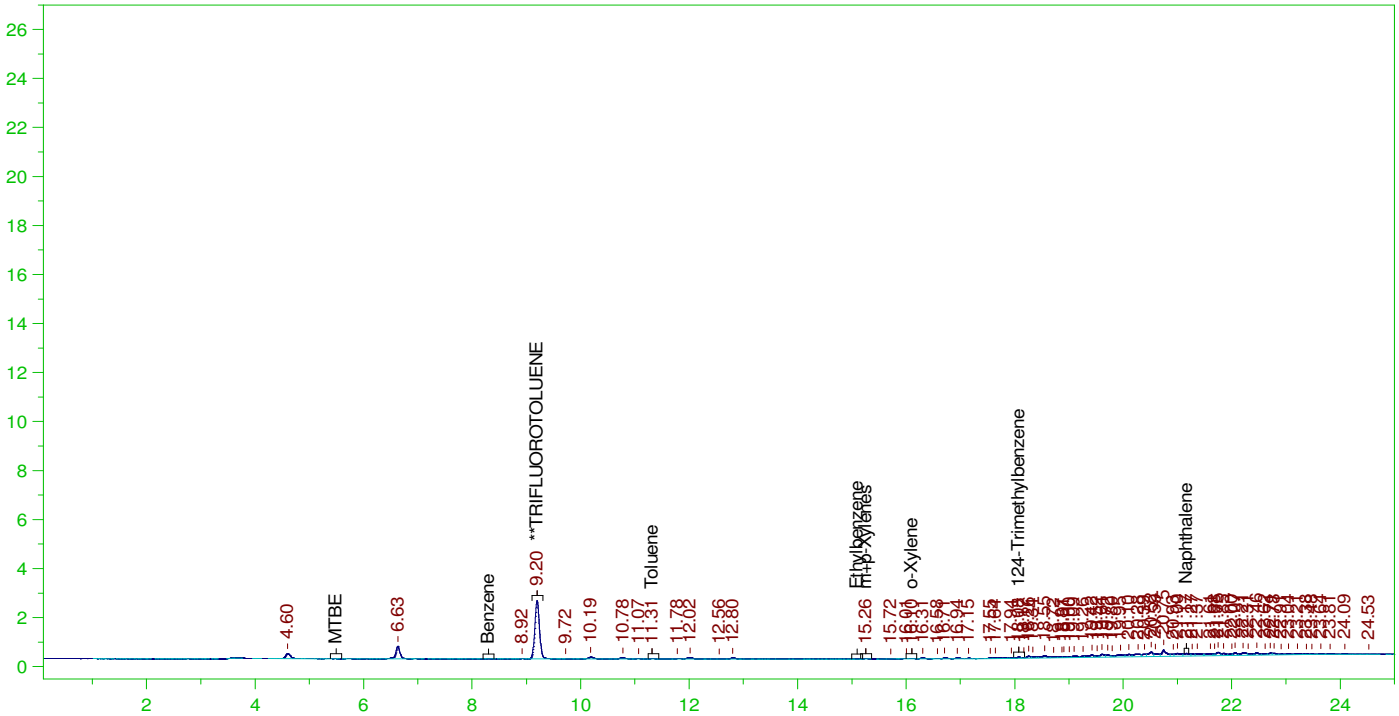
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	24.21	96.84 -

GRO Area:6049.43 GRO Amount: 1.864462
TPH Area:9032.844 TPH Amount: 2.783964

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:3635.277 C5-C8 Amount: 1.525332
C9-C12 Area:4791.51 C9-C12 Amount: 1.869019

EX-63_061615

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0026.RAW B15061723-026B ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-026B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0026.RAW
Date & Time Acquired: 6/22/2015 11:41:55 PM
Method File: G:\Org\VAR\Methods\150513M1723-26.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:13044.98 C9-C10 Aromatics Amount: 7.358554

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.315	11.315	11.315	154	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.261	15.261	15.261	93	.5	U
o-Xylene	16.102	16.102	16.102	130	.5	U
124-Trimethylbenzene	18.079	18.079	18.079	206	.5	U
Naphthalene	21.166	21.166	21.166	815	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.199	25.	19.656	78.62	70-130

EX-63_061615

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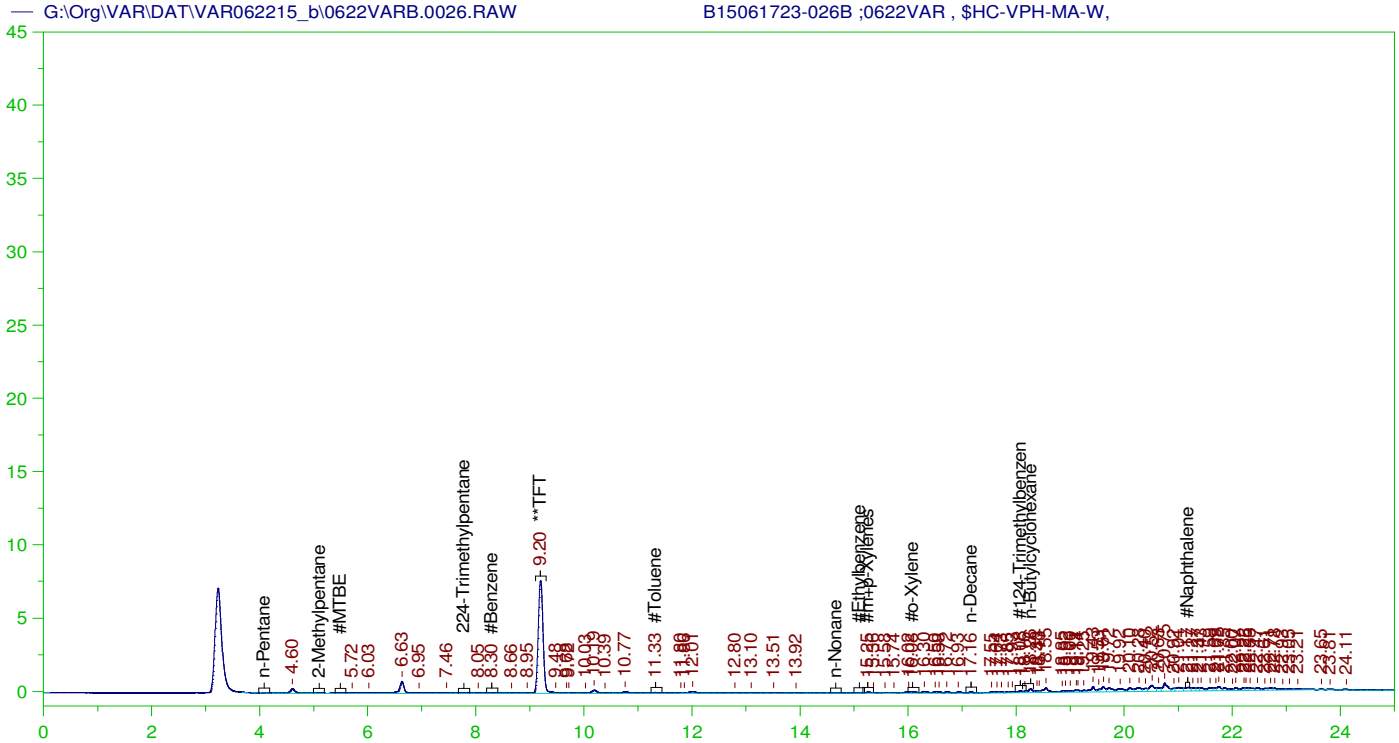


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-026B ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0026.RAW
Date & Time Acquired: 6/22/2015 11:41:55 PM
Method File: G:\Org\VAR\Methods\150513M1723-26B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

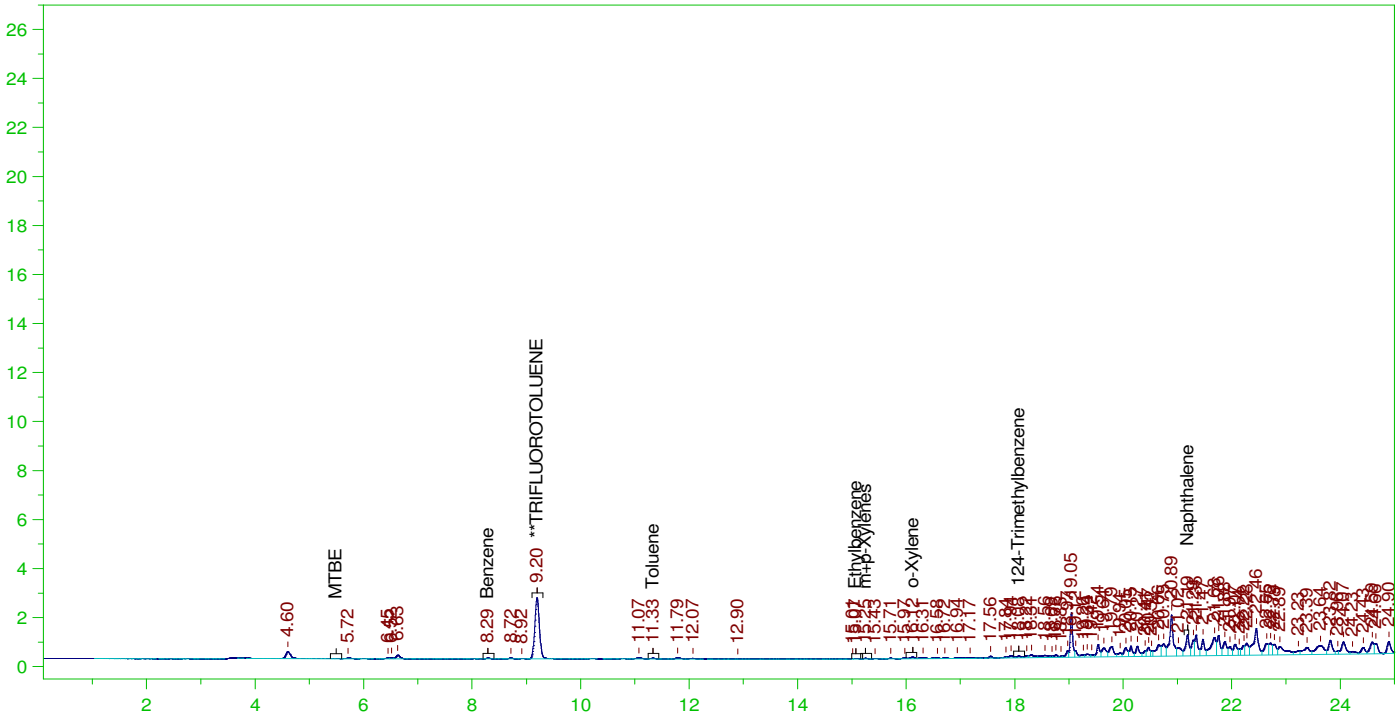
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	20.047	80.19 -

GRO Area:23507.42 GRO Amount: 7.245097
TPH Area:78746.8 TPH Amount: 24.27013

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:20017.53 C5-C8 Amount: 8.399187
C9-C12 Area:39646.15 C9-C12 Amount: 15.46473

D3_061715

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0028.RAW B15061723-027F ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-027F ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0028.RAW
Date & Time Acquired: 6/23/2015 12:49:33 AM
Method File: G:\Org\VAR\Methods\150513M1723-27.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

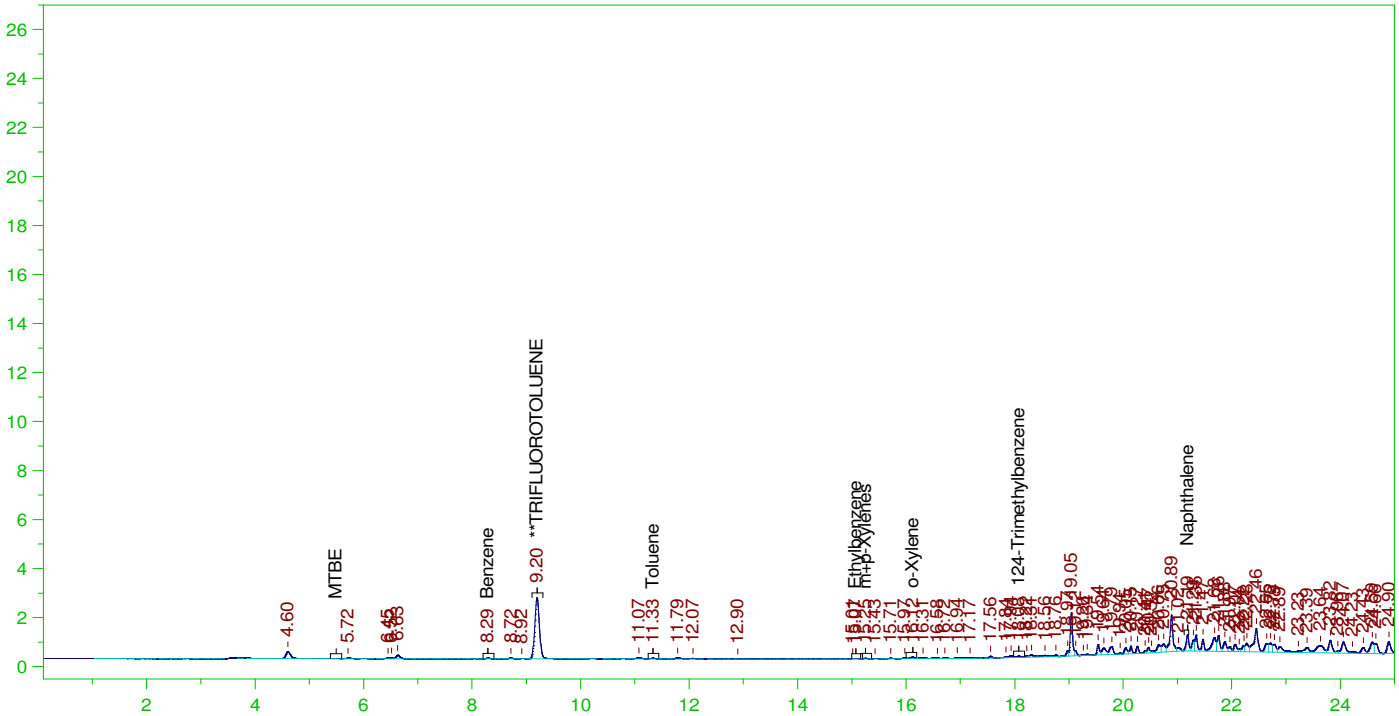
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:44871.35 C9-C10 Aromatics Amount: 25.31151

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.291	8.291	8.291	150	.5	U
Toluene	11.333	11.333	11.333	181	.5	U
Ethylbenzene	15.075	15.075	15.075	137	.5	U
m+p-Xylenes	15.255	15.255	15.255	134	.5	U
o-Xylene	16.122	16.122	16.122	357	.5	U
124-Trimethylbenzene	18.076	18.076	18.076	338	.5	U
Naphthalene	21.19	-11.964	-11.992	4080	~~2.176~~ NO pf6/24/15	

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	20.384	81.54	70-130

D3_061715

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0028.RAW B15061723-027F ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-027F ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0028.RAW
Date & Time Acquired: 6/23/2015 12:49:33 AM
Method File: G:\Org\VAR\Methods\150513M1723-27N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:29373.8 C9-C10 Aromatics Amount: 16.56949

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.291~~	~~8.291~~	~~8.291~~	~~150~~	~~.5~~	~~U~~
~~Toluene~~	~~11.333~~	~~11.333~~	~~11.333~~	~~181~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.075~~	~~15.075~~	~~15.075~~	~~137~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.255~~	~~15.255~~	~~15.255~~	~~134~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.122~~	~~16.122~~	~~16.122~~	~~357~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.076~~	~~18.076~~	~~18.076~~	~~250~~	~~.5~~	~~U~~
Naphthalene	21.19	-11.964	-11.992	2410	~~1.285~~	<1.5 wb07/06/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	20.384	81.54	70-130

D3_061715

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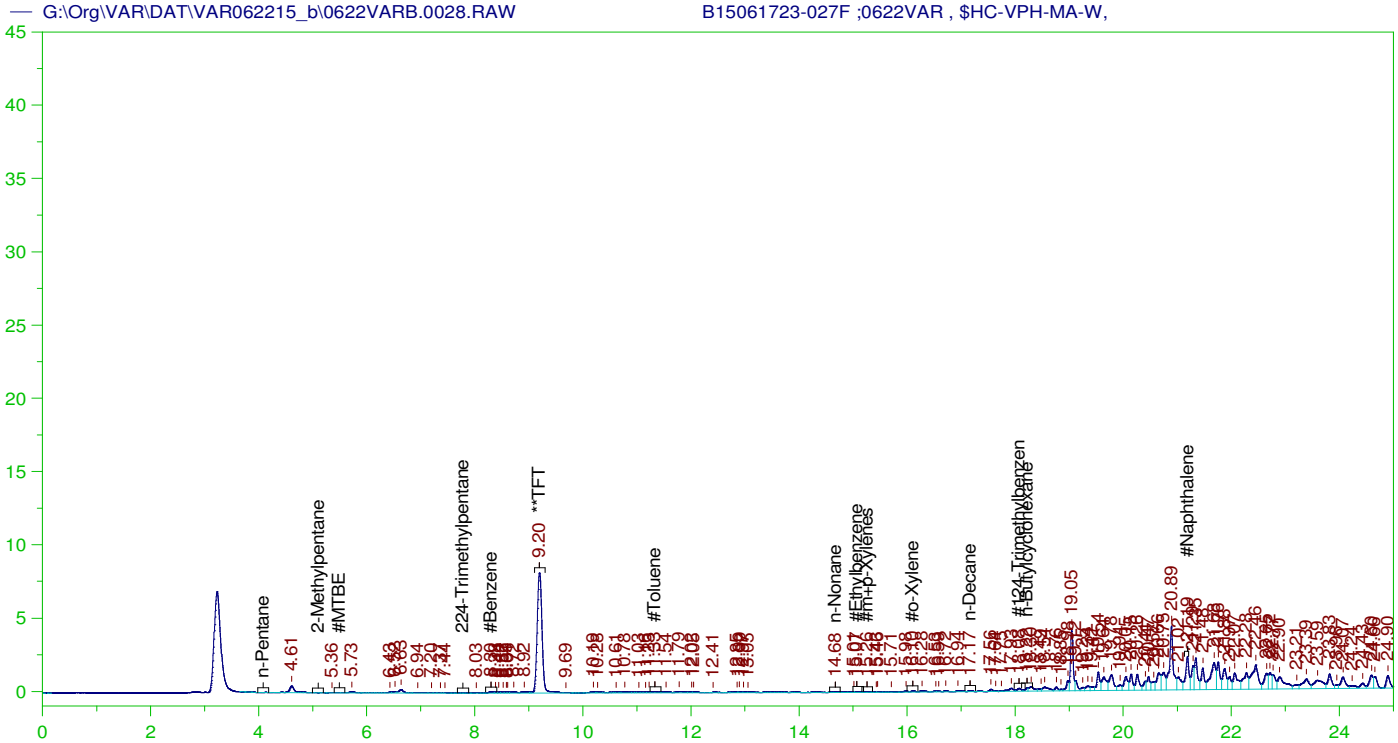


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-027F ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0028.RAW
Date & Time Acquired: 6/23/2015 12:49:33 AM
Method File: G:\Org\VAR\Methods\150513M1723-27B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

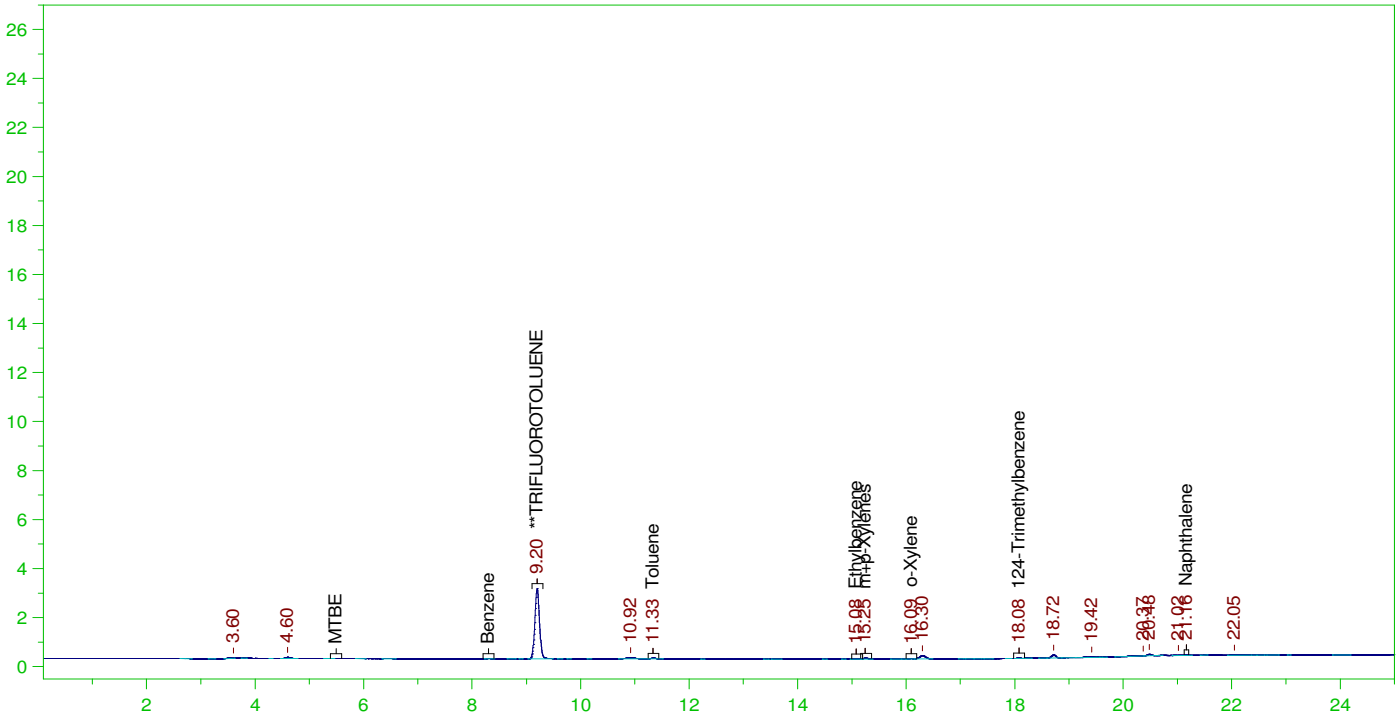
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	21.783	87.13 -

GRO Area:24720.7 GRO Amount: 7.619033
TPH Area:297432.1 TPH Amount: 91.66995

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:21012.1 C5-C8 Amount: 8.8165
C9-C12 Area:121027.3 C9-C12 Amount: 47.20897

TB3_061715

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0010.RAW B15061723-028A ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-028A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0010.RAW
Date & Time Acquired: 6/22/2015 2:25:49 PM
Method File: G:\Org\VAR\Methods\150513M1723-28.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2931.006 C9-C10 Aromatics Amount: 1.653353

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.334	11.334	11.334	195	.5	U
Ethylbenzene	15.083	15.083	15.083	66	.5	U
m+p-Xylenes	15.248	15.248	15.248	208	.5	U
o-Xylene	16.094	16.094	16.094	87	.5	U
124-Trimethylbenzene	18.08	18.08	18.08	107	.5	U
Naphthalene	21.163	21.163	21.163	97	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	23.417	93.67	70-130

TB3_061715

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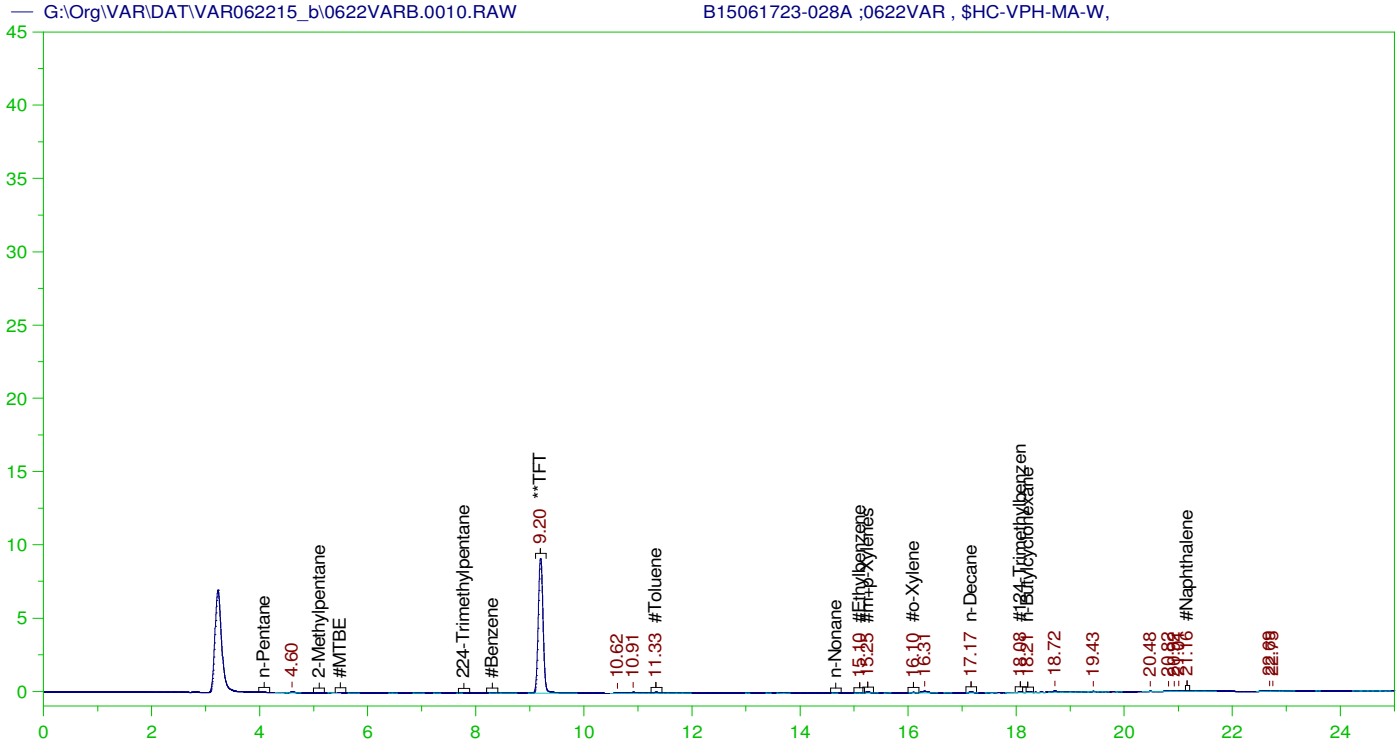


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-028A ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0010.RAW
Date & Time Acquired: 6/22/2015 2:25:49 PM
Method File: G:\Org\VAR\Methods\150513M1723-28B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

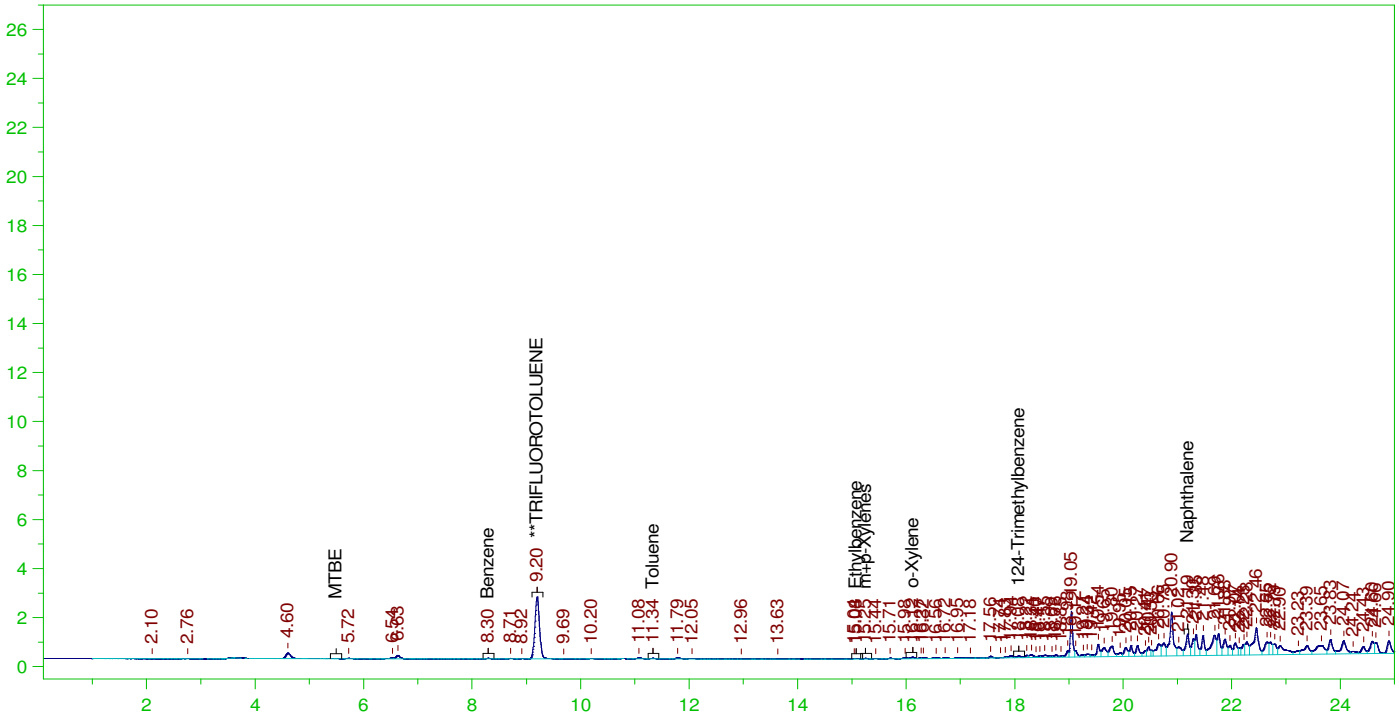
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	24.045	96.18 -

GRO Area:4902.016 GRO Amount: 1.510824
TPH Area:9328.285 TPH Amount: 2.875021

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2954.512 C5-C8 Amount: 1.239688
C9-C12 Area:5067.178 C9-C12 Amount: 1.976548

EX-35_061715

— G:\Org\VAR\DAT\VAR062215_b\0622VAR.0030.RAW B15061723-030F ;0622VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-030F ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0030.RAW
Date & Time Acquired: 6/23/2015 1:57:42 AM
Method File: G:\Org\VAR\Methods\150513M1723-30.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:46864.69 C9-C10 Aromatics Amount: 26.43593

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.3	8.3	8.3	118	.5	U
Toluene	11.335	11.335	11.335	136	.5	U
Ethylbenzene	15.078	15.078	15.078	105	.5	U
m+p-Xylenes	15.255	15.255	15.255	129	.5	U
o-Xylene	16.12	16.12	16.12	346	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	390	.5	U
Naphthalene	21.193	-11.964	-11.993	4232	~~2.257~~ NO pf6/24/15	

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	20.732	82.93	70-130

EX-35_061715

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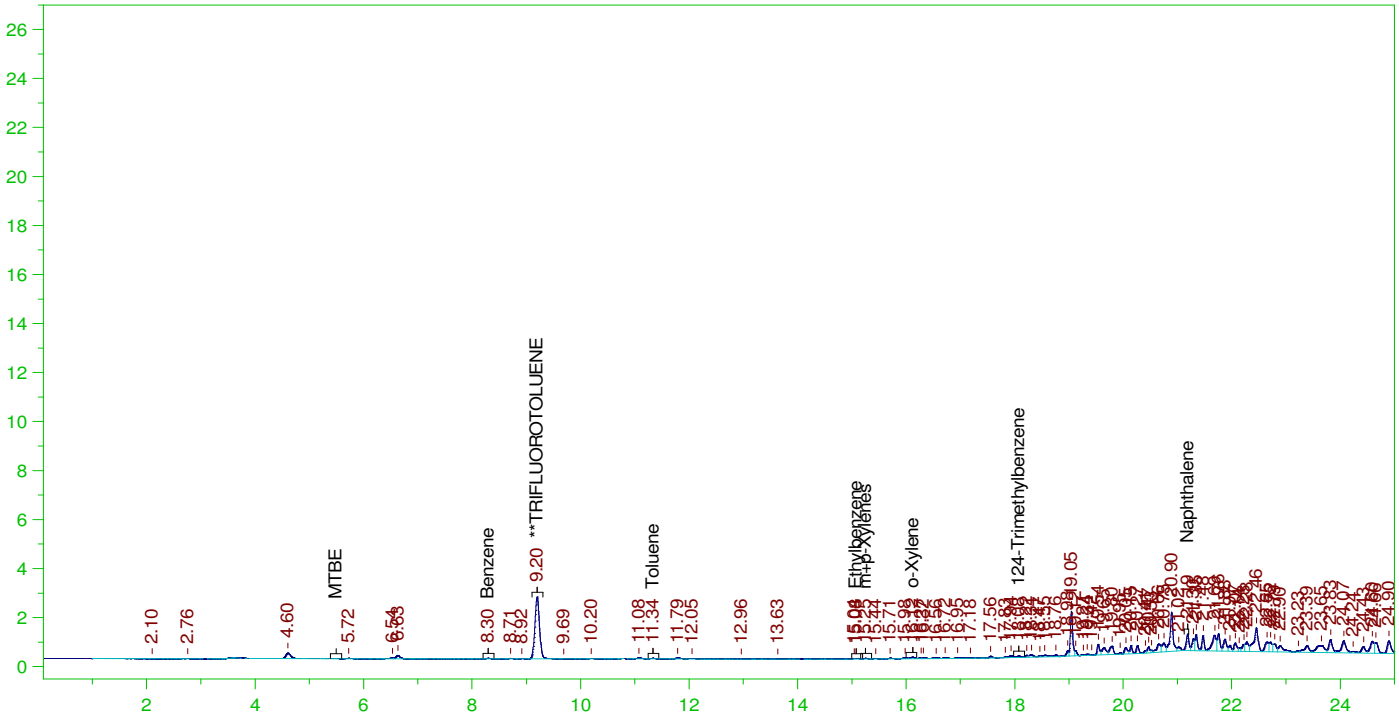

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-030F ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VAR.0030.RAW
Date & Time Acquired: 6/23/2015 1:57:42 AM
Method File: G:\Org\VAR\Methods\150513M1723-30N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:30722.36 C9-C10 Aromatics Amount: 17.33019

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.3~~	~~8.3~~	~~8.3~~	~~118~~	~~.5~~	~~U~~
~~Toluene~~	~~11.335~~	~~11.335~~	~~11.335~~	~~136~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.078~~	~~15.078~~	~~15.078~~	~~105~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.255~~	~~15.255~~	~~15.255~~	~~129~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.12~~	~~16.12~~	~~16.12~~	~~346~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.078~~	~~18.078~~	~~18.078~~	~~270~~	~~.5~~	~~U~~
Naphthalene	21.193	-11.964	-11.993	2528	~~1.348~~ <1.5	wb07/06/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	20.732	82.93	70-130

EX-35_061715

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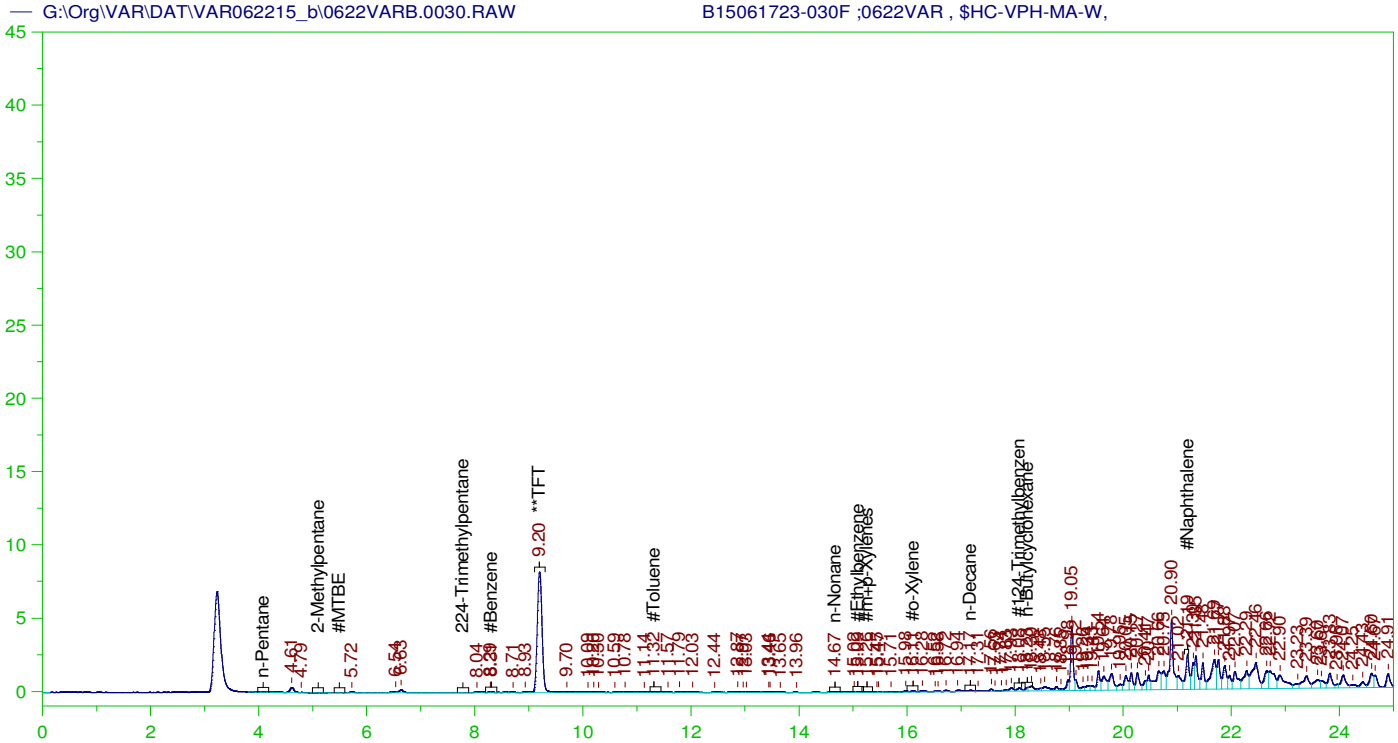


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061723-030F ;0622VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062215_b\0622VARB.0030.RAW
Date & Time Acquired: 6/23/2015 1:57:42 AM
Method File: G:\Org\VAR\Methods\150513M1723-30B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	21.797	87.19 -

GRO Area:22225.5 GRO Amount: 6.850004
TPH Area:315750.8 TPH Amount: 97.31586

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:17416.84 C5-C8 Amount: 7.307958
C9-C12 Area:129030.3 C9-C12 Amount: 50.33068

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Batch: 90668
Lab ID: LCS-90668	Laboratory Control Sample				Run: GCFID-HP4-B_150619A				06/20/15 17:30
Total Extractable Hydrocarbons	5650	ug/L	300	91	60	140			
Surr: o-Terphenyl				76	40	140			
Lab ID: MB-90668	Method Blank				Run: GCFID-HP4-B_150619A				06/20/15 18:12
Total Extractable Hydrocarbons	ND	ug/L	300						
Surr: o-Terphenyl				75	40	140			
Lab ID: B15061630-001AMS	Sample Matrix Spike				Run: GCFID-HP4-B_150619A				06/20/15 19:37
Total Extractable Hydrocarbons	11100	ug/L	580	93	60	140			
Surr: o-Terphenyl				77	40	140			
Lab ID: B15061630-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150619A				06/20/15 20:20
Total Extractable Hydrocarbons	11100	ug/L	580	93	60	140	0.3	20	
Surr: o-Terphenyl				80	40	140			
Method: SW8015M									Batch: 90718
Lab ID: LCS-90718	Laboratory Control Sample				Run: GCFID-HP4-B_150622B				06/23/15 13:23
Total Extractable Hydrocarbons	5200	ug/L	300	84	60	140			
Surr: o-Terphenyl				73	40	140			
Lab ID: MB-90718	Method Blank				Run: GCFID-HP4-B_150622B				06/23/15 14:05
Total Extractable Hydrocarbons	ND	ug/L	300						
Surr: o-Terphenyl				81	40	140			
Lab ID: B15061741-001AMS	Sample Matrix Spike				Run: GCFID-HP4-B_150622B				06/23/15 15:31
Total Extractable Hydrocarbons	12400	ug/L	600	100	60	140			
Surr: o-Terphenyl				69	40	140			
Lab ID: B15061741-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150622B				06/23/15 16:13
Total Extractable Hydrocarbons	12000	ug/L	600	97	60	140	2.7	20	
Surr: o-Terphenyl				73	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Analytical Run: R244838
Lab ID: CCV_0619HP457r-W	Continuing Calibration Verification Standard								06/21/15 04:08
n-Nonane	213	ug/L		106	75	125			
n-Decane	213	ug/L		106	75	125			
n-Dodecane	211	ug/L		105	75	125			
n-Tetradecane	211	ug/L		105	75	125			
n-Hexadecane	211	ug/L		106	75	125			
n-Octadecane	212	ug/L		106	75	125			
n-Nonadecane	214	ug/L		107	75	125			
n-Eicosane	213	ug/L		106	75	125			
n-Docosane	212	ug/L		106	75	125			
n-Tetracosane	213	ug/L		106	75	125			
n-Hexacosane	210	ug/L		105	75	125			
n-Octacosane	198	ug/L		99	75	125			
n-Triacontane	215	ug/L		108	75	125			
n-Hexatriacontane	212	ug/L		106	75	125			
Surr: o-Terphenyl				97	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Report Date: 07/06/15
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Analytical Run: R245111
Lab ID: CCV_0624HP405r-W	Continuing Calibration Verification Standard								06/24/15 11:55
n-Nonane	207	ug/L		103	75	125			
n-Decane	207	ug/L		104	75	125			
n-Dodecane	206	ug/L		103	75	125			
n-Tetradecane	206	ug/L		103	75	125			
n-Hexadecane	206	ug/L		103	75	125			
n-Octadecane	207	ug/L		104	75	125			
n-Nonadecane	208	ug/L		104	75	125			
n-Eicosane	208	ug/L		104	75	125			
n-Docosane	207	ug/L		103	75	125			
n-Tetracosane	207	ug/L		104	75	125			
n-Hexacosane	205	ug/L		102	75	125			
n-Octacosane	192	ug/L		96	75	125			
n-Triacontane	210	ug/L		105	75	125			
n-Hexatriacontane	207	ug/L		104	75	125			
Surr: o-Terphenyl				95	75	125			
Lab ID: CCV_0624HP422r-W	Continuing Calibration Verification Standard								06/25/15 00:13
n-Nonane	207	ug/L		104	75	125			
n-Decane	207	ug/L		104	75	125			
n-Dodecane	205	ug/L		103	75	125			
n-Tetradecane	206	ug/L		103	75	125			
n-Hexadecane	206	ug/L		103	75	125			
n-Octadecane	206	ug/L		103	75	125			
n-Nonadecane	208	ug/L		104	75	125			
n-Eicosane	208	ug/L		104	75	125			
n-Docosane	207	ug/L		103	75	125			
n-Tetracosane	207	ug/L		104	75	125			
n-Hexacosane	205	ug/L		103	75	125			
n-Octacosane	193	ug/L		96	75	125			
n-Triacontane	210	ug/L		105	75	125			
n-Hexatriacontane	208	ug/L		104	75	125			
Surr: o-Terphenyl				95	75	125			

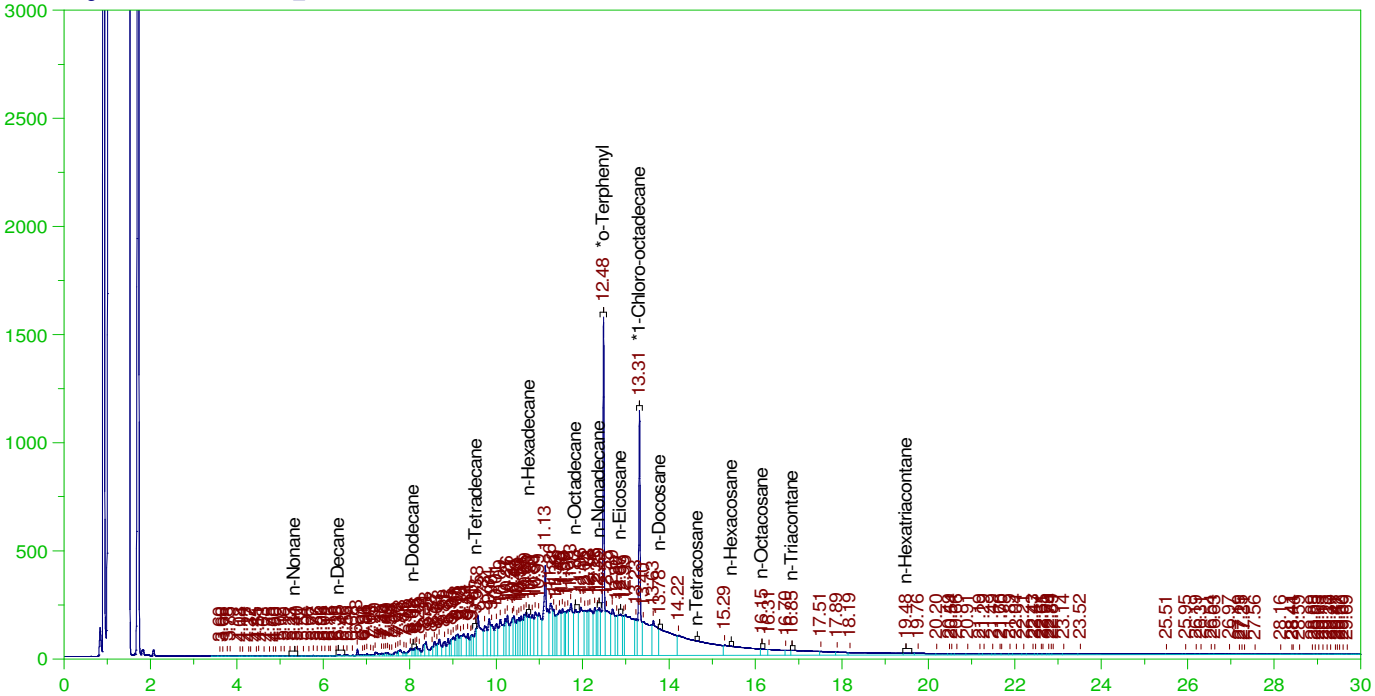
Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

LS-6_061615 Batch ID: 90668

G:\org\HP4\DAT\HP4061915_b\0619HP4.0062.RAW B15061723-002C ;0619HP4 , $HC-EPH-SCRN-W, V62



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-002C ;0619HP4 , $HC-EPH-SCRN-W, V62
Raw File: G:\org\HP4\DAT\HP4061915_b\0619HP4.0062.RAW
Date & Time Acquired: 6/21/2015 7:39:24 AM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

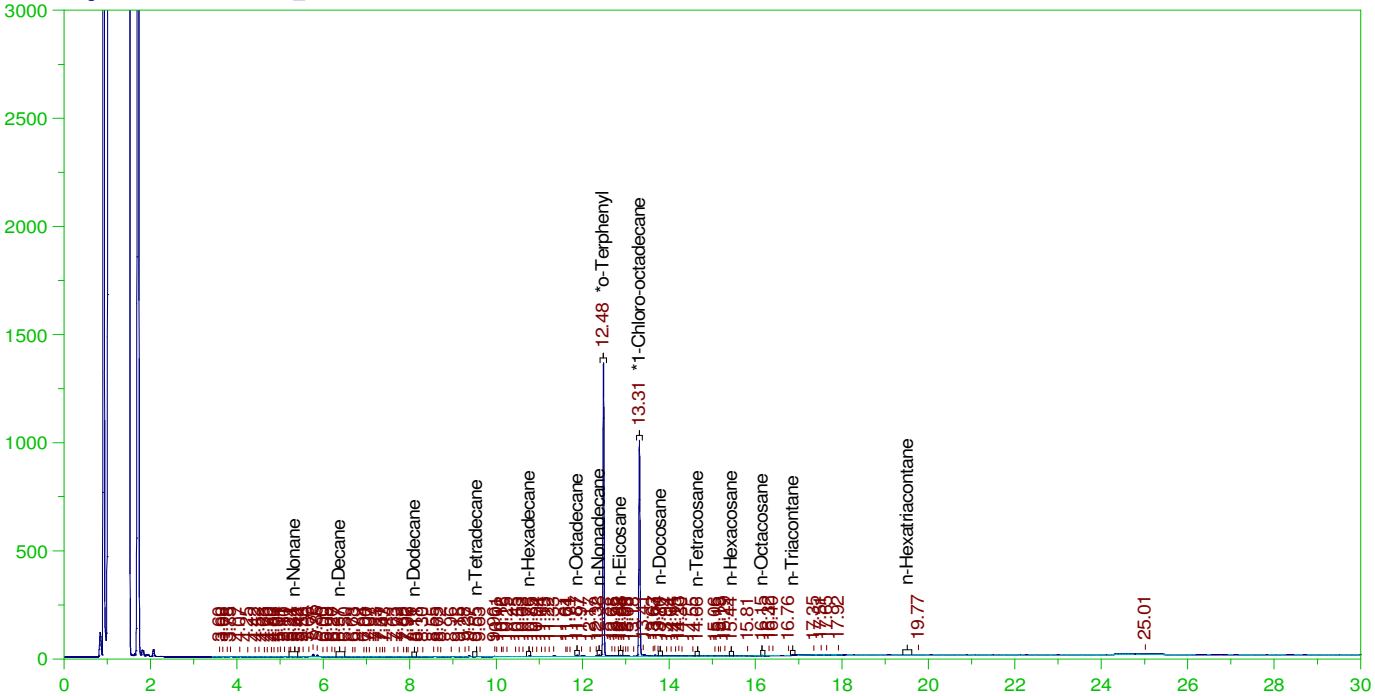
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.48	3725584	190.476	231.073	121.31	-
*1-Chloro-octadecane	13.313	3060623	190.476	249.663	131.07	-

DRO Area:6.071709E+07 DRO Amount: 4462.707
TEH Area:6.43111E+07 TEH Amount: 4726.866
C9-C18 Area:3.880486E+07 C9-C18 Amount: 2866.582
C19-C36 Area:2.341647E+07C19-C36 Amount: 1712.493

L-88-9_061615 Batch ID: 90668

G:\org\HP4\DAT\HP4061915_b\0619HP4.0060.RAW B15061723-003A ;0619HP4 , $HC-EPH-SCRN-W, V60



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-003A ;0619HP4 , $HC-EPH-SCRN-W, V60
Raw File: G:\org\HP4\DAT\HP4061915_b\0619HP4.0060.RAW
Date & Time Acquired: 6/21/2015 6:15:03 AM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

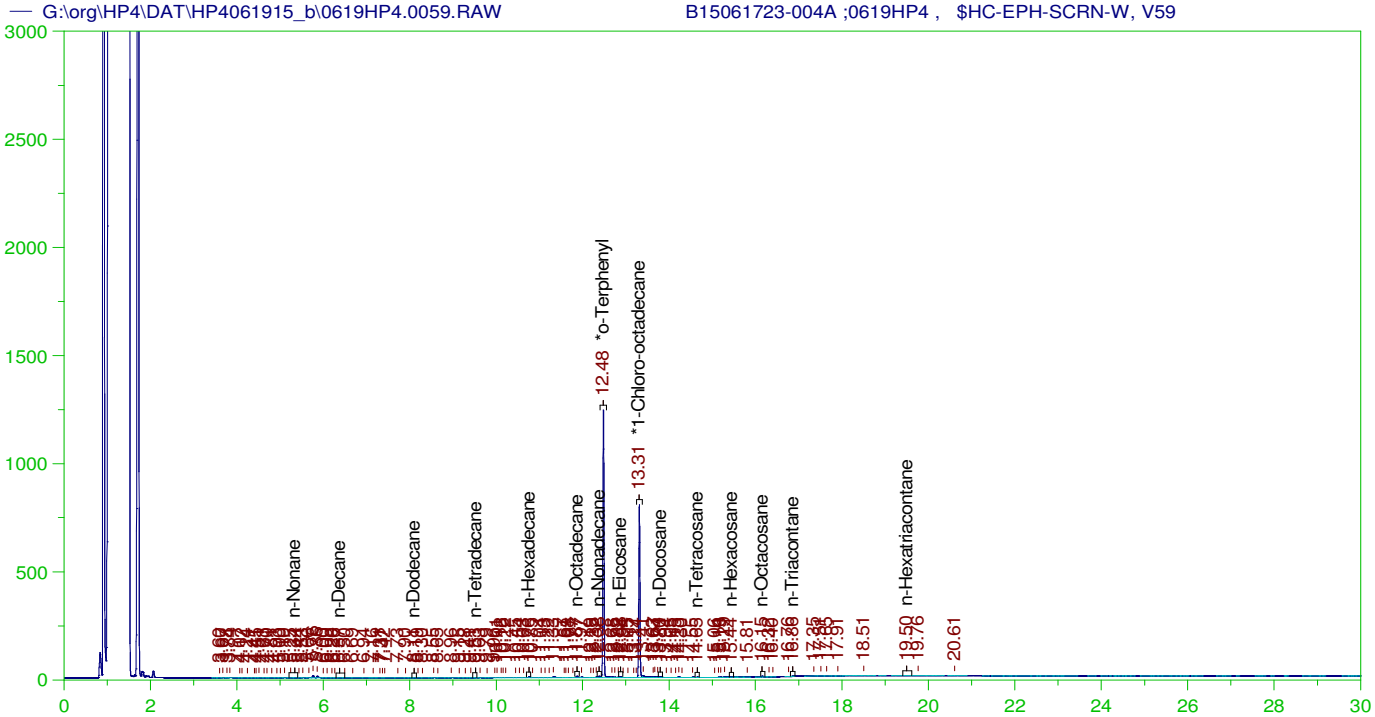
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.478	2505466	190.476	155.397	81.58	-
*1-Chloro-octadecane	13.311	2016771	190.476	164.513	86.37	-

DRO Area:353387.3 DRO Amount: 25.97397
TEH Area:532179.3 TEH Amount: 39.11518
C9-C18 Area:251163.7 C9-C18 Amount: 18.55389
C19-C36 Area:196022.3 C19-C36 Amount: 14.3355

EX-3_061615 Batch ID: 90668

G:\org\HP4\DAT\HP4061915_b\0619HP4.0059.RAW B15061723-004A ;0619HP4 , $HC-EPH-SCRN-W, V59



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-004A ;0619HP4 , $HC-EPH-SCRN-W, V59
Raw File: G:\org\HP4\DAT\HP4061915_b\0619HP4.0059.RAW
Date & Time Acquired: 6/21/2015 5:32:56 AM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

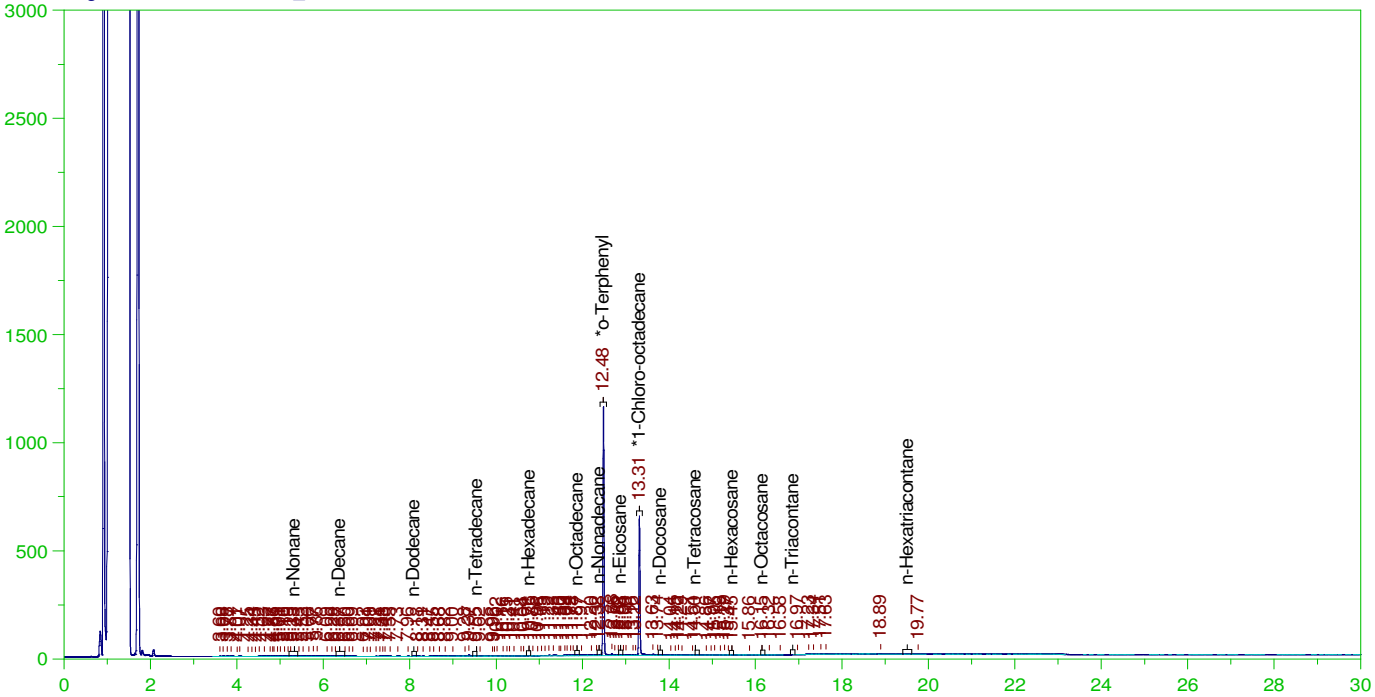
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.477	2300333	190.476	142.674	74.9	-
*1-Chloro-octadecane	13.31	1597772	190.476	130.334	68.43	-

DRO Area:345046.9 DRO Amount: 25.36095
TEH Area:510217.4 TEH Amount: 37.50098
C9-C18 Area:270805.5 C9-C18 Amount: 20.00487
C19-C36 Area:166136.9 C19-C36 Amount: 12.14992

D1_061715 Batch ID: 90668

G:\org\HP4\DAT\HP4061915_b\0619HP4.0061.RAW B15061723-006E ;0619HP4 , $HC-EPH-SCRN-W, V61



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-006E ;0619HP4 , $HC-EPH-SCRN-W, V61
Raw File: G:\org\HP4\DAT\HP4061915_b\0619HP4.0061.RAW
Date & Time Acquired: 6/21/2015 6:57:16 AM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

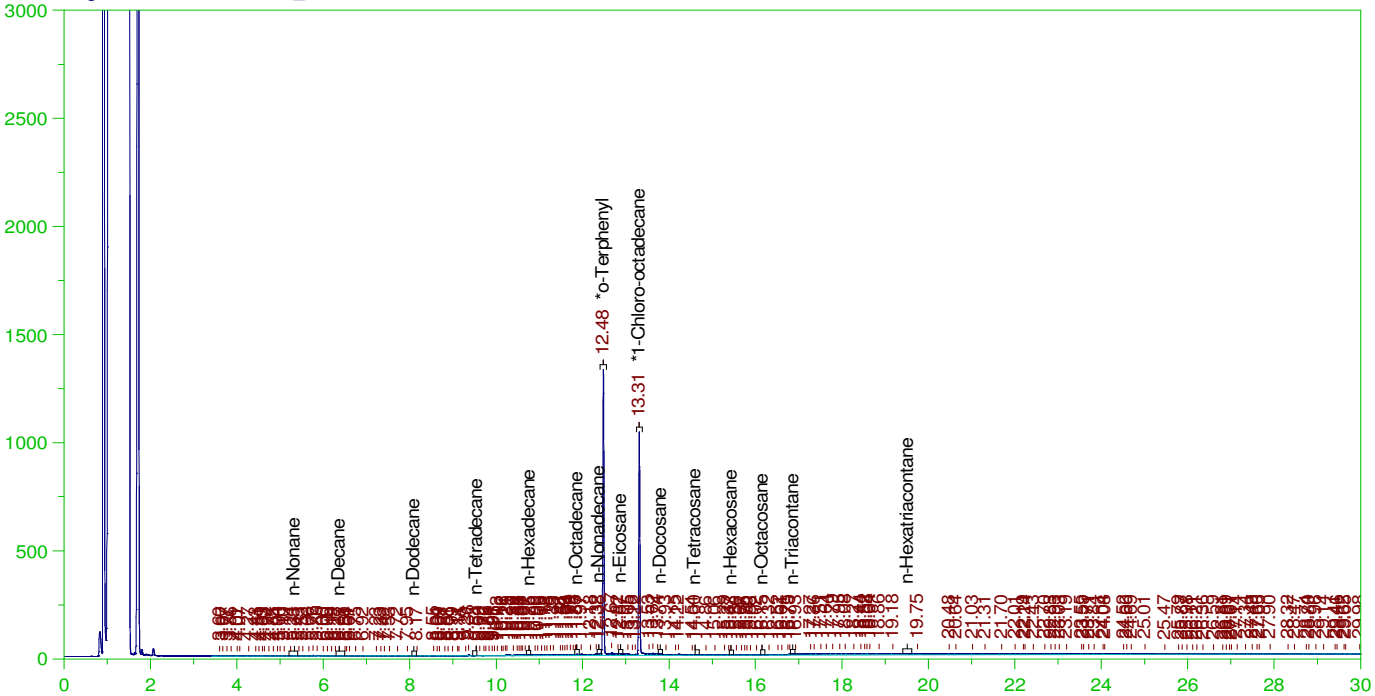
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.478	2165969	190.476	134.34	70.53	-
*1-Chloro-octadecane	13.311	1386948	190.476	113.137	59.4	-

DRO Area:717872.9 DRO Amount: 52.76366
TEH Area:842174.4 TEH Amount: 61.89983
C9-C18 Area:395034.6 C9-C18 Amount: 29.18188
C19-C36 Area:384679.4 C19-C36 Amount: 28.13238

EX-17_061715 Batch ID: 90668

G:\org\HP4\DAT\HP4061915_b\0619HP4.0064.RAW B15061723-007E ;0619HP4 , $HC-EPH-SCRN-W, V64



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-007E ;0619HP4 , $HC-EPH-SCRN-W, V64
Raw File: G:\org\HP4\DAT\HP4061915_b\0619HP4.0064.RAW
Date & Time Acquired: 6/21/2015 9:04:18 AM
Method File: g:\org\HP4\Methods\SR_SCN-061964-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

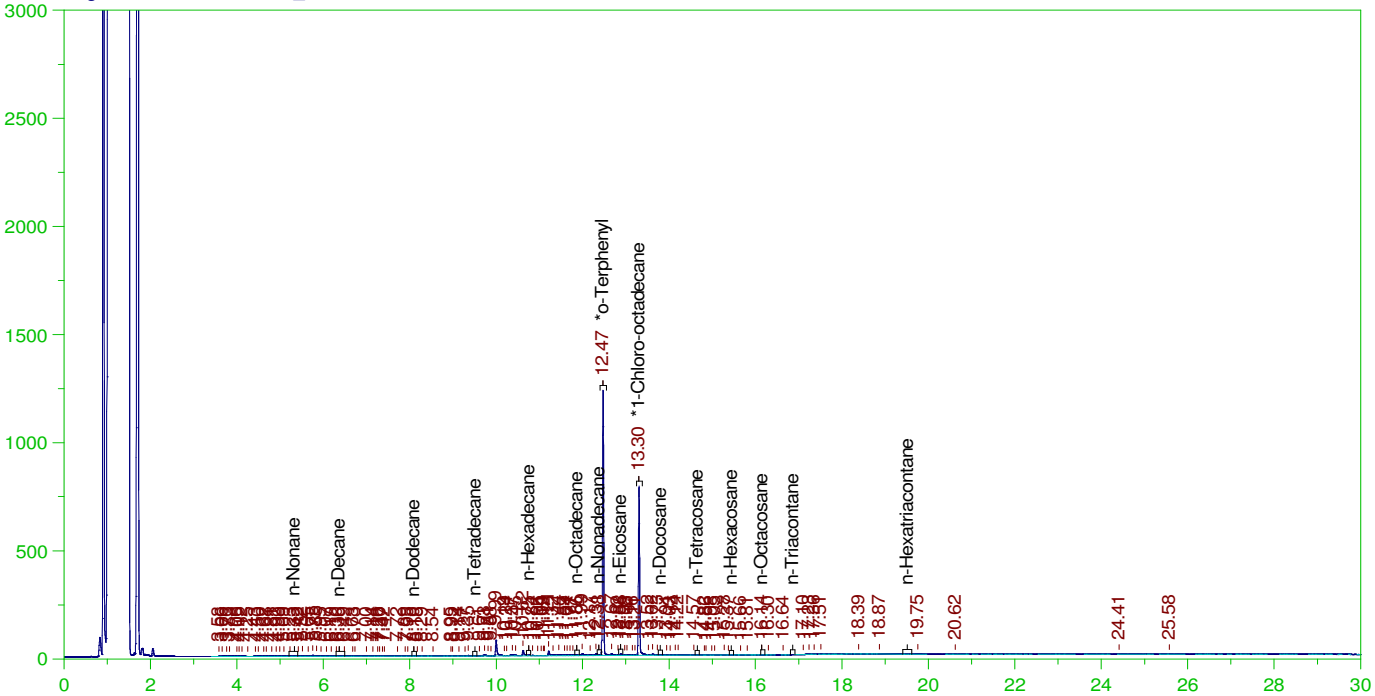
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.475	2521071	190.476	156.365	82.09	-
*1-Chloro-octadecane	13.309	2164785	190.476	176.587	92.71	-

DRO Area:1664900 DRO Amount: 122.3702
TEH Area:4313297 TEH Amount: 317.0274
C9-C18 Area:710923.9 C9-C18 Amount: 52.51717
C19-C36 Area:2101306 C19-C36 Amount: 153.6727

EX-16_061715 Batch ID: 90668

G:\org\HP4\DAT\HP4061915_b\0619HP4.0066.RAW B15061723-008E ;0619HP4 , $HC-EPH-SCRN-W, V66



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-008E ;0619HP4 , $HC-EPH-SCRN-W, V66
Raw File: G:\org\HP4\DAT\HP4061915_b\0619HP4.0066.RAW
Date & Time Acquired: 6/21/2015 10:30:17 AM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

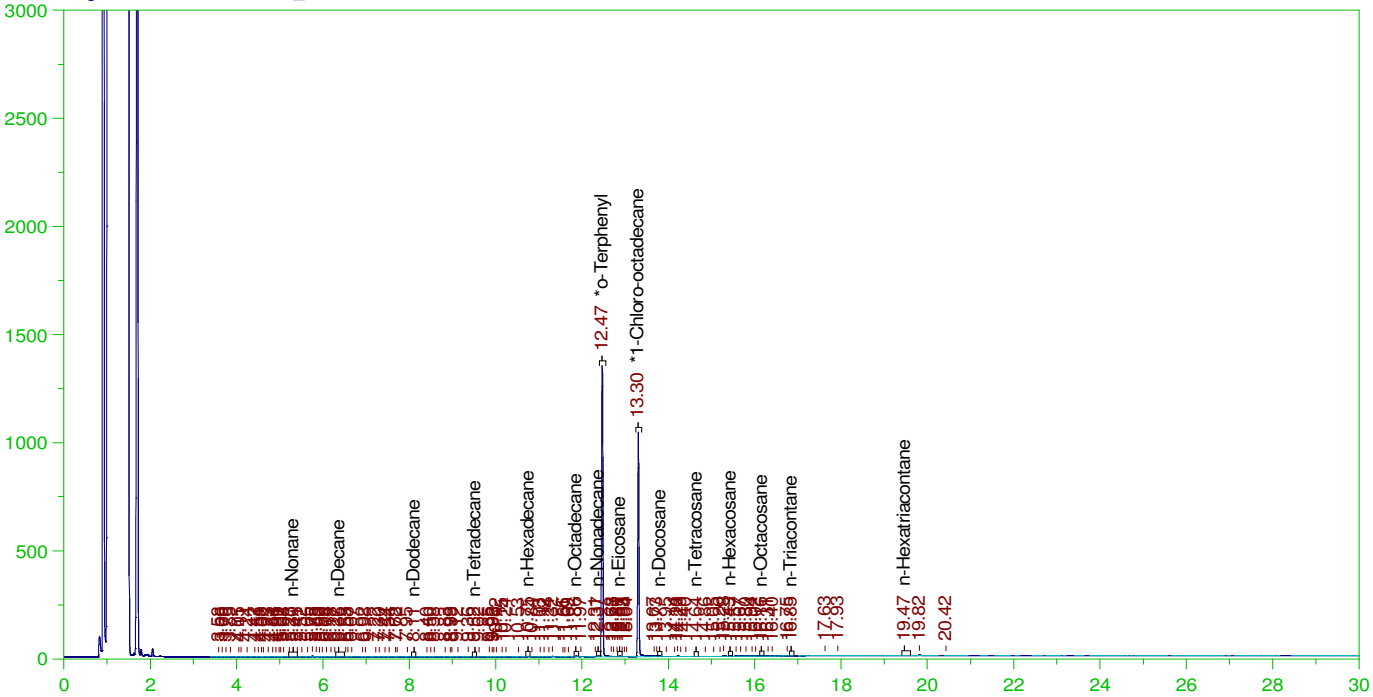
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.469	2326107	190.476	144.273	75.74	-
*1-Chloro-octadecane	13.303	1652782	190.476	134.822	70.78	-

DRO Area:1306722 DRO Amount: 96.04411
TEH Area:1441809 TEH Amount: 105.973
C9-C18 Area:932562.1 C9-C18 Amount: 68.88997
C19-C36 Area:443530.4 C19-C36 Amount: 32.43627

RX_061715 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0007.RAW B15061723-009E ;0624HP4 , $HC-EPH-SCRN-W, V07



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-009E ;0624HP4 , $HC-EPH-SCRN-W, V07
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0007.RAW
Date & Time Acquired: 6/24/2015 1:31:20 PM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

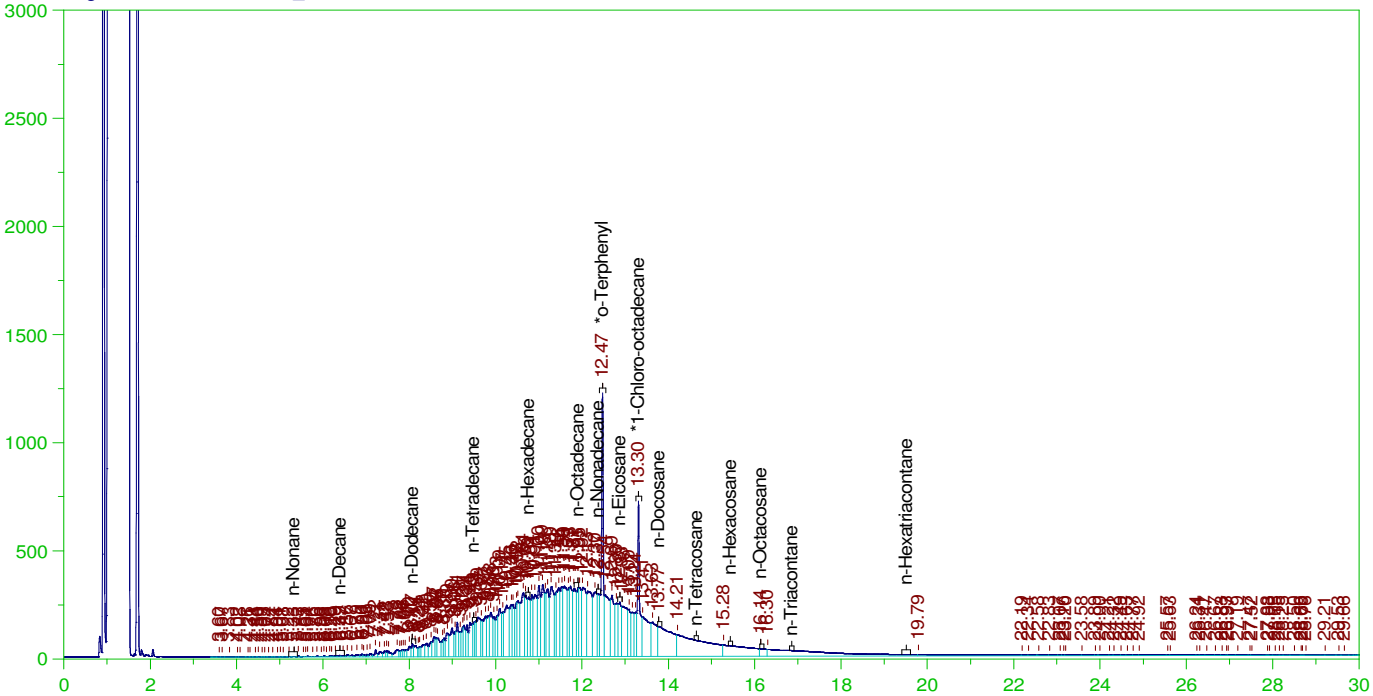
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.467	2511672	190.476	155.782	81.79	-
*1-Chloro-octadecane	13.301	2152695	190.476	175.601	92.19	-

DRO Area:235012.5 DRO Amount: 17.27342
TEH Area:355501.5 TEH Amount: 26.12936
C9-C18 Area:196354.5 C9-C18 Amount: 14.50504
C19-C36 Area:99200 C19-C36 Amount: 7.254696

D1_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0008.RAW B15061723-011A ;0624HP4 , $HC-EPH-SCRN-W, V08



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-011A ;0624HP4 , $HC-EPH-SCRN-W, V08
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0008.RAW
Date & Time Acquired: 6/24/2015 2:14:08 PM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

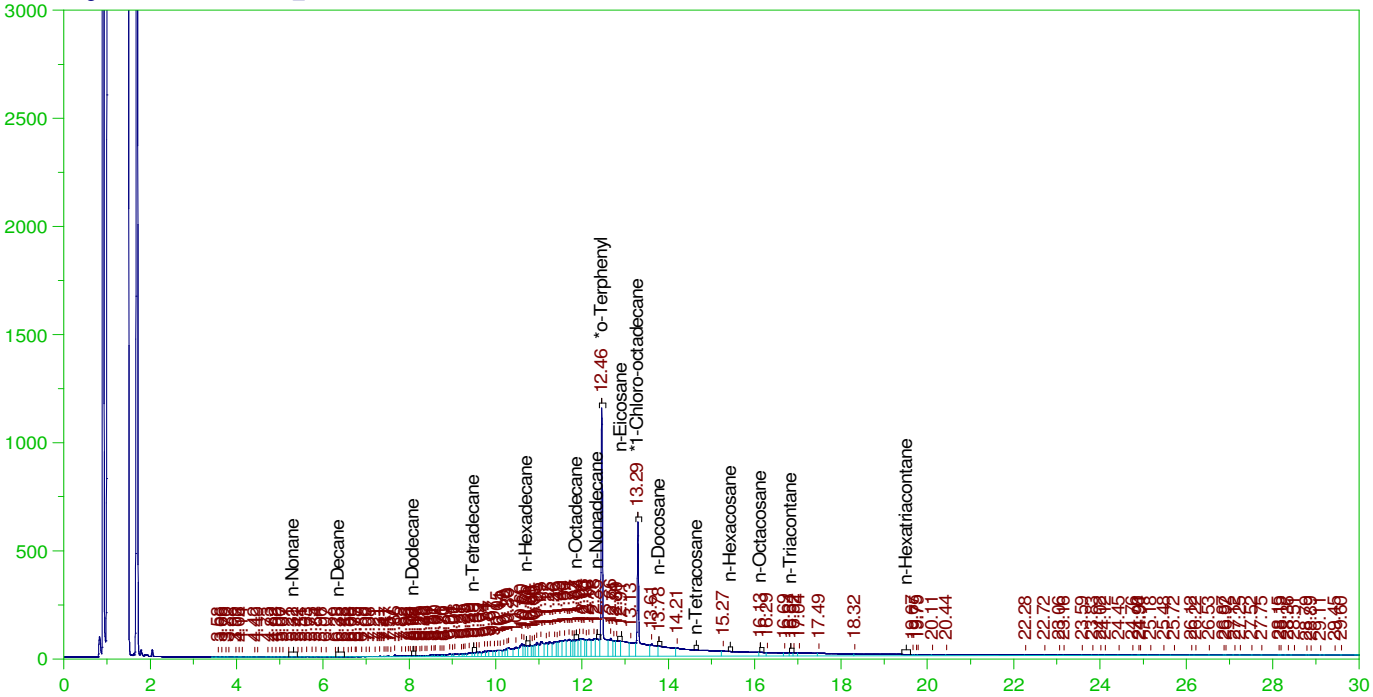
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.472	3432721	190.476	212.908	111.78	-
*1-Chloro-octadecane	13.304	2497782	190.476	203.75	106.97	-

DRO Area:8.295413E+07 DRO Amount: 6097.129
TEH Area:8.456823E+07 TEH Amount: 6215.766
C9-C18 Area:5.560258E+07 C9-C18 Amount: 4107.459
C19-C36 Area:2.748231E+07C19-C36 Amount: 2009.837

EX-51_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0011.RAW B15061723-012A ;0624HP4 , $HC-EPH-SCRN-W, V09



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-012A ;0624HP4 , $HC-EPH-SCRN-W, V09
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0011.RAW
Date & Time Acquired: 6/24/2015 4:22:44 PM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

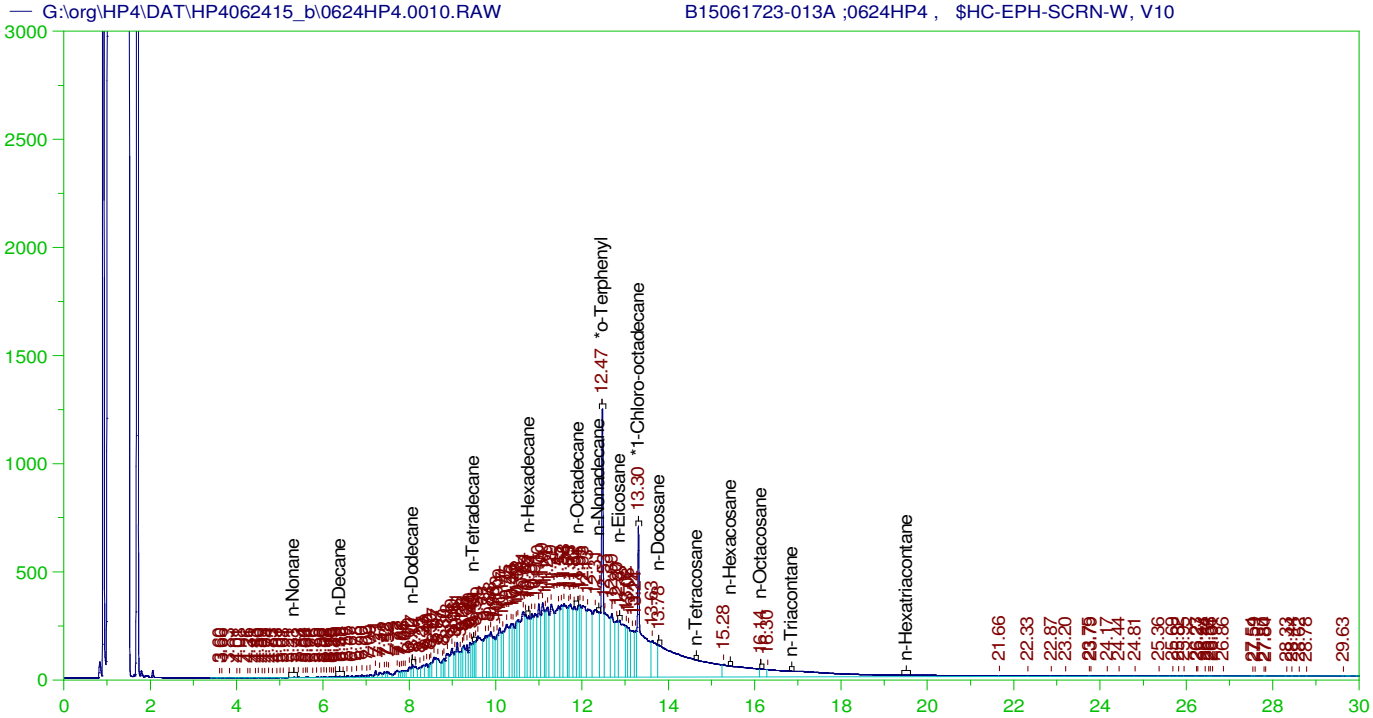
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.459	2833349	190.476	175.733	92.26	-
*1-Chloro-octadecane	13.292	2236807	190.476	182.462	95.79	-

DRO Area:1.78054E+07 DRO Amount: 1308.697
TEH Area:2.105256E+07 TEH Amount: 1547.363
C9-C18 Area:1.014531E+07 C9-C18 Amount: 749.4514
C19-C36 Area:9246632 C19-C36 Amount: 676.2248

EX-59_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0010.RAW B15061723-013A ;0624HP4 , $HC-EPH-SCRN-W, V10



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-013A ;0624HP4 , $HC-EPH-SCRN-W, V10
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0010.RAW
Date & Time Acquired: 6/24/2015 3:39:42 PM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

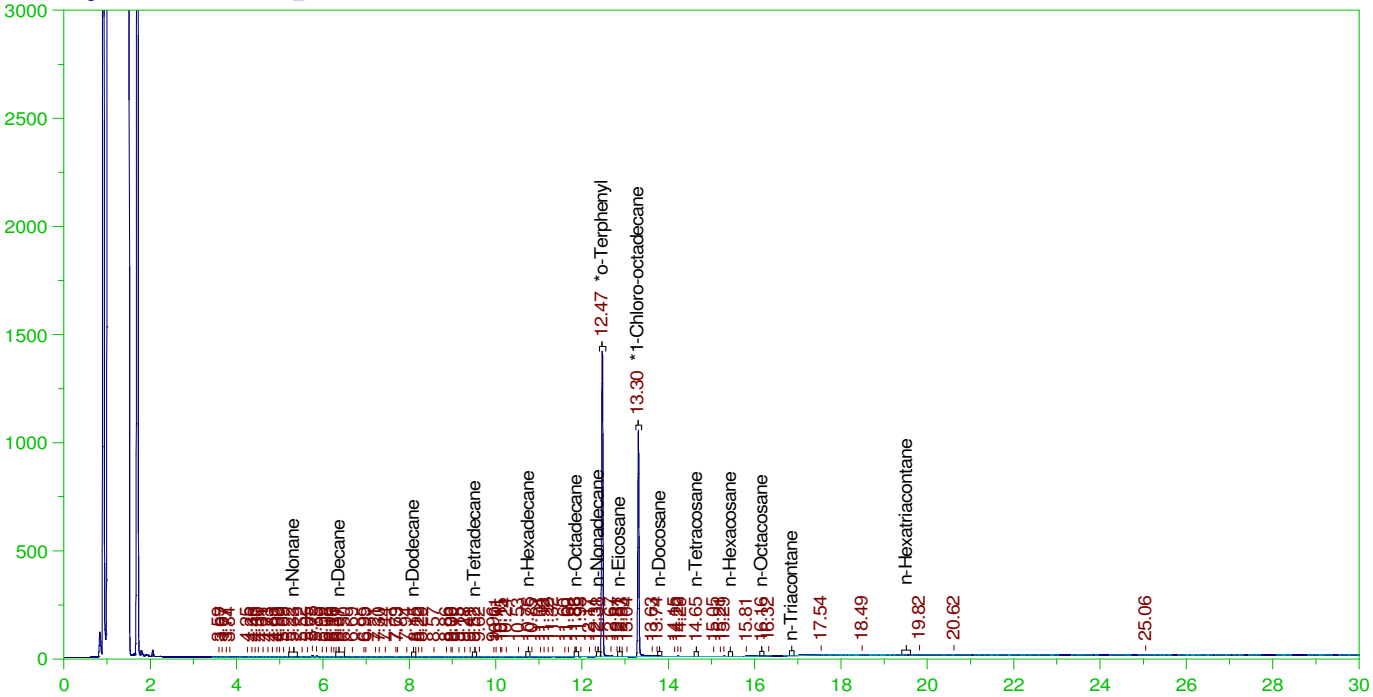
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.471	3615708	190.476	224.258	117.74	-
*1-Chloro-octadecane	13.303	4775788	190.476	389.573	204.53	-

DRO Area:8.514695E+07 DRO Amount: 6258.302
TEH Area:8.634465E+07 TEH Amount: 6346.333
C9-C18 Area:5.754205E+07 C9-C18 Amount: 4250.731
C19-C36 Area:2.773276E+07C19-C36 Amount: 2028.153

RX-061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0012.RAW B15061723-015A ;0624HP4 , $HC-EPH-SCRN-W, V12



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-015A ;0624HP4 , $HC-EPH-SCRN-W, V12
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0012.RAW
Date & Time Acquired: 6/24/2015 5:05:37 PM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

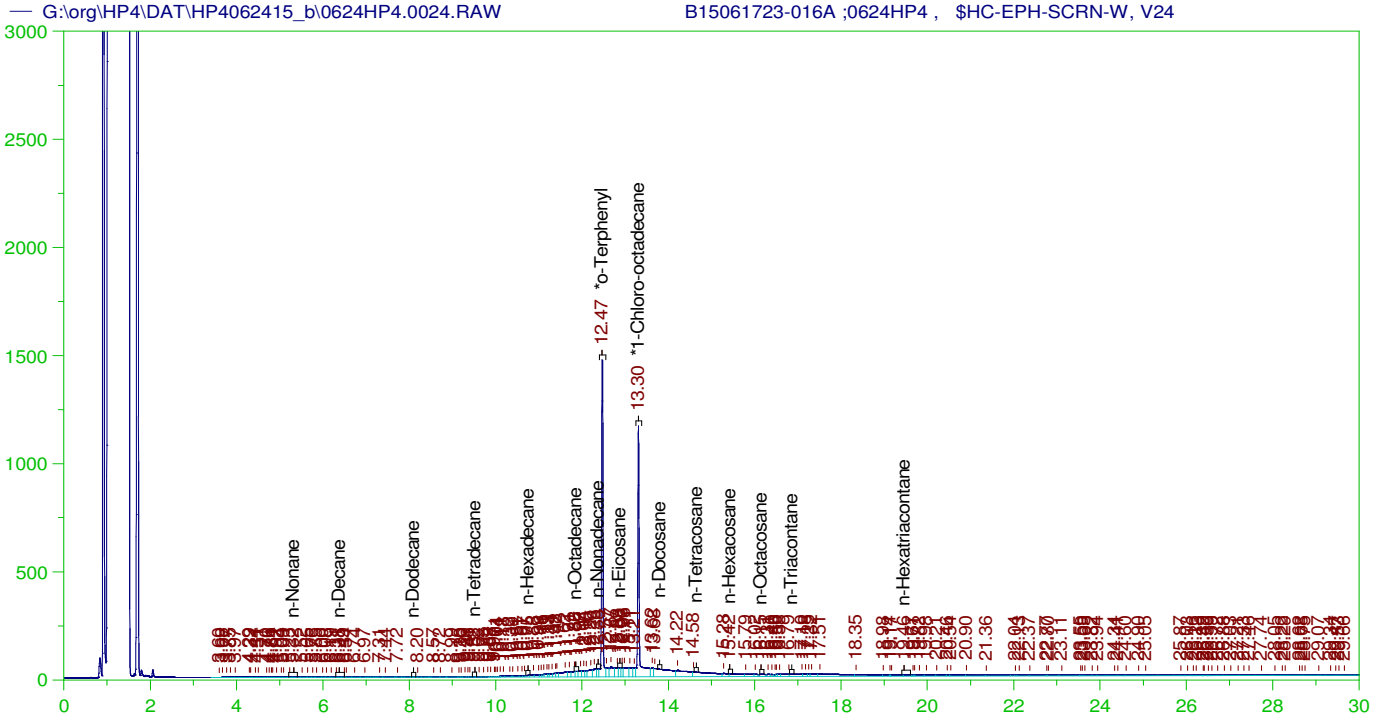
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.468	2617934	190.476	162.373	85.25	-
*1-Chloro-octadecane	13.302	2176862	190.476	177.572	93.23	-

DRO Area:219968 DRO Amount: 16.16765
TEH Area:365491 TEH Amount: 26.86359
C9-C18 Area:191462.9 C9-C18 Amount: 14.14369
C19-C36 Area:109409.5 C19-C36 Amount: 8.001337

EX-11_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0024.RAW B15061723-016A ;0624HP4 , $HC-EPH-SCRN-W, V24



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-016A ;0624HP4 , $HC-EPH-SCRN-W, V24
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0024.RAW
Date & Time Acquired: 6/25/2015 1:38:56 AM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

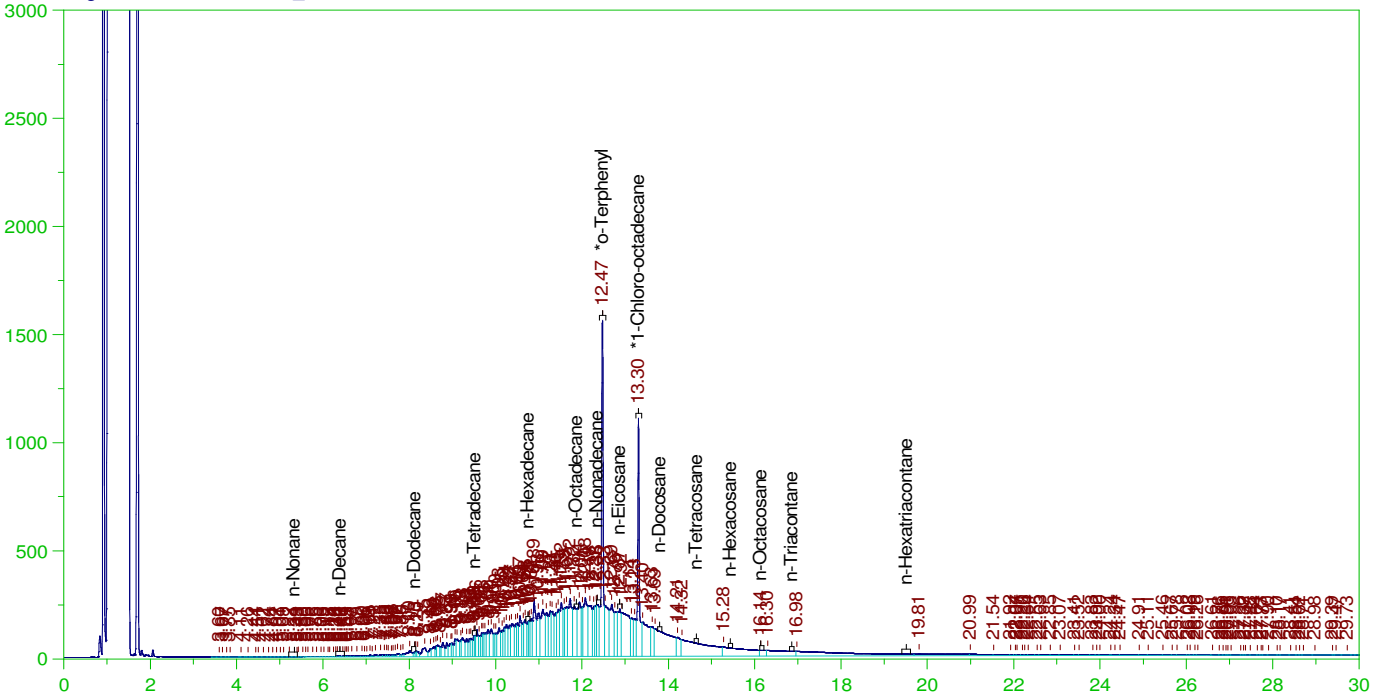
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.469	2979176	190.476	184.778	97.01	-
*1-Chloro-octadecane	13.303	3090328	190.476	252.086	132.35	-

DRO Area:7499216 DRO Amount: 551.1925
TEH Area:1.078396E+07 TEH Amount: 792.6209
C9-C18 Area:2398413 C9-C18 Amount: 177.1749
C19-C36 Area:6621178 C19-C36 Amount: 484.2201

HRO-13_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0020.RAW B15061723-017A ;0624HP4 , $HC-EPH-SCRN-W, V20



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-017A ;0624HP4 , $HC-EPH-SCRN-W, V20
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0020.RAW
Date & Time Acquired: 6/24/2015 10:47:12 PM
Method File: g:\org\HP4\Methods\SR_SCN-062420-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

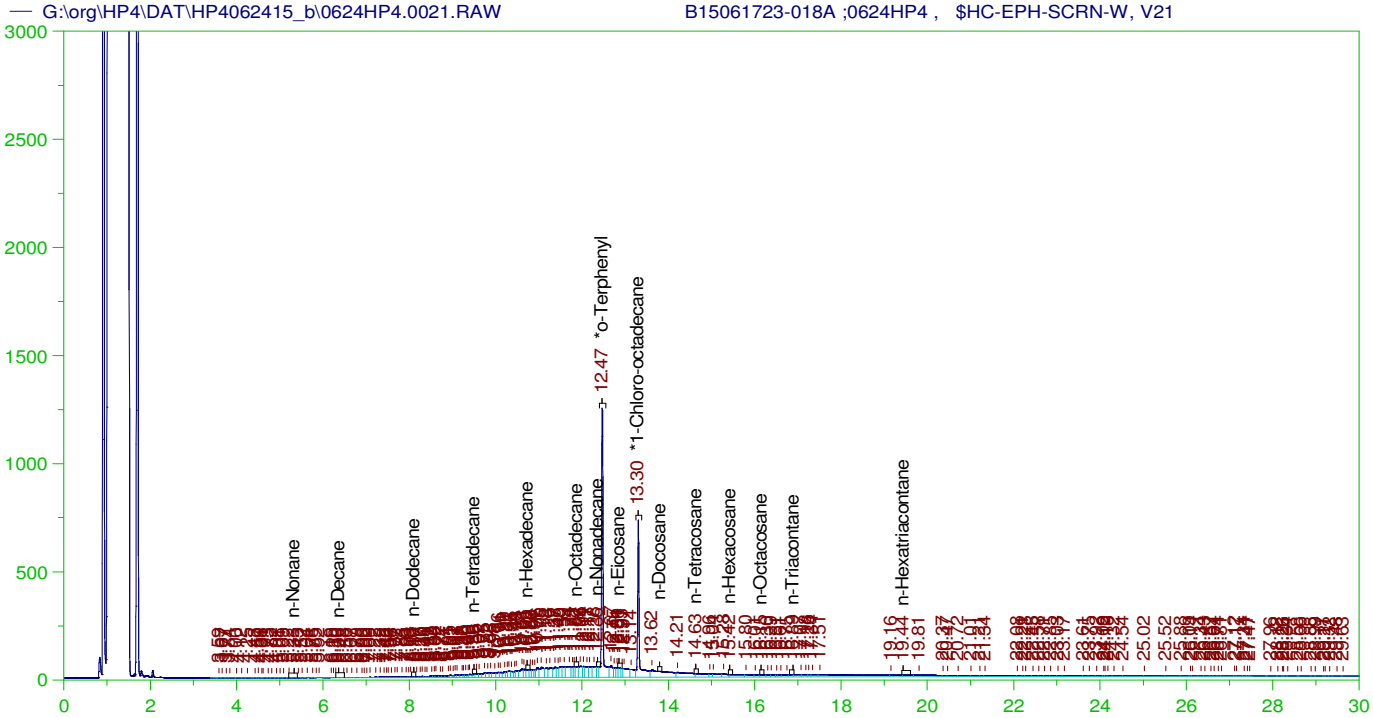
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.471	4079072	190.476	252.997	132.82	-
*1-Chloro-octadecane	13.304	3093775	190.476	252.367	132.49	-

DRO Area:5.675572E+07 DRO Amount: 4171.546
TEH Area:6.057594E+07 TEH Amount: 4452.333
C9-C18 Area:3.586132E+07 C9-C18 Amount: 2649.138
C19-C36 Area:2.286749E+07C19-C36 Amount: 1672.346

L-87-6_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0021.RAW B15061723-018A ;0624HP4 , $HC-EPH-SCRN-W, V21



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-018A ;0624HP4 , $HC-EPH-SCRN-W, V21
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0021.RAW
Date & Time Acquired: 6/24/2015 11:30:19 PM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

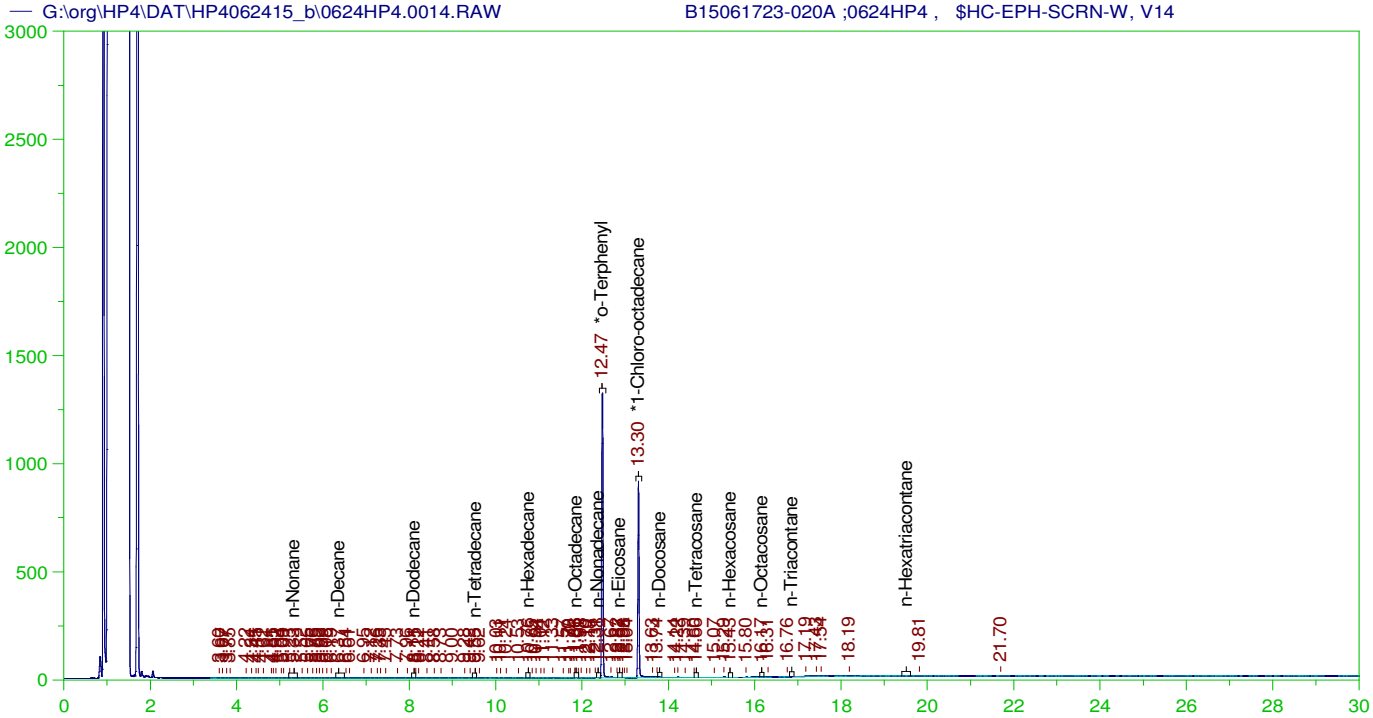
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.468	2840417	190.476	176.172	92.49	-
*1-Chloro-octadecane	13.301	2032267	190.476	165.777	87.03	-

DRO Area:1.132528E+07 DRO Amount: 832.4082
TEH Area:1.432008E+07 TEH Amount: 1052.526
C9-C18 Area:7026526 C9-C18 Amount: 519.0616
C19-C36 Area:5642355 C19-C36 Amount: 412.6368

EX-1_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0014.RAW B15061723-020A ;0624HP4 , $HC-EPH-SCRN-W, V14



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-020A ;0624HP4 , $HC-EPH-SCRN-W, V14
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0014.RAW
Date & Time Acquired: 6/24/2015 6:31:07 PM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.47	2466050	190.476	152.952	80.3	-
*1-Chloro-octadecane	13.304	1881275	190.476	153.46	80.57	-

DRO Area:205391 DRO Amount: 15.09624
TEH Area:314069 TEH Amount: 23.08408
C9-C18 Area:149632.7 C9-C18 Amount: 11.05363
C19-C36 Area:103852.5 C19-C36 Amount: 7.594943

LS-10_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0015.RAW B15061723-021A ;0624HP4 , $HC-EPH-SCRN-W, V15

EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-021A ;0624HP4 , $HC-EPH-SCRN-W, V15
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0015.RAW
Date & Time Acquired: 6/24/2015 7:13:35 PM
Method File: g:\org\HP4\Methods\SR_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.03 Dilution: 2 S.A.: 1

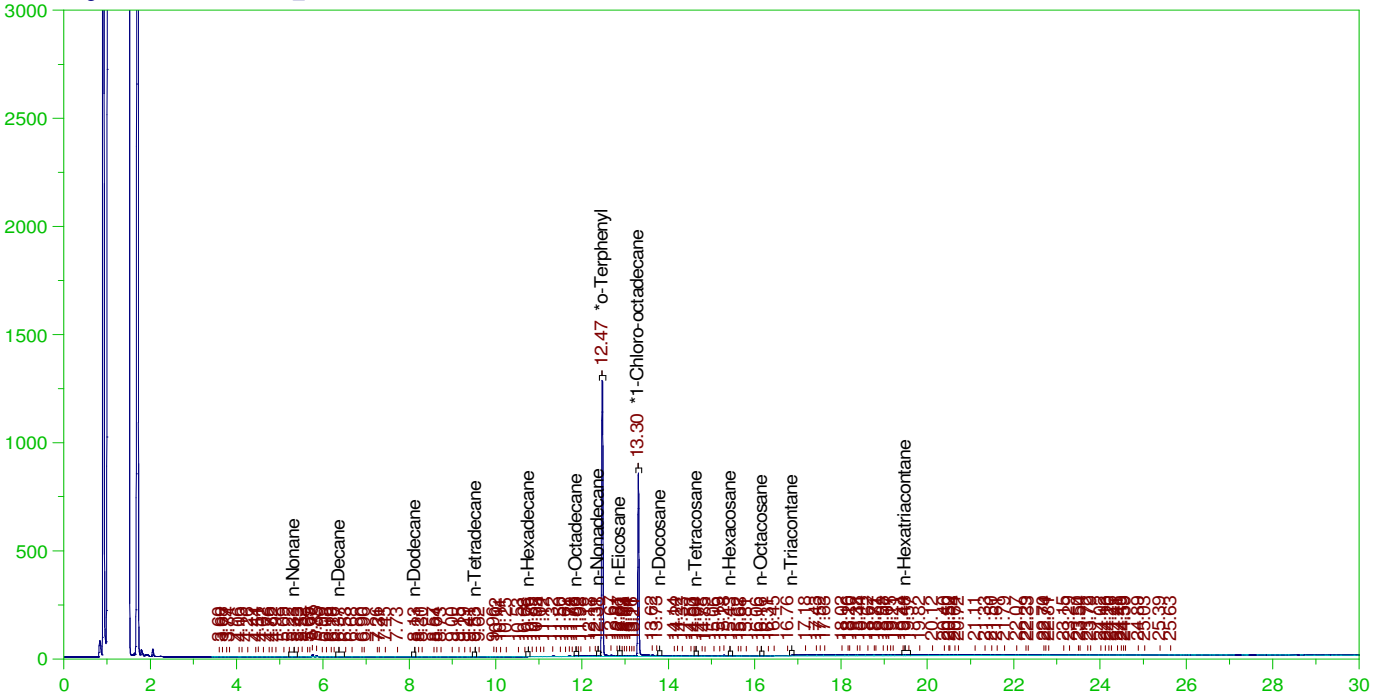
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.472	2529817	194.175	159.954	82.38	-
*1-Chloro-octadecane	13.305	2198731	194.175	182.839	94.16	-

DRO Area:217045.8 DRO Amount: 16.26263
TEH Area:337427.8 TEH Amount: 25.28251
C9-C18 Area:173464.8 C9-C18 Amount: 13.06296
C19-C36 Area:99390.25 C19-C36 Amount: 7.409747

EX-54_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0017.RAW B15061723-022A ;0624HP4 , $HC-EPH-SCRN-W, V17



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-022A ;0624HP4 , $HC-EPH-SCRN-W, V17
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0017.RAW
Date & Time Acquired: 6/24/2015 8:39:12 PM
Method File: g:\org\HP4\Methods\SR_SCN-062417-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

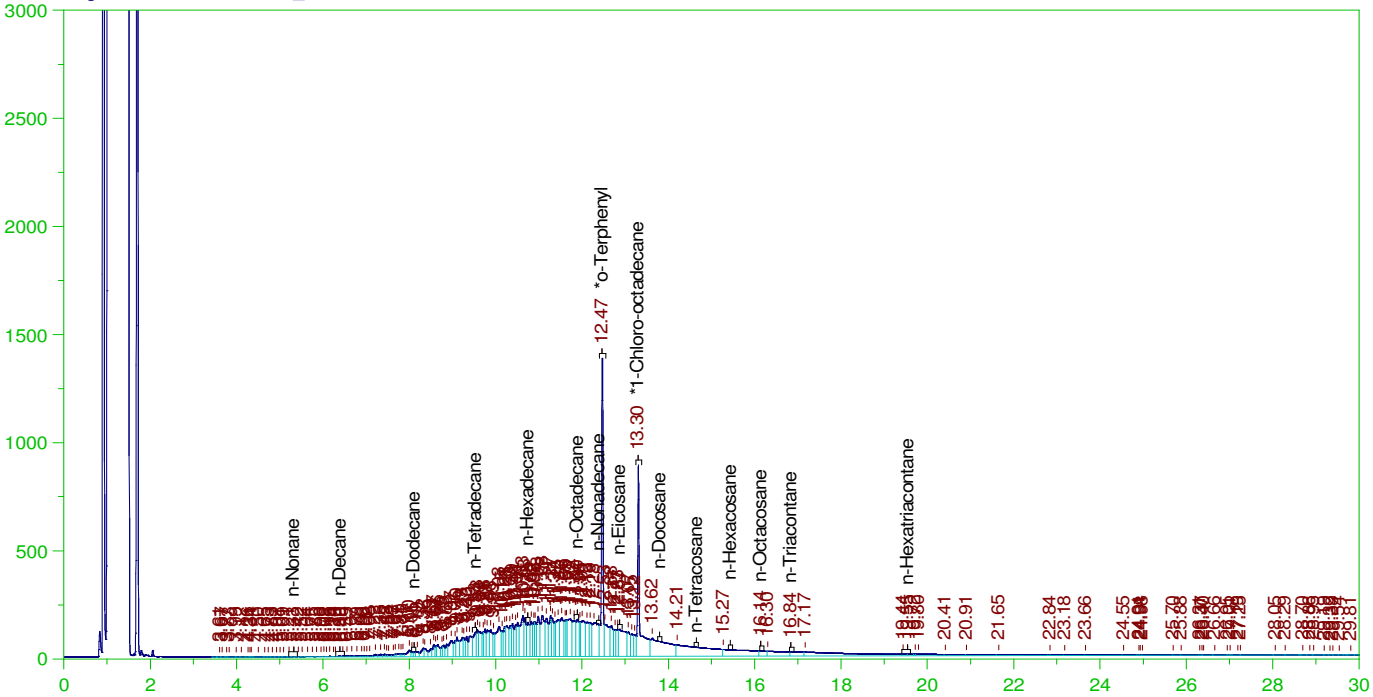
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.469	2415163	190.476	149.796	78.64	-
*1-Chloro-octadecane	13.302	1801473	190.476	146.951	77.15	-

DRO Area:664865.1 DRO Amount: 48.86759
TEH Area:2141264 TEH Amount: 157.3829
C9-C18 Area:297065.6 C9-C18 Amount: 21.94475
C19-C36 Area:1134336 C19-C36 Amount: 82.95628

EX-24_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0018.RAW B15061723-023A ;0624HP4 , $HC-EPH-SCRN-W, V18



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-023A ;0624HP4 , $HC-EPH-SCRN-W, V18
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0018.RAW
Date & Time Acquired: 6/24/2015 9:21:53 PM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

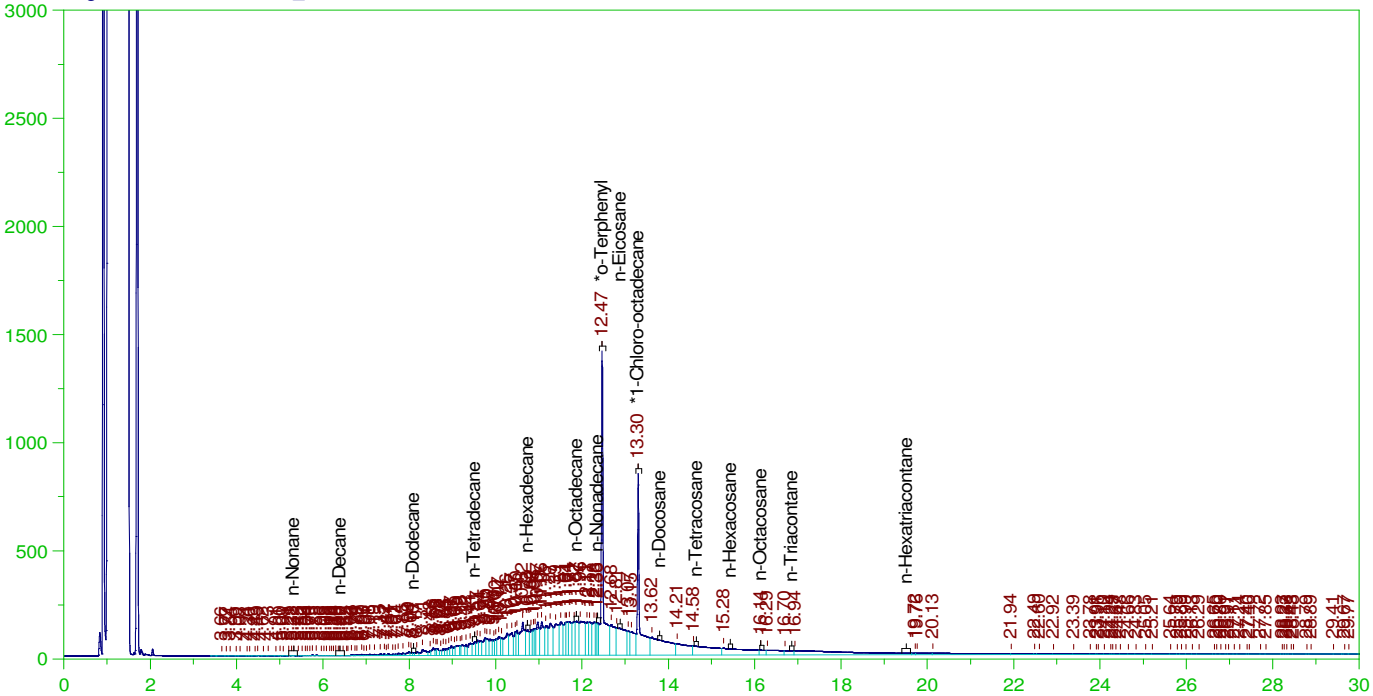
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.47	3205498	190.476	198.815	104.38	-
*1-Chloro-octadecane	13.302	3285659	190.476	268.019	140.71	-

DRO Area:4.384531E+07 DRO Amount: 3222.631
TEH Area:4.731148E+07 TEH Amount: 3477.394
C9-C18 Area:3.115759E+07 C9-C18 Amount: 2301.665
C19-C36 Area:1.437657E+07C19-C36 Amount: 1051.387

EX-63_061615 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0031.RAW B15061723-026A ;0624HP4 , $HC-EPH-SCRN-W, V31



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-026A ;0624HP4 , $HC-EPH-SCRN-W, V31
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0031.RAW
Date & Time Acquired: 6/25/2015 6:40:46 AM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

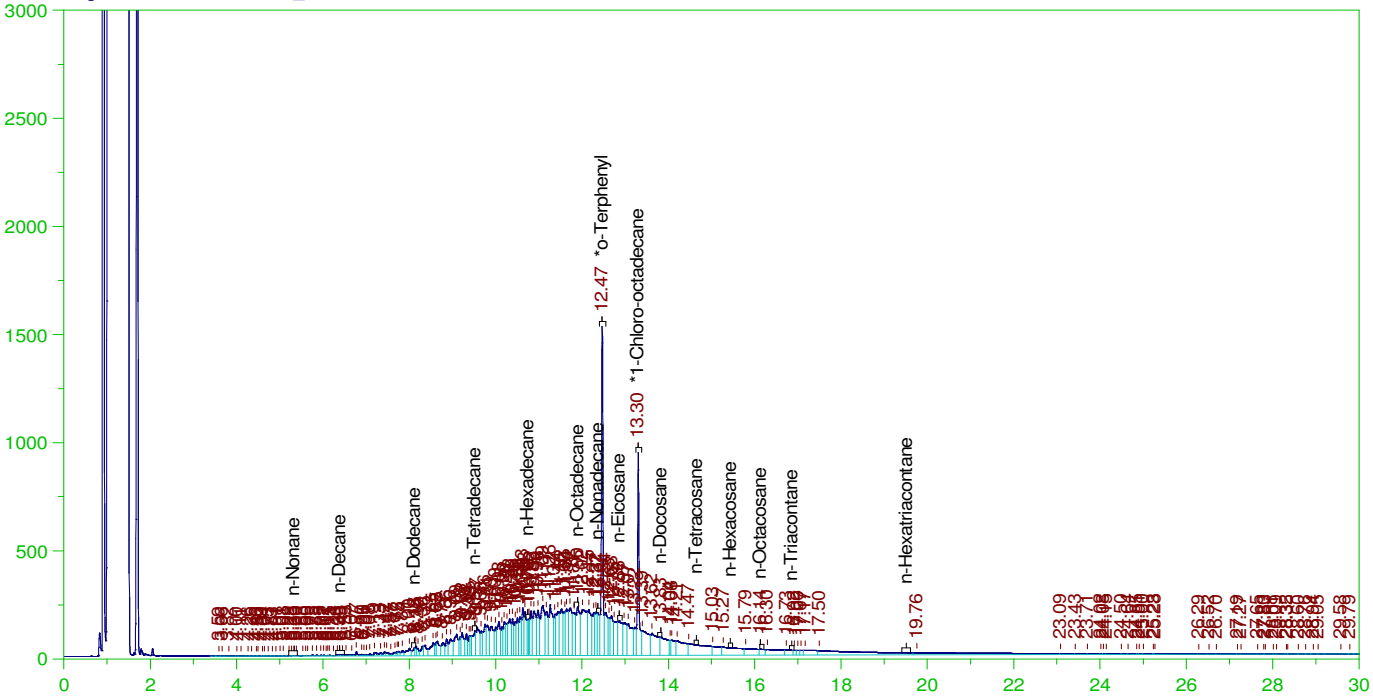
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.466	4482670	190.476	278.03	145.97	-
*1-Chloro-octadecane	13.299	3292266	190.476	268.558	140.99	-

DRO Area:3.551642E+07 DRO Amount: 2610.458
TEH Area:3.93729E+07 TEH Amount: 2893.909
C9-C18 Area:2.399476E+07 C9-C18 Amount: 1772.535
C19-C36 Area:1.356014E+07C19-C36 Amount: 991.6804

D3_061715 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0032.RAW B15061723-027E ;0624HP4 , $HC-EPH-SCRN-W, V32



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-027E ;0624HP4 , $HC-EPH-SCRN-W, V32
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0032.RAW
Date & Time Acquired: 6/25/2015 7:24:00 AM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

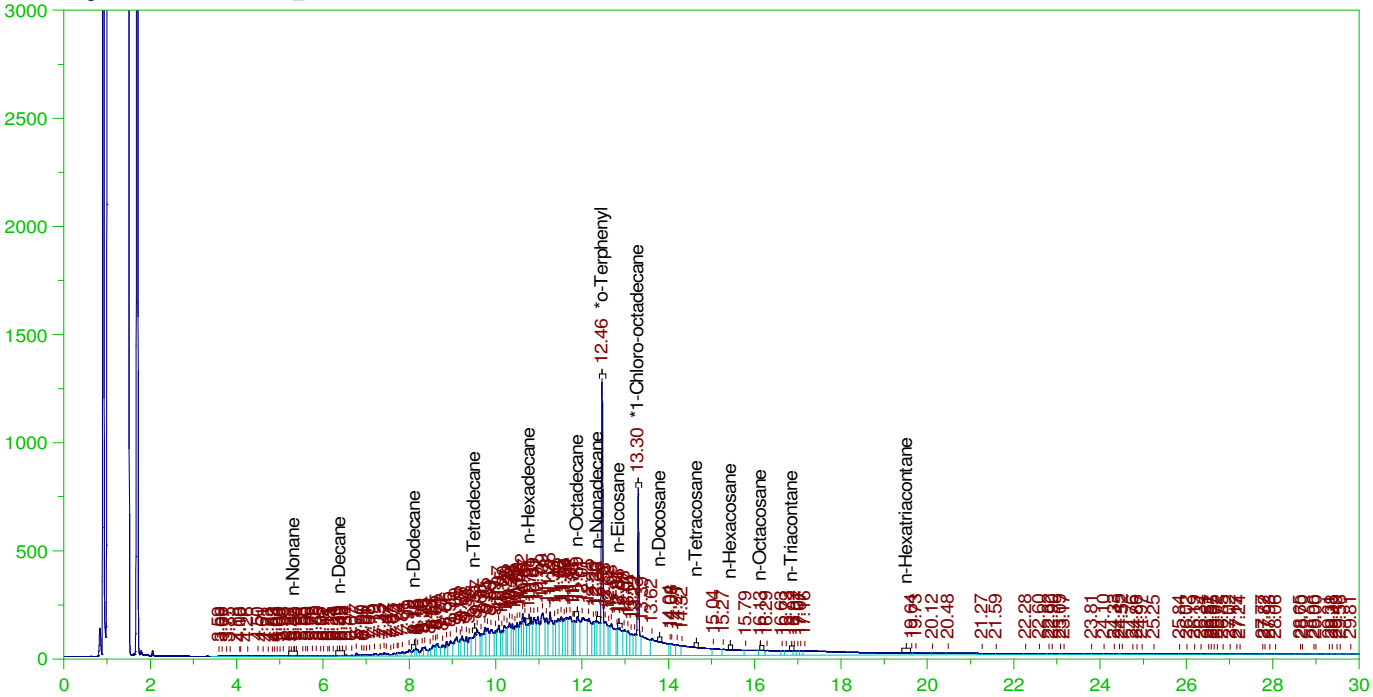
Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.467	3496143	190.476	216.842	113.84	-
*1-Chloro-octadecane	13.299	2494761	190.476	203.504	106.84	-

DRO Area:5.32441E+07 DRO Amount: 3913.442
TEH Area:5.787381E+07 TEH Amount: 4253.726
C9-C18 Area:3.671337E+07 C9-C18 Amount: 2712.08
C19-C36 Area:1.901037E+07C19-C36 Amount: 1390.266

EX-35_061715 Batch ID: 90718

G:\org\HP4\DAT\HP4062415_b\0624HP4.0034.RAW B15061723-030E ;0624HP4 , $HC-EPH-SCRN-W, V34



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061723-030E ;0624HP4 , $HC-EPH-SCRN-W, V34
Raw File: G:\org\HP4\DAT\HP4062415_b\0624HP4.0034.RAW
Date & Time Acquired: 6/25/2015 8:49:26 AM
Method File: g:\org\HP4\Methods\S3_SCN-DH-L%.met
Calibration File: G:\Org\HP4\Cals\SC140904DH.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 25784.72
Mean RF for C19 to C36 Hydrocarbons: 26045.53
Mean RF for Total Extractable Hydrocarbons: 25915.13
Rt range for Diesel Range Organics: 6.298 to 16.91
Rt range for C9 to C18 Hydrocarbons: 5.209 to 12.41
Rt range for C19 to C36 Hydrocarbons: 12.445 to 19.61

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	12.465	2814732	190.476	174.579	91.65	-
*1-Chloro-octadecane	13.297	2004676	190.476	163.526	85.85	-

DRO Area:4.415766E+07 DRO Amount: 3245.589
TEH Area:4.842432E+07 TEH Amount: 3559.188
C9-C18 Area:3.126251E+07 C9-C18 Amount: 2309.416
C19-C36 Area:1.510742E+07C19-C36 Amount: 1104.836

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90774
Lab ID: LCS-90774-90668	Laboratory Control Sample				Run: GCFID-HP4-B_150624C				06/25/15 13:47
C9 to C18 Aliphatics	707	ug/L	300	59	40	140			
C19 to C36 Aliphatics	1240	ug/L	300	77	40	140			
n-Nonane	76.5	ug/L	5.0	38	30	140			
n-Decane	91.3	ug/L	5.0	46	40	140			
n-Dodecane	103	ug/L	5.0	51	40	140			
n-Tetradecane	114	ug/L	5.0	57	40	140			
n-Hexadecane	132	ug/L	5.0	66	40	140			
n-Octadecane	142	ug/L	5.0	71	40	140			
n-Nonadecane	145	ug/L	5.0	73	40	140			
n-Eicosane	151	ug/L	5.0	76	40	140			
n-Docosane	153	ug/L	5.0	77	40	140			
n-Tetracosane	156	ug/L	5.0	78	40	140			
n-Hexacosane	156	ug/L	5.0	78	40	140			
n-Octacosane	153	ug/L	5.0	76	40	140			
n-Triacontane	148	ug/L	5.0	74	40	140			
n-Hexatriacontane	156	ug/L	5.0	78	40	140			
Surr: 1-Chloro-octadecane			5.0	72	40	140			
Lab ID: MB-90774-90668	Method Blank				Run: GCFID-HP4-B_150624C				06/25/15 15:12
C9 to C18 Aliphatics	ND	ug/L	300						
C19 to C36 Aliphatics	ND	ug/L	300						
Surr: 1-Chloro-octadecane			5.0	70	40	140			
Lab ID: B15061630-001AMS	Sample Matrix Spike				Run: GCFID-HP4-B_150624C				06/25/15 18:01
C9 to C18 Aliphatics	1440	ug/L	580	62	40	140			
C19 to C36 Aliphatics	2520	ug/L	580	82	40	140			
n-Nonane	150	ug/L	5.0	39	30	140			
n-Decane	183	ug/L	5.0	48	40	140			
n-Dodecane	211	ug/L	5.0	55	40	140			
n-Tetradecane	238	ug/L	5.0	62	40	140			
n-Hexadecane	271	ug/L	5.0	70	40	140			
n-Octadecane	290	ug/L	5.0	75	40	140			
n-Nonadecane	296	ug/L	5.0	77	40	140			
n-Eicosane	307	ug/L	5.0	80	40	140			
n-Docosane	313	ug/L	5.0	81	40	140			
n-Tetracosane	318	ug/L	5.0	83	40	140			
n-Hexacosane	319	ug/L	5.0	83	40	140			
n-Octacosane	313	ug/L	5.0	81	40	140			
n-Triacontane	303	ug/L	5.0	79	40	140			
n-Hexatriacontane	309	ug/L	5.0	80	40	140			
Surr: 1-Chloro-octadecane			9.6	77	40	140			
Lab ID: B15061630-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150624C				06/25/15 19:26
C9 to C18 Aliphatics	1550	ug/L	580	67	40	140	7.2	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90774
Lab ID: B15061630-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150624C			06/25/15 19:26	
C19 to C36 Aliphatics	2710	ug/L	580	88	40	140	7.2	20	
n-Nonane	169	ug/L	5.0	44	30	140	12	30	
n-Decane	206	ug/L	5.0	54	40	140	12	20	
n-Dodecane	234	ug/L	5.0	61	40	140	10	20	
n-Tetradecane	256	ug/L	5.0	67	40	140	7.2	20	
n-Hexadecane	294	ug/L	5.0	76	40	140	8.1	20	
n-Octadecane	316	ug/L	5.0	82	40	140	8.6	20	
n-Nonadecane	322	ug/L	5.0	84	40	140	8.3	20	
n-Eicosane	333	ug/L	5.0	86	40	140	7.9	20	
n-Docosane	337	ug/L	5.0	88	40	140	7.5	20	
n-Tetracosane	342	ug/L	5.0	89	40	140	7.4	20	
n-Hexacosane	343	ug/L	5.0	89	40	140	7.3	20	
n-Octacosane	337	ug/L	5.0	88	40	140	7.5	20	
n-Triacontane	326	ug/L	5.0	85	40	140	7.4	20	
n-Hexatriacontane	336	ug/L	5.0	87	40	140	8.2	20	
Surr: 1-Chloro-octadecane			9.6	94	40	140			
Lab ID: LCS-90774-90668	Laboratory Control Sample				Run: GCFID-HP4-B_150624C			06/25/15 14:29	
C11 to C22 Aromatics	2980	ug/L	300	88	40	140			
Total Extractable Hydrocarbons	4960	ug/L	300	80	40	140			
Naphthalene	121	ug/L	5.0	61	40	140			
2-MethylNaphthalene	124	ug/L	5.0	62	40	140			
Acenaphthylene	140	ug/L	5.0	70	40	140			
Acenaphthene	149	ug/L	5.0	74	40	140			
Fluorene	155	ug/L	5.0	76	40	140			
Phenanthrene	161	ug/L	5.0	80	40	140			
Anthracene	174	ug/L	5.0	87	40	140			
Fluoranthene	184	ug/L	5.0	92	40	140			
Pyrene	187	ug/L	5.0	93	40	140			
Benzo(a)Anthracene	188	ug/L	5.0	94	40	140			
Chrysene	200	ug/L	5.0	100	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	381	ug/L	5.0	95	40	140			
Benzo(a)Pyrene	210	ug/L	5.0	105	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	377	ug/L	5.0	94	40	140			
Benzo(g,h,I)perylene	182	ug/L	5.0	91	40	140			
Surr: 2-Bromonaphthalene			5.0	70	40	140			
Surr: 2-Fluorobiphenyl			5.0	86	40	140			
Surr: o-Terphenyl			5.0	73	40	140			
Lab ID: MB-90774-90668	Method Blank				Run: GCFID-HP4-B_150624C			06/25/15 15:54	
C11 to C22 Aromatics	ND	ug/L	300						
Total Extractable Hydrocarbons	ND	ug/L	300						
Naphthalene	ND	ug/L	5.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90774
Lab ID: MB-90774-90668	Method Blank				Run: GCFID-HP4-B_150624C				06/25/15 15:54
2-MethylNaphthalene	ND	ug/L	5.0						
Acenaphthylene	ND	ug/L	5.0						
Acenaphthene	ND	ug/L	5.0						
Fluorene	ND	ug/L	5.0						
Phenanthrene	ND	ug/L	5.0						
Anthracene	ND	ug/L	5.0						
Fluoranthene	ND	ug/L	5.0						
Pyrene	ND	ug/L	5.0						
Benzo(a)Anthracene	ND	ug/L	5.0						
Chrysene	ND	ug/L	5.0						
Benzo(b)Fluoranthene/Benzo(k)Fluoran	ND	ug/L	5.0						
Benzo(a)Pyrene	ND	ug/L	5.0						
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	ND	ug/L	5.0						
Benzo(g,h,I)perylene	ND	ug/L	5.0						
Surr: 2-Bromonaphthalene			5.0	77	40	140			
Surr: 2-Fluorobiphenyl			5.0	81	40	140			
Surr: o-Terphenyl			5.0	63	40	140			
Lab ID: B15061630-001AMS	Sample Matrix Spike				Run: GCFID-HP4-B_150624C				06/25/15 18:44
C11 to C22 Aromatics	5160	ug/L	580	79	40	140			
Total Extractable Hydrocarbons	9190	ug/L	580	77	40	140			
Naphthalene	202	ug/L	9.6	53	40	140			
2-MethylNaphthalene	211	ug/L	9.6	55	40	140			
Acenaphthylene	240	ug/L	9.6	62	40	140			
Acenaphthene	255	ug/L	9.6	66	40	140			
Fluorene	265	ug/L	9.6	69	40	140			
Phenanthrene	282	ug/L	9.6	73	40	140			
Anthracene	307	ug/L	9.6	80	40	140			
Fluoranthene	321	ug/L	9.6	83	40	140			
Pyrene	325	ug/L	9.6	84	40	140			
Benzo(a)Anthracene	323	ug/L	9.6	84	40	140			
Chrysene	348	ug/L	9.6	90	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	660	ug/L	9.6	86	40	140			
Benzo(a)Pyrene	364	ug/L	9.6	95	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	653	ug/L	9.6	85	40	140			
Benzo(g,h,I)perylene	315	ug/L	9.6	82	40	140			
Surr: 2-Bromonaphthalene			9.6	63	40	140			
Surr: 2-Fluorobiphenyl			9.6	76	40	140			
Surr: o-Terphenyl			9.6	67	40	140			
Lab ID: B15061630-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150624C				06/25/15 20:09
C11 to C22 Aromatics	5430	ug/L	580	83	40	140	5.1	20	
Total Extractable Hydrocarbons	9750	ug/L	580	82	40	140	5.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90774
Lab ID: B15061630-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150624C			06/25/15 20:09	
Naphthalene	227	ug/L	9.6	59	40	140	12	20	
2-MethylNaphthalene	231	ug/L	9.6	60	40	140	8.8	20	
Acenaphthylene	259	ug/L	9.6	67	40	140	7.9	20	
Acenaphthene	275	ug/L	9.6	71	40	140	7.5	20	
Fluorene	284	ug/L	9.6	73	40	140	6.7	20	
Phenanthrene	290	ug/L	9.6	76	40	140	3.1	20	
Anthracene	314	ug/L	9.6	82	40	140	2.2	20	
Fluoranthene	331	ug/L	9.6	86	40	140	3.1	20	
Pyrene	335	ug/L	9.6	87	40	140	3.2	20	
Benzo(a)Anthracene	339	ug/L	9.6	88	40	140	4.8	20	
Chrysene	364	ug/L	9.6	95	40	140	4.7	20	
Benzo(b)Fluoranthene/Benzo(k)Fluoran	697	ug/L	9.6	91	40	140	5.4	20	
Benzo(a)Pyrene	382	ug/L	9.6	99	40	140	4.8	20	
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	685	ug/L	9.6	89	40	140	4.8	20	
Benzo(g,h,I)perylene	330	ug/L	9.6	86	40	140	4.8	20	
Surr: 2-Bromonaphthalene			9.6	69	40	140			
Surr: 2-Fluorobiphenyl			9.6	76	40	140			
Surr: o-Terphenyl			9.6	71	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90895
Lab ID: MB-90895-90718	Method Blank				Run: GCFID-HP4-B_150629A				06/29/15 16:20
C9 to C18 Aliphatics	ND	ug/L	300						
C19 to C36 Aliphatics	ND	ug/L	300						
Surr: 1-Chloro-octadecane			5.0	74	40	140			
Lab ID: B15061741-001AMS	Sample Matrix Spike				Run: GCFID-HP4-B_150629A				06/29/15 19:14
C9 to C18 Aliphatics	1600	ug/L	600	67	40	140			
C19 to C36 Aliphatics	2870	ug/L	600	90	40	140			
n-Nonane	149	ug/L	5.0	37	30	140			
n-Decane	189	ug/L	5.0	47	40	140			
n-Dodecane	228	ug/L	5.0	57	40	140			
n-Tetradecane	268	ug/L	5.0	67	40	140			
n-Hexadecane	314	ug/L	5.0	78	40	140			
n-Octadecane	336	ug/L	5.0	84	40	140			
n-Nonadecane	342	ug/L	5.0	85	40	140			
n-Eicosane	351	ug/L	5.0	88	40	140			
n-Docosane	354	ug/L	5.0	89	40	140			
n-Tetracosane	361	ug/L	5.0	90	40	140			
n-Hexacosane	362	ug/L	5.0	90	40	140			
n-Octacosane	355	ug/L	5.0	89	40	140			
n-Triacontane	344	ug/L	5.0	86	40	140			
n-Hexatriacontane	363	ug/L	5.0	91	40	140			
Surr: 1-Chloro-octadecane			10	53	40	140			
Lab ID: B15061741-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150629A				06/29/15 20:40
C9 to C18 Aliphatics	1490	ug/L	600	62	40	140	6.8	20	
C19 to C36 Aliphatics	2820	ug/L	600	88	40	140	1.6	20	
n-Nonane	143	ug/L	5.0	36	30	140	3.8	30	
n-Decane	179	ug/L	5.0	45	40	140	5.6	20	
n-Dodecane	208	ug/L	5.0	52	40	140	9.2	20	
n-Tetradecane	242	ug/L	5.0	60	40	140	10	20	
n-Hexadecane	290	ug/L	5.0	73	40	140	7.7	20	
n-Octadecane	324	ug/L	5.0	81	40	140	3.7	20	
n-Nonadecane	333	ug/L	5.0	83	40	140	2.6	20	
n-Eicosane	344	ug/L	5.0	86	40	140	1.8	20	
n-Docosane	350	ug/L	5.0	87	40	140	1.2	20	
n-Tetracosane	356	ug/L	5.0	89	40	140	1.2	20	
n-Hexacosane	357	ug/L	5.0	89	40	140	1.2	20	
n-Octacosane	351	ug/L	5.0	88	40	140	1.3	20	
n-Triacontane	340	ug/L	5.0	85	40	140	1.3	20	
n-Hexatriacontane	358	ug/L	5.0	90	40	140	1.5	20	
Surr: 1-Chloro-octadecane			10	61	40	140			
Lab ID: LCS-90895-90718	Laboratory Control Sample				Run: GCFID-HP4-B_150629A				06/30/15 16:54
C9 to C18 Aliphatics	736	ug/L	300	61	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90895
Lab ID: LCS-90895-90718	Laboratory Control Sample				Run: GCFID-HP4-B_150629A				06/30/15 16:54
C19 to C36 Aliphatics	1390	ug/L	300	87	40	140			
n-Nonane	65.0	ug/L	5.0	33	30	140			
n-Decane	83.4	ug/L	5.0	42	40	140			
n-Dodecane	96.9	ug/L	5.0	48	40	140			
n-Tetradecane	114	ug/L	5.0	57	40	140			
n-Hexadecane	139	ug/L	5.0	69	40	140			
n-Octadecane	159	ug/L	5.0	79	40	140			
n-Nonadecane	165	ug/L	5.0	82	40	140			
n-Eicosane	170	ug/L	5.0	85	40	140			
n-Docosane	173	ug/L	5.0	87	40	140			
n-Tetracosane	177	ug/L	5.0	88	40	140			
n-Hexacosane	177	ug/L	5.0	88	40	140			
n-Octacosane	174	ug/L	5.0	87	40	140			
n-Triacontane	168	ug/L	5.0	84	40	140			
n-Hexatriacontane	172	ug/L	5.0	86	40	140			
Surr: 1-Chloro-octadecane			5.0	94	40	140			
Lab ID: LCS-90895-90718	Laboratory Control Sample				Run: GCFID-HP4-B_150629A				06/29/15 15:37
C11 to C22 Aromatics	2750	ug/L	300	81	40	140			
Total Extractable Hydrocarbons	4930	ug/L	300	79	40	140			
Naphthalene	108	ug/L	5.0	54	40	140			
2-MethylNaphthalene	110	ug/L	5.0	55	40	140			
Acenaphthylene	125	ug/L	5.0	63	40	140			
Acenaphthene	133	ug/L	5.0	67	40	140			
Fluorene	140	ug/L	5.0	69	40	140			
Phenanthrene	149	ug/L	5.0	75	40	140			
Anthracene	163	ug/L	5.0	81	40	140			
Fluoranthene	172	ug/L	5.0	86	40	140			
Pyrene	174	ug/L	5.0	87	40	140			
Benzo(a)Anthracene	175	ug/L	5.0	87	40	140			
Chrysene	185	ug/L	5.0	92	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	356	ug/L	5.0	89	40	140			
Benzo(a)Pyrene	195	ug/L	5.0	97	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	351	ug/L	5.0	88	40	140			
Benzo(g,h,I)perylene	169	ug/L	5.0	85	40	140			
Surr: 2-Bromonaphthalene			5.0	59	40	140			
Surr: 2-Fluorobiphenyl			5.0	74	40	140			
Surr: o-Terphenyl			5.0	72	40	140			
Lab ID: MB-90895-90718	Method Blank				Run: GCFID-HP4-B_150629A				06/29/15 17:04
C11 to C22 Aromatics	ND	ug/L	300						
Total Extractable Hydrocarbons	ND	ug/L	300						
Naphthalene	ND	ug/L	5.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/06/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90895
Lab ID: MB-90895-90718	Method Blank				Run: GCFID-HP4-B_150629A				06/29/15 17:04
2-MethylNaphthalene	ND	ug/L	5.0						
Acenaphthylene	ND	ug/L	5.0						
Acenaphthene	ND	ug/L	5.0						
Fluorene	ND	ug/L	5.0						
Phenanthrene	ND	ug/L	5.0						
Anthracene	ND	ug/L	5.0						
Fluoranthene	ND	ug/L	5.0						
Pyrene	ND	ug/L	5.0						
Benzo(a)Anthracene	ND	ug/L	5.0						
Chrysene	ND	ug/L	5.0						
Benzo(b)Fluoranthene/Benzo(k)Fluoran	ND	ug/L	5.0						
Benzo(a)Pyrene	ND	ug/L	5.0						
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	ND	ug/L	5.0						
Benzo(g,h,I)perylene	ND	ug/L	5.0						
Surr: 2-Bromonaphthalene			5.0	67	40	140			
Surr: 2-Fluorobiphenyl			5.0	79	40	140			
Surr: o-Terphenyl			5.0	76	40	140			
Lab ID: B15061741-001AMS	Sample Matrix Spike				Run: GCFID-HP4-B_150629A				06/29/15 19:57
C11 to C22 Aromatics	6250	ug/L	600	92	40	140			
Total Extractable Hydrocarbons	10800	ug/L	600	87	40	140			
Naphthalene	243	ug/L	10	61	40	140			
2-MethylNaphthalene	261	ug/L	10	65	40	140			
Acenaphthylene	299	ug/L	10	75	40	140			
Acenaphthene	315	ug/L	10	79	40	140			
Fluorene	330	ug/L	10	83	40	140			
Phenanthrene	346	ug/L	10	86	40	140			
Anthracene	373	ug/L	10	93	40	140			
Fluoranthene	386	ug/L	10	97	40	140			
Pyrene	391	ug/L	10	98	40	140			
Benzo(a)Anthracene	391	ug/L	10	98	40	140			
Chrysene	416	ug/L	10	104	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	793	ug/L	10	99	40	140			
Benzo(a)Pyrene	435	ug/L	10	109	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	783	ug/L	10	98	40	140			
Benzo(g,h,I)perylene	373	ug/L	10	93	40	140			
Surr: 2-Bromonaphthalene			10	61	40	140			
Surr: 2-Fluorobiphenyl			10	79	40	140			
Surr: o-Terphenyl			10	64	40	140			
Lab ID: B15061741-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150629A				06/29/15 21:23
C11 to C22 Aromatics	5850	ug/L	600	86	40	140	6.6	20	
Total Extractable Hydrocarbons	10300	ug/L	600	83	40	140	5.0	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/06/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 90895
Lab ID: B15061741-001AMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150629A			06/29/15 21:23	
Naphthalene	223	ug/L	10	56	40	140	8.3	20	
2-MethylNaphthalene	234	ug/L	10	59	40	140	11	20	
Acenaphthylene	272	ug/L	10	68	40	140	9.7	20	
Acenaphthene	289	ug/L	10	72	40	140	8.7	20	
Fluorene	303	ug/L	10	76	40	140	8.6	20	
Phenanthrene	317	ug/L	10	79	40	140	8.7	20	
Anthracene	346	ug/L	10	86	40	140	7.6	20	
Fluoranthene	371	ug/L	10	93	40	140	4.1	20	
Pyrene	370	ug/L	10	92	40	140	5.5	20	
Benzo(a)Anthracene	369	ug/L	10	92	40	140	5.8	20	
Chrysene	394	ug/L	10	98	40	140	5.5	20	
Benzo(b)Fluoranthene/Benzo(k)Fluoran	752	ug/L	10	94	40	140	5.4	20	
Benzo(a)Pyrene	412	ug/L	10	103	40	140	5.2	20	
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	740	ug/L	10	93	40	140	5.7	20	
Benzo(g,h,I)perylene	353	ug/L	10	88	40	140	5.5	20	
Surr: 2-Bromonaphthalene			10	61	40	140			
Surr: 2-Fluorobiphenyl			10	74	40	140			
Surr: o-Terphenyl			10	66	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245382
Lab ID: CCV_0629HP406r-W	Continuing Calibration Verification Standard								06/29/15 12:44
n-Nonane	203	ug/L	5.0	102	75	125			
n-Decane	195	ug/L	5.0	97	75	125			
n-Dodecane	186	ug/L	5.0	93	75	125			
n-Tetradecane	181	ug/L	5.0	91	75	125			
n-Hexadecane	183	ug/L	5.0	92	75	125			
n-Octadecane	181	ug/L	5.0	90	75	125			
n-Nonadecane	183	ug/L	5.0	91	75	125			
n-Eicosane	182	ug/L	5.0	91	75	125			
n-Docosane	183	ug/L	5.0	91	75	125			
n-Tetracosane	183	ug/L	5.0	91	75	125			
n-Hexacosane	182	ug/L	5.0	91	75	125			
n-Octacosane	183	ug/L	5.0	91	75	125			
n-Triacontane	185	ug/L	5.0	93	75	125			
n-Hexatriacontane	188	ug/L	5.0	94	75	125			
Surr: 1-Chloro-octadecane			5.0	100	75	125			
Lab ID: CCV_0629HP423r-W	Continuing Calibration Verification Standard								06/30/15 00:56
n-Nonane	210	ug/L	5.0	105	75	125			
n-Decane	202	ug/L	5.0	101	75	125			
n-Dodecane	193	ug/L	5.0	96	75	125			
n-Tetradecane	188	ug/L	5.0	94	75	125			
n-Hexadecane	189	ug/L	5.0	95	75	125			
n-Octadecane	187	ug/L	5.0	93	75	125			
n-Nonadecane	189	ug/L	5.0	94	75	125			
n-Eicosane	189	ug/L	5.0	94	75	125			
n-Docosane	189	ug/L	5.0	94	75	125			
n-Tetracosane	189	ug/L	5.0	95	75	125			
n-Hexacosane	188	ug/L	5.0	94	75	125			
n-Octacosane	189	ug/L	5.0	95	75	125			
n-Triacontane	192	ug/L	5.0	96	75	125			
n-Hexatriacontane	195	ug/L	5.0	97	75	125			
Surr: 1-Chloro-octadecane			5.0	103	75	125			
Lab ID: CCV_0629HP440r-W	Continuing Calibration Verification Standard								06/30/15 13:19
n-Nonane	219	ug/L	5.0	109	75	125			
n-Decane	211	ug/L	5.0	105	75	125			
n-Dodecane	200	ug/L	5.0	100	75	125			
n-Tetradecane	194	ug/L	5.0	97	75	125			
n-Hexadecane	195	ug/L	5.0	98	75	125			
n-Octadecane	193	ug/L	5.0	96	75	125			
n-Nonadecane	195	ug/L	5.0	98	75	125			
n-Eicosane	195	ug/L	5.0	97	75	125			
n-Docosane	195	ug/L	5.0	98	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245382
Lab ID: CCV_0629HP440r-W	Continuing Calibration Verification Standard								06/30/15 13:19
n-Tetracosane	195	ug/L	5.0	98	75	125			
n-Hexacosane	195	ug/L	5.0	97	75	125			
n-Octacosane	196	ug/L	5.0	98	75	125			
n-Triacontane	199	ug/L	5.0	99	75	125			
n-Hexatriacontane	201	ug/L	5.0	100	75	125			
Surr: 1-Chloro-octadecane			5.0	106	75	125			
Lab ID: CCV_0629HP407r-W	Continuing Calibration Verification Standard								06/29/15 13:28
Naphthalene	211	ug/L	5.0	106	75	125			
2-MethylNaphthalene	211	ug/L	5.0	105	75	125			
Acenaphthylene	214	ug/L	5.0	107	75	125			
Acenaphthene	210	ug/L	5.0	105	75	125			
Fluorene	208	ug/L	5.0	104	75	125			
Phenanthrene	208	ug/L	5.0	104	75	125			
Anthracene	210	ug/L	5.0	105	75	125			
Fluoranthene	207	ug/L	5.0	104	75	125			
Pyrene	208	ug/L	5.0	104	75	125			
Benzo(a)Anthracene	210	ug/L	5.0	105	75	125			
Chrysene	214	ug/L	5.0	107	75	125			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	413	ug/L	5.0	103	75	125			
Benzo(a)Pyrene	230	ug/L	5.0	115	75	125			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	419	ug/L	5.0	105	75	125			
Benzo(g,h,I)perylene	210	ug/L	5.0	105	75	125			
Surr: 2-Bromonaphthalene			5.0	106	75	125			
Surr: 2-Fluorobiphenyl			5.0	109	75	125			
Surr: o-Terphenyl			5.0	105	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245515
Lab ID: CCV_0629HP440r-W	Continuing Calibration Verification Standard								06/30/15 13:19
n-Nonane	219	ug/L	5.0	109	75	125			
n-Decane	211	ug/L	5.0	105	75	125			
n-Dodecane	200	ug/L	5.0	100	75	125			
n-Tetradecane	194	ug/L	5.0	97	75	125			
n-Hexadecane	195	ug/L	5.0	98	75	125			
n-Octadecane	193	ug/L	5.0	96	75	125			
n-Nonadecane	195	ug/L	5.0	98	75	125			
n-Eicosane	195	ug/L	5.0	97	75	125			
n-Docosane	195	ug/L	5.0	98	75	125			
n-Tetracosane	195	ug/L	5.0	98	75	125			
n-Hexacosane	195	ug/L	5.0	97	75	125			
n-Octacosane	196	ug/L	5.0	98	75	125			
n-Triacontane	199	ug/L	5.0	99	75	125			
n-Hexatriacontane	201	ug/L	5.0	100	75	125			
Surr: 1-Chloro-octadecane			5.0	106	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245543
Lab ID: CCV_0702HP420r-W	Continuing Calibration Verification Standard								07/03/15 04:19
n-Nonane	221	ug/L	5.0	111	75	125			
n-Decane	213	ug/L	5.0	106	75	125			
n-Dodecane	204	ug/L	5.0	102	75	125			
n-Tetradecane	199	ug/L	5.0	99	75	125			
n-Hexadecane	201	ug/L	5.0	101	75	125			
n-Octadecane	198	ug/L	5.0	99	75	125			
n-Nonadecane	200	ug/L	5.0	100	75	125			
n-Eicosane	200	ug/L	5.0	100	75	125			
n-Docosane	200	ug/L	5.0	100	75	125			
n-Tetracosane	200	ug/L	5.0	100	75	125			
n-Hexacosane	199	ug/L	5.0	99	75	125			
n-Octacosane	201	ug/L	5.0	100	75	125			
n-Triacontane	202	ug/L	5.0	101	75	125			
n-Hexatriacontane	203	ug/L	5.0	102	75	125			
Surr: 1-Chloro-octadecane			5.0	109	75	125			
Lab ID: CCV_0702HP421r-W	Continuing Calibration Verification Standard								07/03/15 05:01
Naphthalene	233	ug/L	5.0	117	75	125			
2-MethylNaphthalene	233	ug/L	5.0	116	75	125			
Acenaphthylene	232	ug/L	5.0	116	75	125			
Acenaphthene	230	ug/L	5.0	115	75	125			
Fluorene	228	ug/L	5.0	114	75	125			
Phenanthrene	227	ug/L	5.0	113	75	125			
Anthracene	228	ug/L	5.0	114	75	125			
Fluoranthene	224	ug/L	5.0	112	75	125			
Pyrene	226	ug/L	5.0	113	75	125			
Benzo(a)Anthracene	226	ug/L	5.0	113	75	125			
Chrysene	232	ug/L	5.0	116	75	125			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	444	ug/L	5.0	111	75	125			
Benzo(a)Pyrene	247	ug/L	5.0	123	75	125			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	451	ug/L	5.0	113	75	125			
Benzo(g,h,I)perylene	224	ug/L	5.0	112	75	125			
Surr: 2-Bromonaphthalene			5.0	106	75	125			
Surr: 2-Fluorobiphenyl			5.0	109	75	125			
Surr: o-Terphenyl			5.0	104	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245545
Lab ID: CCV_0702HP438r-W	Continuing Calibration Verification Standard								07/03/15 17:04
Naphthalene	227	ug/L	5.0	114	75	125			
2-MethylNaphthalene	226	ug/L	5.0	113	75	125			
Acenaphthylene	226	ug/L	5.0	113	75	125			
Acenaphthene	224	ug/L	5.0	112	75	125			
Fluorene	223	ug/L	5.0	111	75	125			
Phenanthrene	222	ug/L	5.0	111	75	125			
Anthracene	223	ug/L	5.0	112	75	125			
Fluoranthene	221	ug/L	5.0	111	75	125			
Pyrene	223	ug/L	5.0	111	75	125			
Benzo(a)Anthracene	224	ug/L	5.0	112	75	125			
Chrysene	230	ug/L	5.0	115	75	125			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	441	ug/L	5.0	110	75	125			
Benzo(a)Pyrene	245	ug/L	5.0	122	75	125			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	447	ug/L	5.0	112	75	125			
Benzo(g,h,I)perylene	223	ug/L	5.0	112	75	125			
Surr: 2-Bromonaphthalene			5.0	104	75	125			
Surr: 2-Fluorobiphenyl			5.0	107	75	125			
Surr: o-Terphenyl			5.0	102	75	125			
Method: MA-EPH									Analytical Run: R245546
Lab ID: CCV_0702HP452r-W	Continuing Calibration Verification Standard								07/04/15 02:51
Naphthalene	235	ug/L	5.0	117	75	125			
2-MethylNaphthalene	234	ug/L	5.0	117	75	125			
Acenaphthylene	233	ug/L	5.0	116	75	125			
Acenaphthene	232	ug/L	5.0	116	75	125			
Fluorene	229	ug/L	5.0	115	75	125			
Phenanthrene	229	ug/L	5.0	115	75	125			
Anthracene	230	ug/L	5.0	115	75	125			
Fluoranthene	228	ug/L	5.0	114	75	125			
Pyrene	229	ug/L	5.0	114	75	125			
Benzo(a)Anthracene	231	ug/L	5.0	116	75	125			
Chrysene	236	ug/L	5.0	118	75	125			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	454	ug/L	5.0	113	75	125			
Benzo(a)Pyrene	250	ug/L	5.0	125	75	125			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	461	ug/L	5.0	115	75	125			
Benzo(g,h,I)perylene	230	ug/L	5.0	115	75	125			
Surr: 2-Bromonaphthalene			5.0	107	75	125			
Surr: 2-Fluorobiphenyl			5.0	110	75	125			
Surr: o-Terphenyl			5.0	105	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

LS-6_061615 Batch ID: 90774

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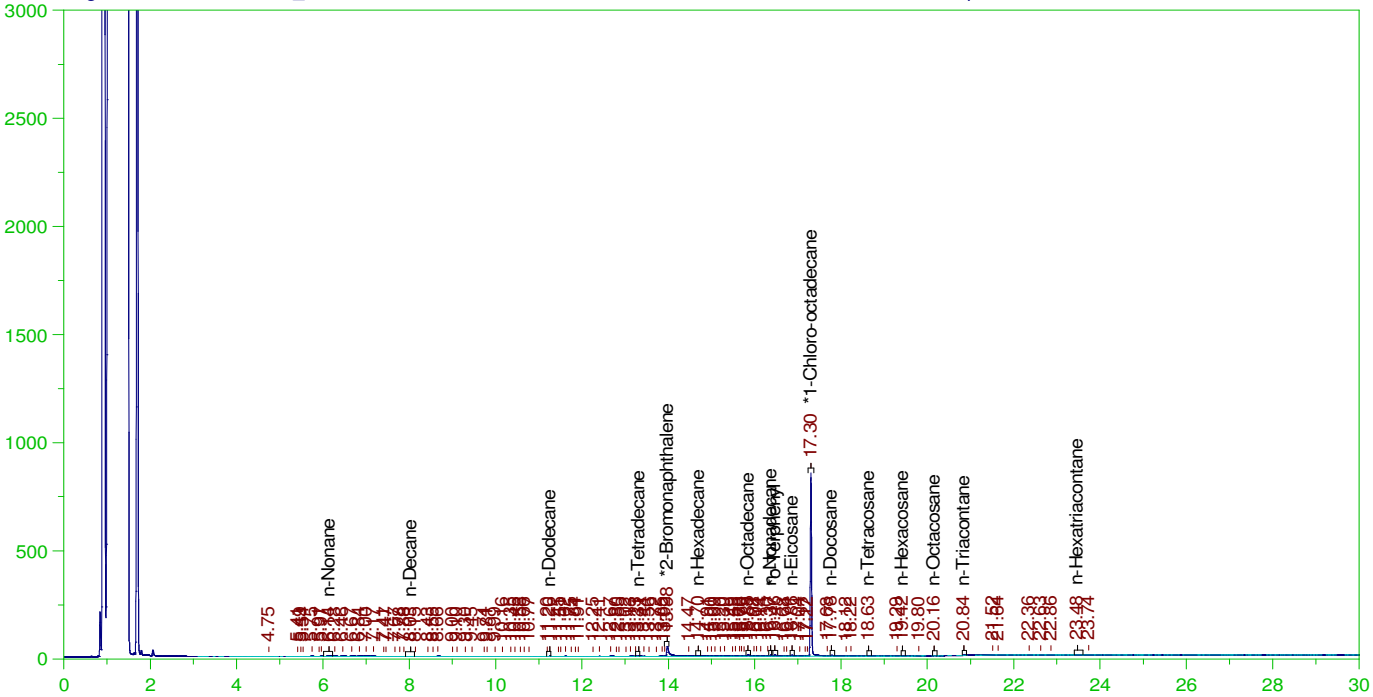

EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-002C ;0629HP4 , Aliph. $HC-ALI-GRP-W, V30
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0030.RAW
Date & Time Acquired: 6/30/2015 5:54:01 AM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.303	190.476	146.28	76.8	-

DRO Area:357029.8 DRO Amount: 23.7633
TEH Area:681370.6 TEH Amount: 45.35088

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:507138.4 C9-C18 Amount: 34.29851
C19-C36 Area:149529.1 C19-C36 Amount: 9.835361

LS-6_061615 Batch ID: 90774

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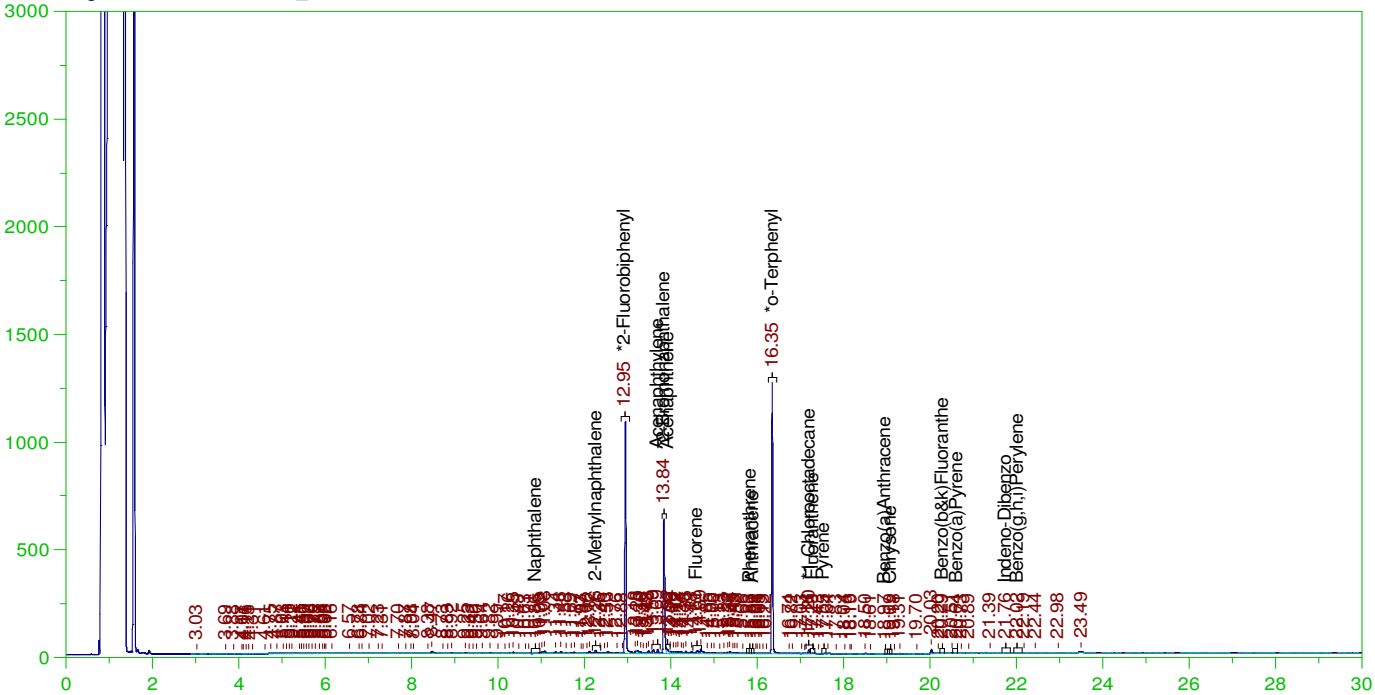

EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-002C ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V55
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0055.RAW
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Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.946	190.476	163.686	85.94	-
*2-Bromonaphthalene	13.841	190.476	132.213	69.41	-
*o-Terphenyl	16.345	190.476	153.623	80.65	-
*1-Chlorooctadecane	17.197	190.476	3.996	2.1	-

C11-C22 Aromatics Area:1636537 C11-C22 Aromatics Amount: 112.3863
EPH Aromatics total Area:2055382 EPH Aromatics Total Amount: 141.1497

LS-6_061615 Batch ID: 90774

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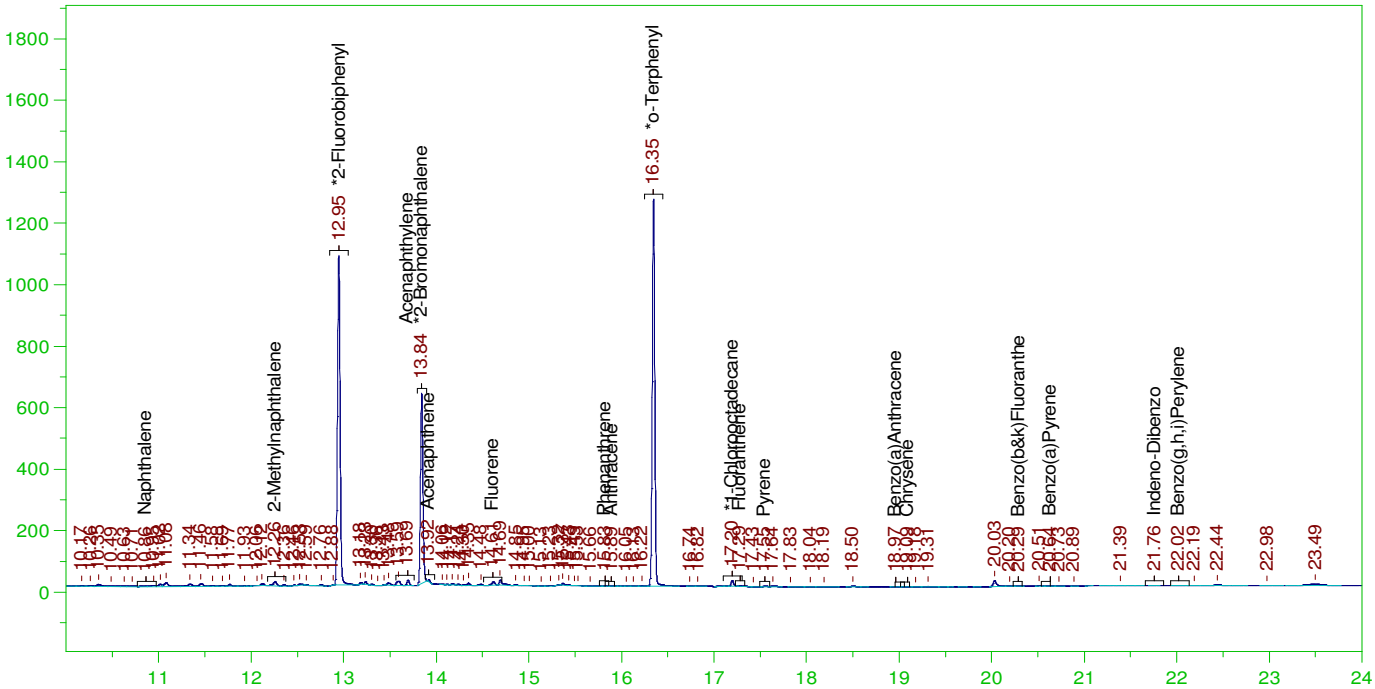


EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

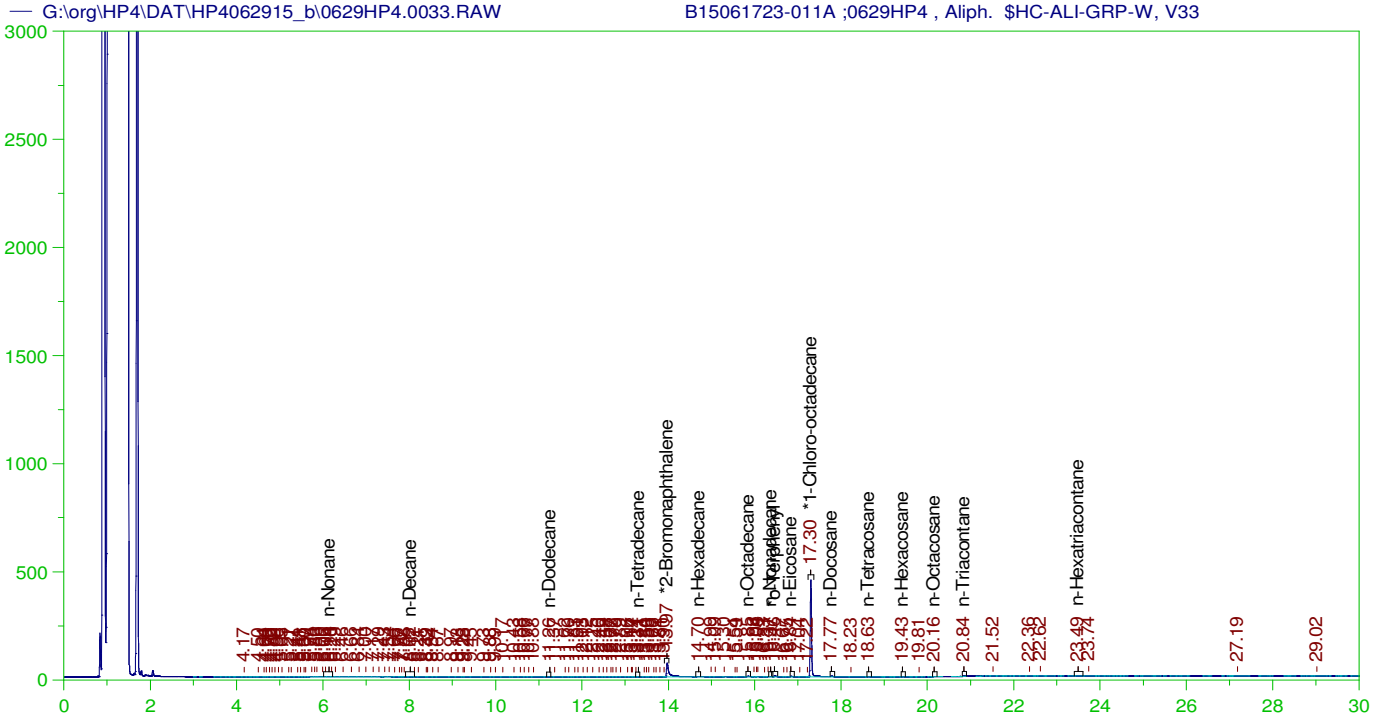
Sample Name: B15061723-002C ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V55
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0055.RAW
Date & Time Acquired: 7/4/2015 4:57:53 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.862	10.862	10.862	2125	1.905	U
2-Methylnaphthalene	12.257	1.571	1.584	41862	2.932	
Acenaphthylene	13.694	.185	.148	34762	2.475	
Acenaphthene	13.919	13.919	13.919	10068	1.905	U
Fluorene	14.613	-.761	-.772	30842	2.122	
Phenanthrene	15.826	15.826	15.826	2303	1.905	U
Anthracene	15.893	15.893	15.893	1207	1.905	U
Fluoranthene	17.286	17.286	17.286	4825	1.905	U
Pyrene	17.549	17.549	17.549	4665	1.905	U
Benzo(a)Anthracene	18.965	18.965	18.965	819	1.905	U
Chrysene	19.091	19.091	19.091	960	1.905	U
Benzo(b&k)Fluoranthe	20.289	20.289	20.289	644	3.81	U
Benzo(a)Pyrene	20.637	20.637	20.637	596	1.905	U
Indeno-Dibenzo	21.757	21.757	21.757	757	3.81	U
Benzo(g,h,i)Perylene	22.018	22.018	22.018	1847	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.946	190.476	158.758	83.35	40-140
*2-Bromonaphthalene	13.841	190.476	123.762	64.98	40-140
*o-Terphenyl	16.345	190.476	149.991	78.74	40-140
*1-Chlorooctadecane	17.197	190.476	3.129	1.64	40-140

D1_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0033.RAW B15061723-011A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V33



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-011A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V33
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Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.302	190.476	82.599	43.36	-

DRO Area:283483.1 DRO Amount: 18.86816
TEH Area:724149.3 TEH Amount: 48.19815

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:558514.1 C9-C18 Amount: 37.77312
C19-C36 Area:114358.9 C19-C36 Amount: 7.522021

D1_061615 Batch ID: 90895

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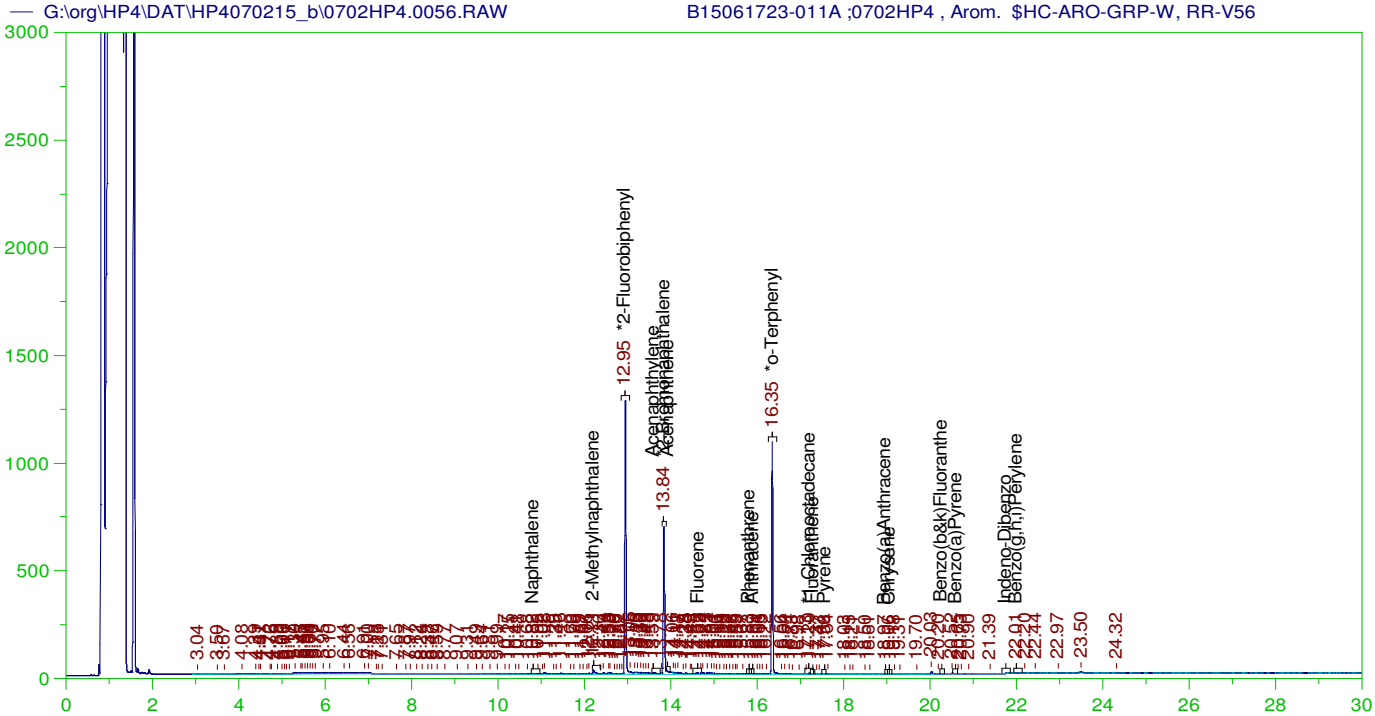


EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-011A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V56
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0056.RAW
Date & Time Acquired: 7/4/2015 5:40:44 AM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

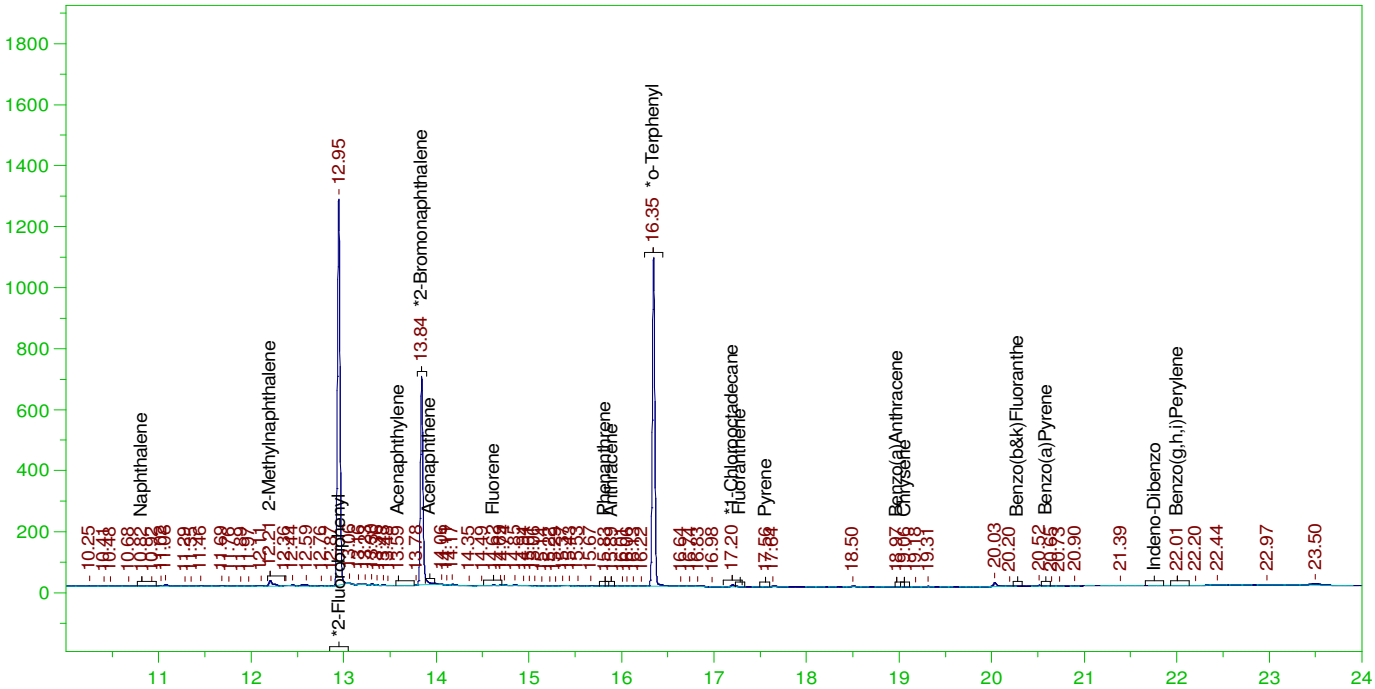
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.946	190.476	186.679	98.01	-
*2-Bromonaphthalene	13.84	190.476	152.794	80.22	-
*o-Terphenyl	16.346	190.476	130.681	68.61	-
*1-Chlorooctadecane	17.199	190.476	1.623	.85	-

C11-C22 Aromatics Area:1010544 C11-C22 Aromatics Amount: 69.39734
EPH Aromatics total Area:1485082 EPH Aromatics Total Amount: 101.9854

D1_061615 Batch ID: 90895

— G:\org\HP4\DAT\HP4070215_b\0702HP4.0056.RAW B15061723-011A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V56



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

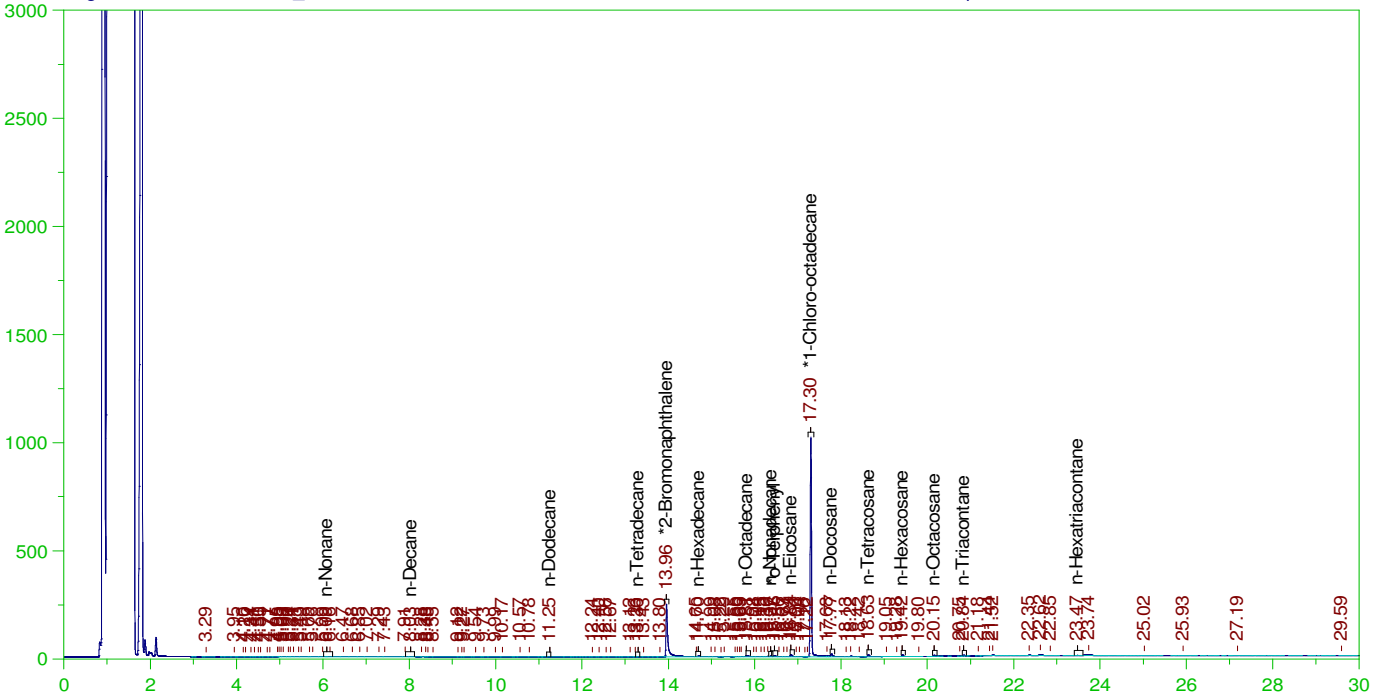
Sample Name: B15061723-011A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V56
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0056.RAW
Date & Time Acquired: 7/4/2015 5:40:44 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.823	10.823	10.823	1191	1.905	U
2-Methylnaphthalene	12.206	1.571	1.635	56429	3.953	
Acenaphthylene	13.591	13.591	13.591	8017	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.618	14.618	14.618	7997	1.905	U
Phenanthrene	15.825	15.825	15.825	2146	1.905	U
Anthracene	15.892	15.892	15.892	1010	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	17.557	17.557	17.557	636	1.905	U
Benzo(a)Anthracene	18.971	18.971	18.971	1224	1.905	U
Chrysene	19.059	19.059	19.059	1005	1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.006	22.006	22.006	2010	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.946	190.476	182.667	95.9	40-140
*2-Bromonaphthalene	13.84	190.476	144.175	75.69	40-140
*o-Terphenyl	16.346	190.476	129.003	67.73	40-140
*1-Chlorooctadecane	17.199	190.476	1.055	.55	40-140

EX-51_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0021.RAW B15061723-012A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V21



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-012A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V21
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0021.RAW
Date & Time Acquired: 6/29/2015 11:31:50 PM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

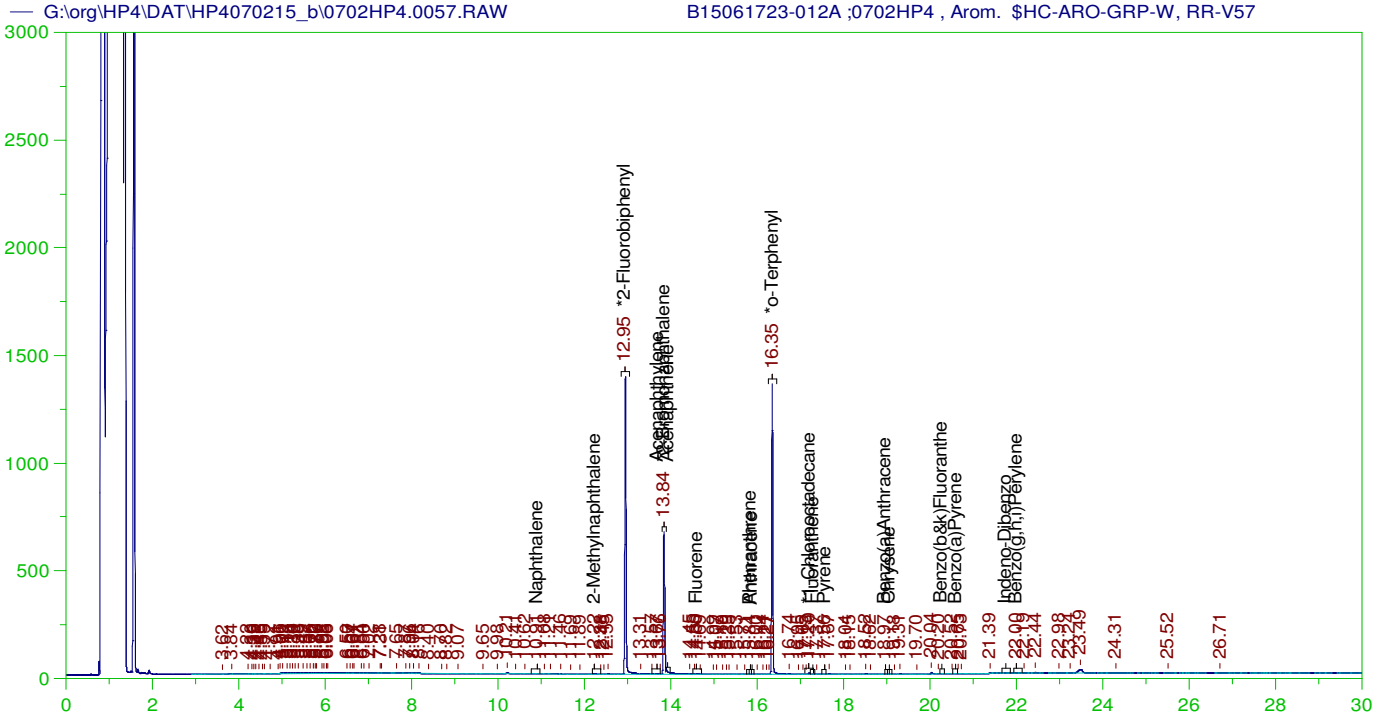
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.301	190.476	175.571	92.17	-

DRO Area:370981.6 DRO Amount: 24.69191
TEH Area:1347396 TEH Amount: 89.68042

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:996728.8 C9-C18 Amount: 67.41022
C19-C36 Area:249651.9 C19-C36 Amount: 16.42099

EX-51_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0057.RAW B15061723-012A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V57



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-012A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V57
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Date & Time Acquired: 7/4/2015 6:23:03 AM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.947	190.476	205.554	107.92	-
*2-Bromonaphthalene	13.842	190.476	151.743	79.66	-
*o-Terphenyl	16.347	190.476	162.366	85.24	-
*1-Chlorooctadecane	17.199	190.476	1.544	.81	-

C11-C22 Aromatics Area:223244 C11-C22 Aromatics Amount: 15.33089
EPH Aromatics total Area:805216.9 EPH Aromatics Total Amount: 55.29685

EX-51_061615 Batch ID: 90895

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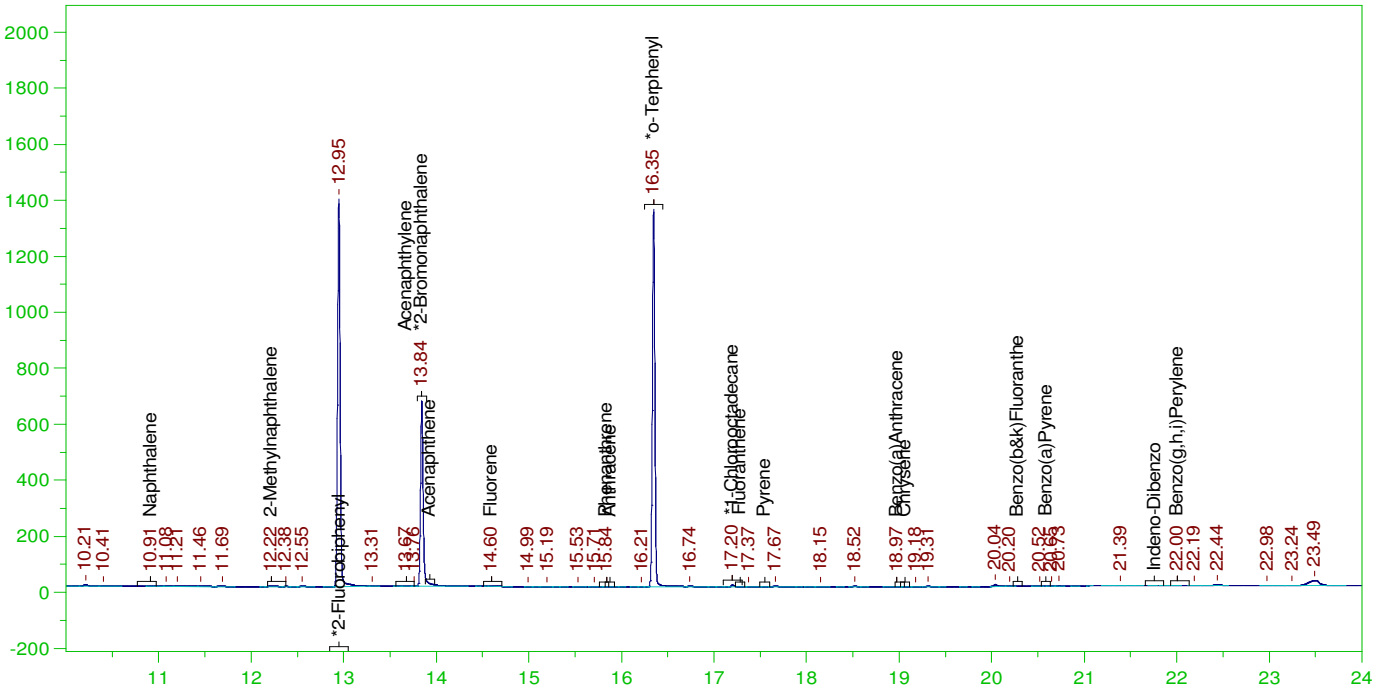


EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

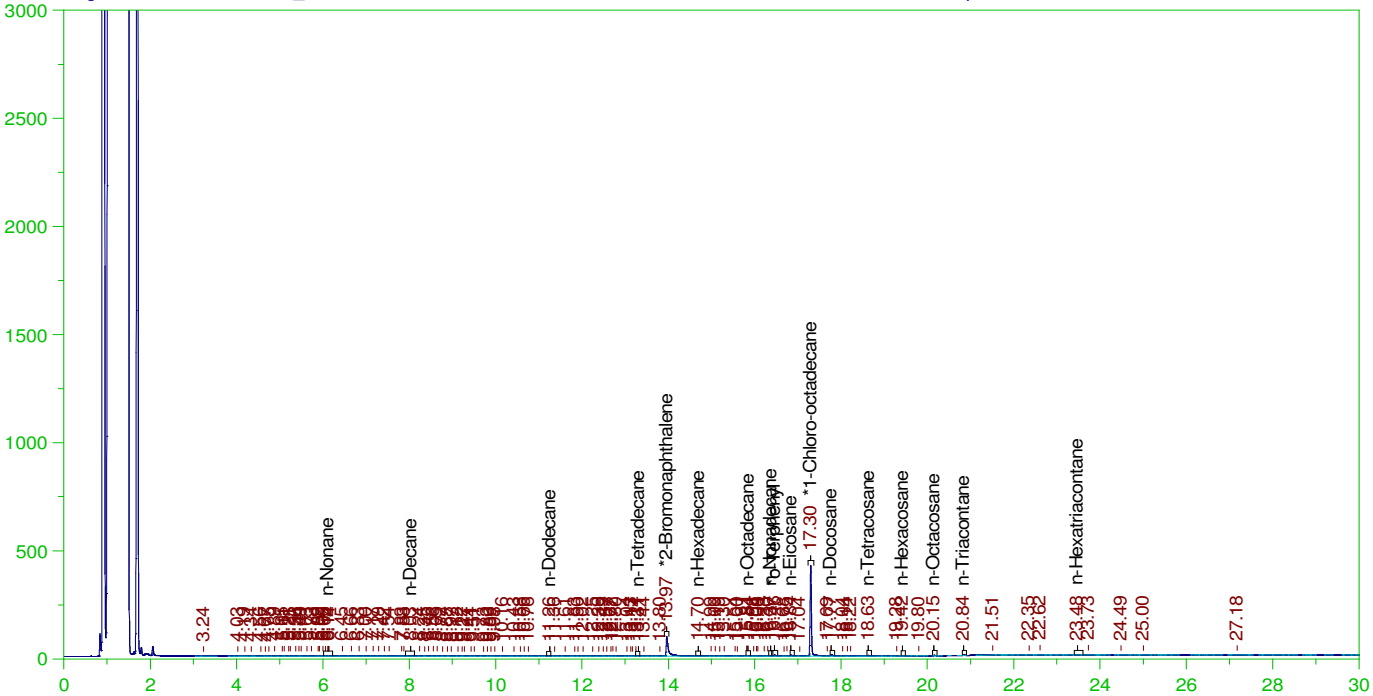
Sample Name: B15061723-012A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V57
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0057.RAW
Date & Time Acquired: 7/4/2015 6:23:03 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.914	10.914	10.914	1706	1.905	U
2-Methylnaphthalene	12.22	12.22	12.22	4869	1.905	U
Acenaphthylene	13.675	13.675	13.675	836	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.598	14.598	14.598	3580	1.905	U
Phenanthrene	15.841	15.841	15.841	4008	1.905	U
Anthracene	.	.	.		1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	18.972	18.972	18.972	1206	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.005	22.005	22.005	555	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.947	190.476	203.423	106.8	40-140
*2-Bromonaphthalene	13.842	190.476	146.28	76.8	40-140
*o-Terphenyl	16.347	190.476	161.212	84.64	40-140
*1-Chlorooctadecane	17.199	190.476	1.205	.63	40-140

EX-59_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0035.RAW B15061723-013A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V35



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-013A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V35
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0035.RAW
Date & Time Acquired: 6/30/2015 9:28:42 AM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

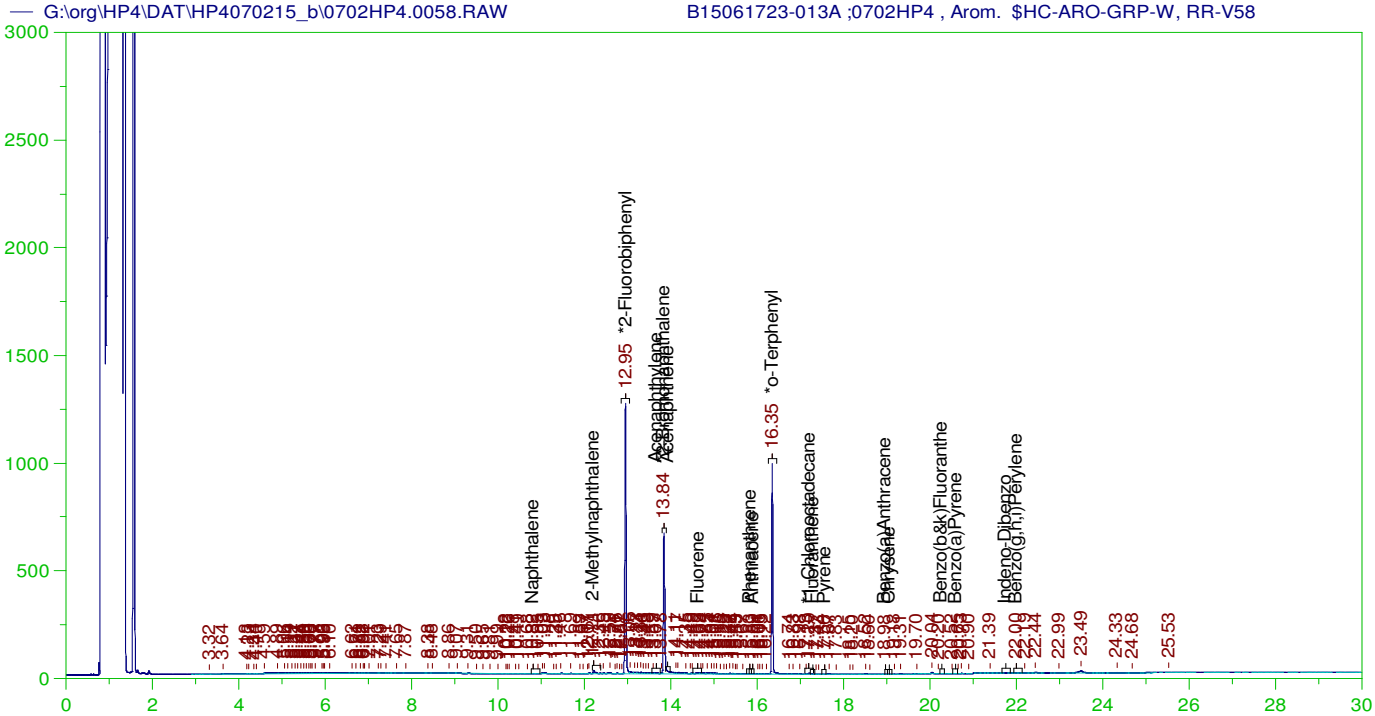
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.298	190.476	76.638	40.24	-

DRO Area:247984.7 DRO Amount: 16.50544
TEH Area:785020.8 TEH Amount: 52.24966

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:597189.2 C9-C18 Amount: 40.38877
C19-C36 Area:120617.9 C19-C36 Amount: 7.933708

EX-59_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0058.RAW B15061723-013A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V58



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-013A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V58
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0058.RAW
Date & Time Acquired: 7/4/2015 7:05:53 AM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

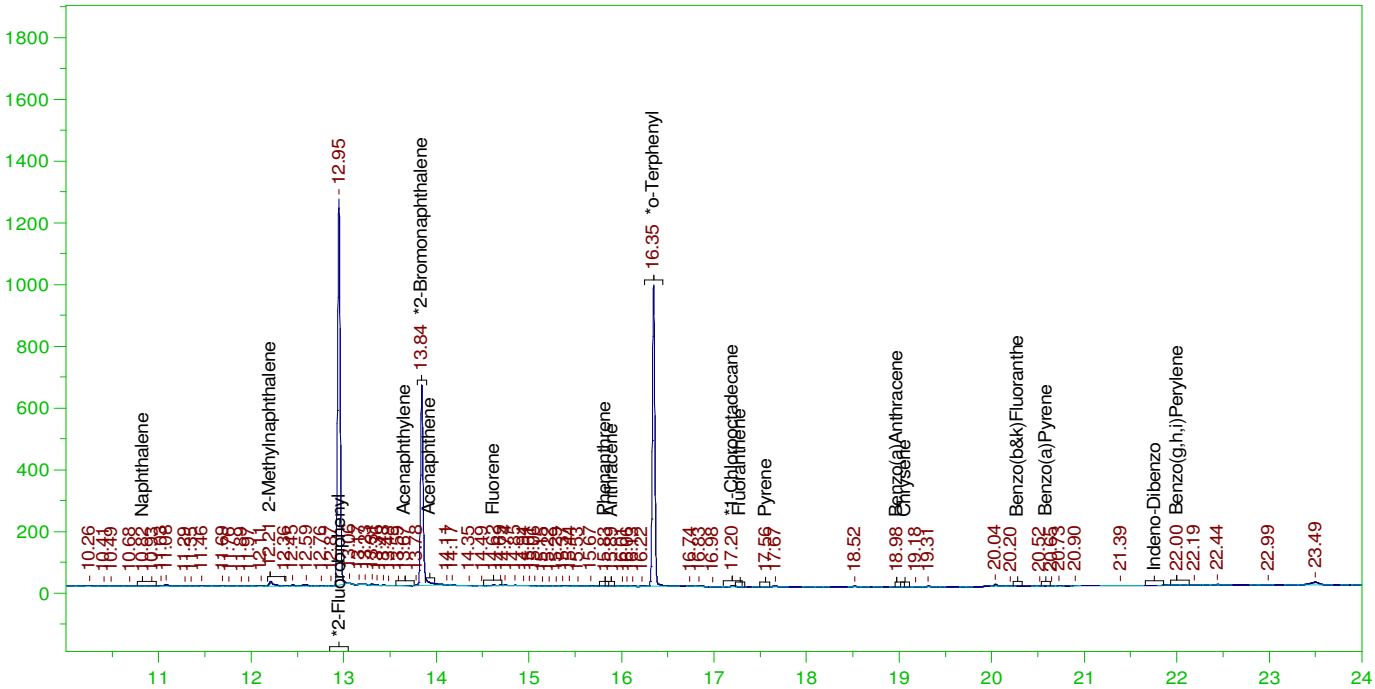
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.948	190.476	184.8	97.02	-
*2-Bromonaphthalene	13.842	190.476	146.851	77.1	-
*o-Terphenyl	16.346	190.476	118.434	62.18	-
*1-Chlorooctadecane	17.2	190.476	1.276	.67	-

C11-C22 Aromatics Area:838769.9 C11-C22 Aromatics Amount: 57.60104
EPH Aromatics total Area:1387060 EPH Aromatics Total Amount: 95.25388

EX-59_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0058.RAW B15061723-013A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V58



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

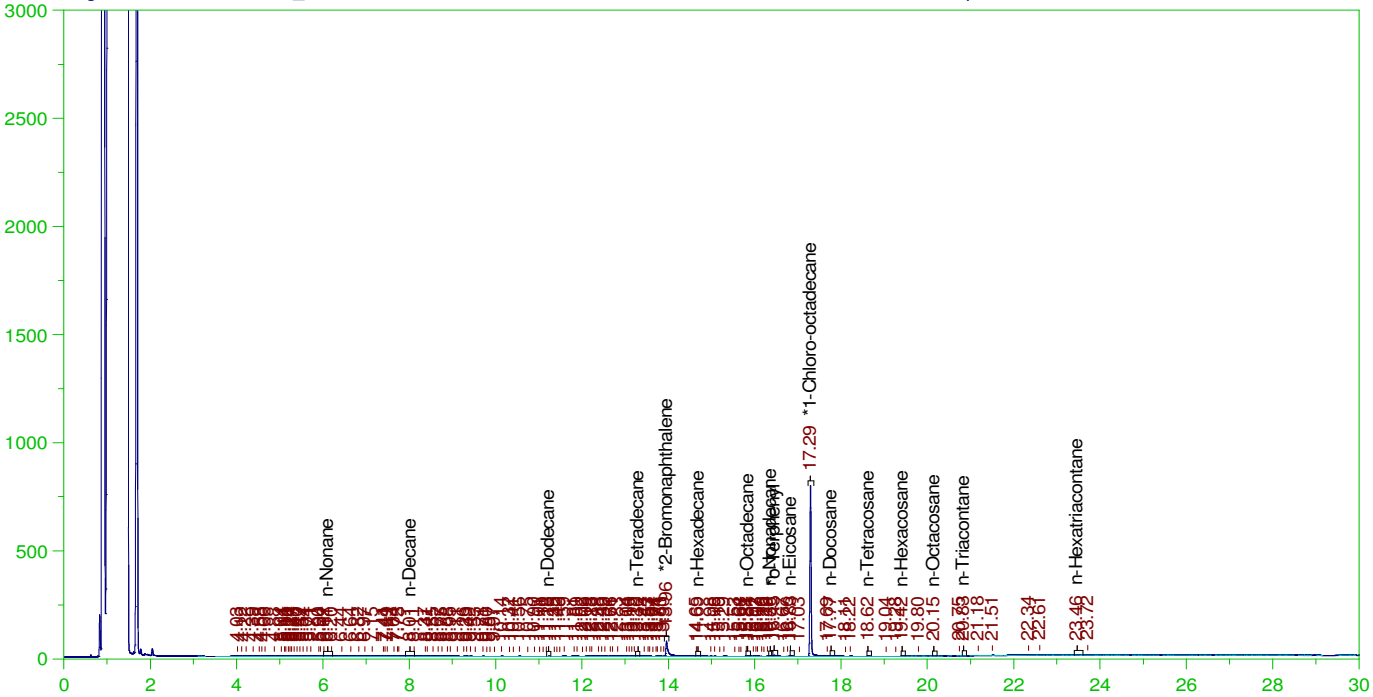
Sample Name: B15061723-013A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V58
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0058.RAW
Date & Time Acquired: 7/4/2015 7:05:53 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.824	10.824	10.824	637	1.905	U
2-Methylnaphthalene	12.209	1.571	1.633	49210	3.447	
Acenaphthylene	13.665	13.665	13.665	2871	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.62	14.62	14.62	7705	1.905	U
Phenanthrene	15.828	15.828	15.828	2262	1.905	U
Anthracene	15.893	15.893	15.893	845	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	17.559	17.559	17.559	634	1.905	U
Benzo(a)Anthracene	18.976	18.976	18.976	1193	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	21.997	21.997	21.997	519	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.948	190.476	180.952	95.	40-140
*2-Bromonaphthalene	13.842	190.476	138.814	72.88	40-140
*o-Terphenyl	16.346	190.476	116.122	60.96	40-140
*1-Chlorooctadecane	17.2	190.476	.847	.44	40-140

HRO-13_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0043.RAW B15061723-017A ;0629HP4 , Aliph. $HC-ALI-GRP-W, RR-V43



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-017A ;0629HP4 , Aliph. $HC-ALI-GRP-W, RR-V43
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Date & Time Acquired: 6/30/2015 3:28:22 PM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.292	190.476	139.627	73.3	-

DRO Area:334678.6 DRO Amount: 22.27564
TEH Area:891397.8 TEH Amount: 59.32993

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:649342.3 C9-C18 Amount: 43.91596
C19-C36 Area:140760.8 C19-C36 Amount: 9.258618

HRO-13_061615 Batch ID: 90895

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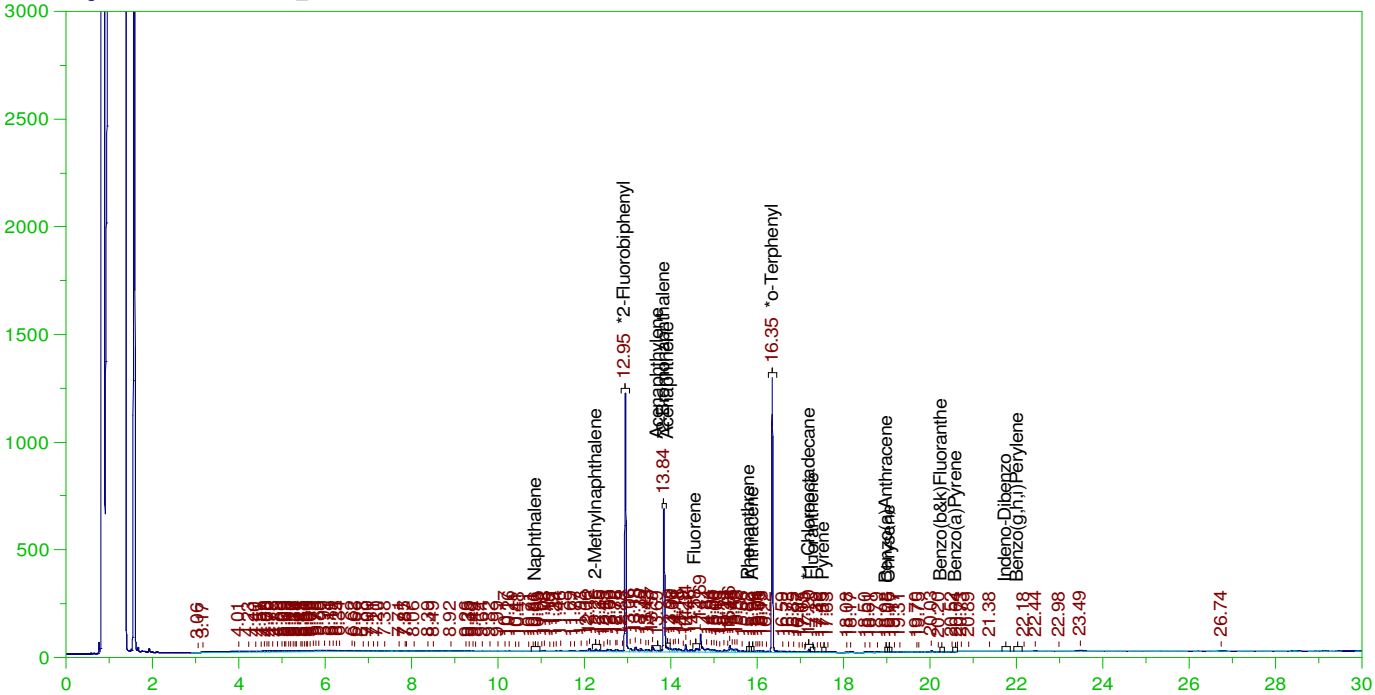


EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-017A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V59
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0059.RAW
Date & Time Acquired: 7/4/2015 7:48:49 AM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

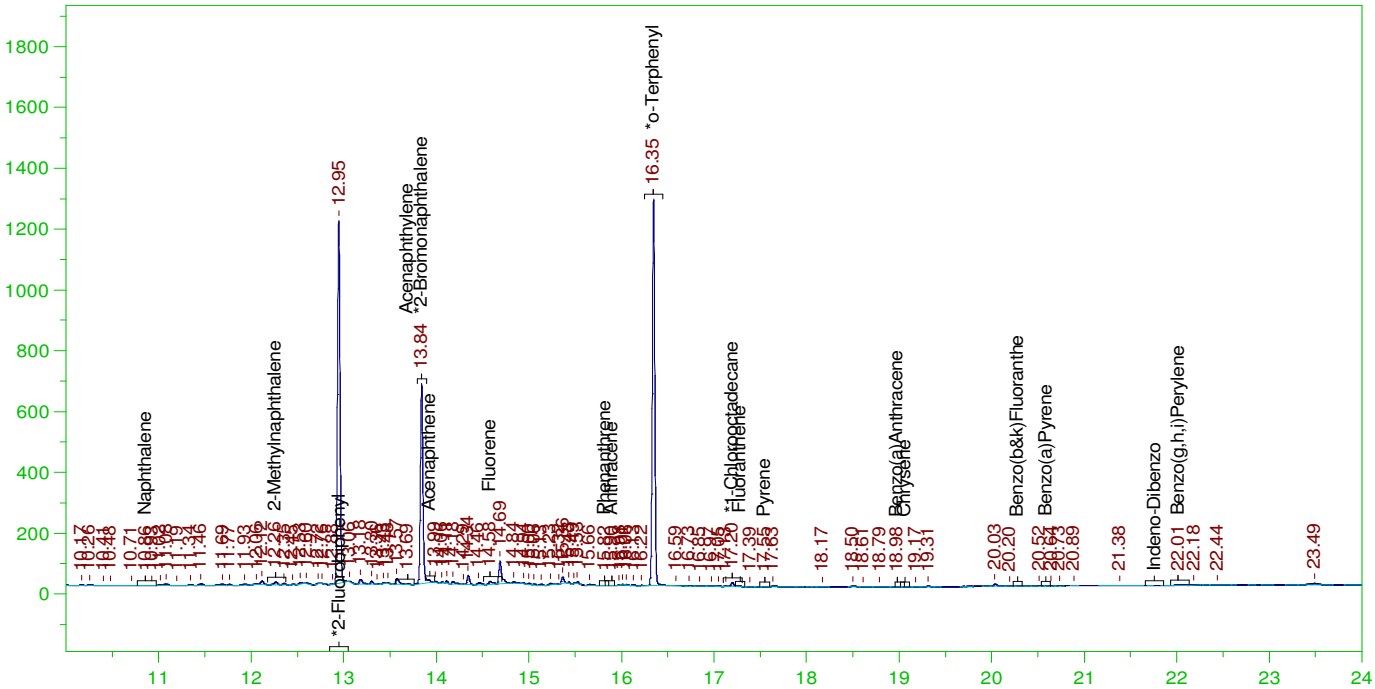
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.946	190.476	178.398	93.66	-
*2-Bromonaphthalene	13.84	190.476	148.592	78.01	-
*o-Terphenyl	16.346	190.476	152.226	79.92	-
*1-Chlorooctadecane	17.197	190.476	3.267	1.72	-

C11-C22 Aromatics Area:2391626 C11-C22 Aromatics Amount: 164.2407
EPH Aromatics total Area:3139744 EPH Aromatics Total Amount: 215.6163

HRO-13_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0059.RAW B15061723-017A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V59



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

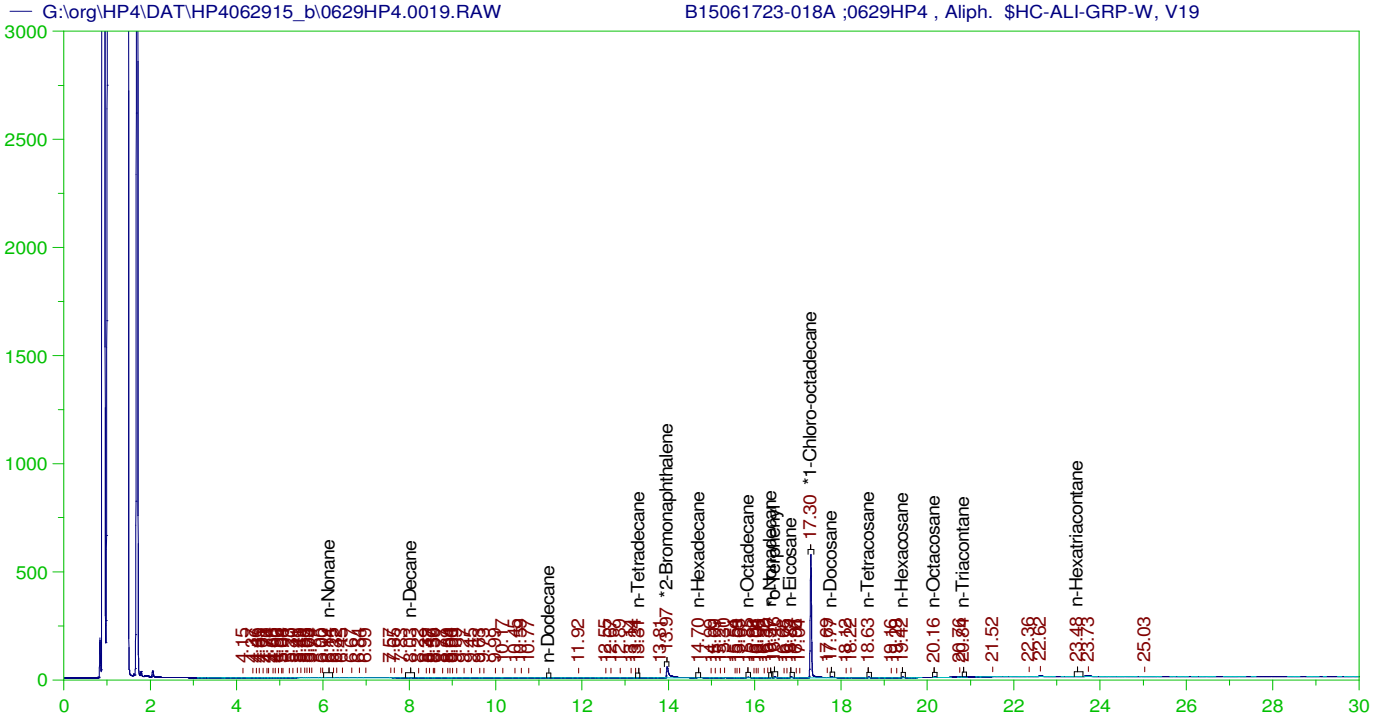
Sample Name: B15061723-017A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V59
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0059.RAW
Date & Time Acquired: 7/4/2015 7:48:49 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.859	10.859	10.859	2553	1.905	U
2-Methylnaphthalene	12.265	1.571	1.575	27481	1.925	
Acenaphthylene	13.694	13.694	13.694	3247	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.58	-.761	-.739	33138	2.28	
Phenanthrene	15.822	15.822	15.822	2012	1.905	U
Anthracene	15.898	15.898	15.898	2303	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	17.552	17.552	17.552	1594	1.905	U
Benzo(a)Anthracene	18.978	18.978	18.978	1048	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.014	22.014	22.014	1423	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.946	190.476	171.517	90.05	40-140
*2-Bromonaphthalene	13.84	190.476	136.422	71.62	40-140
*o-Terphenyl	16.346	190.476	149.53	78.5	40-140
*1-Chlorooctadecane	17.197	190.476	2.52	1.32	40-140

L-87-6_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0019.RAW B15061723-018A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V19



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-018A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V19
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0019.RAW
Date & Time Acquired: 6/29/2015 10:06:26 PM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

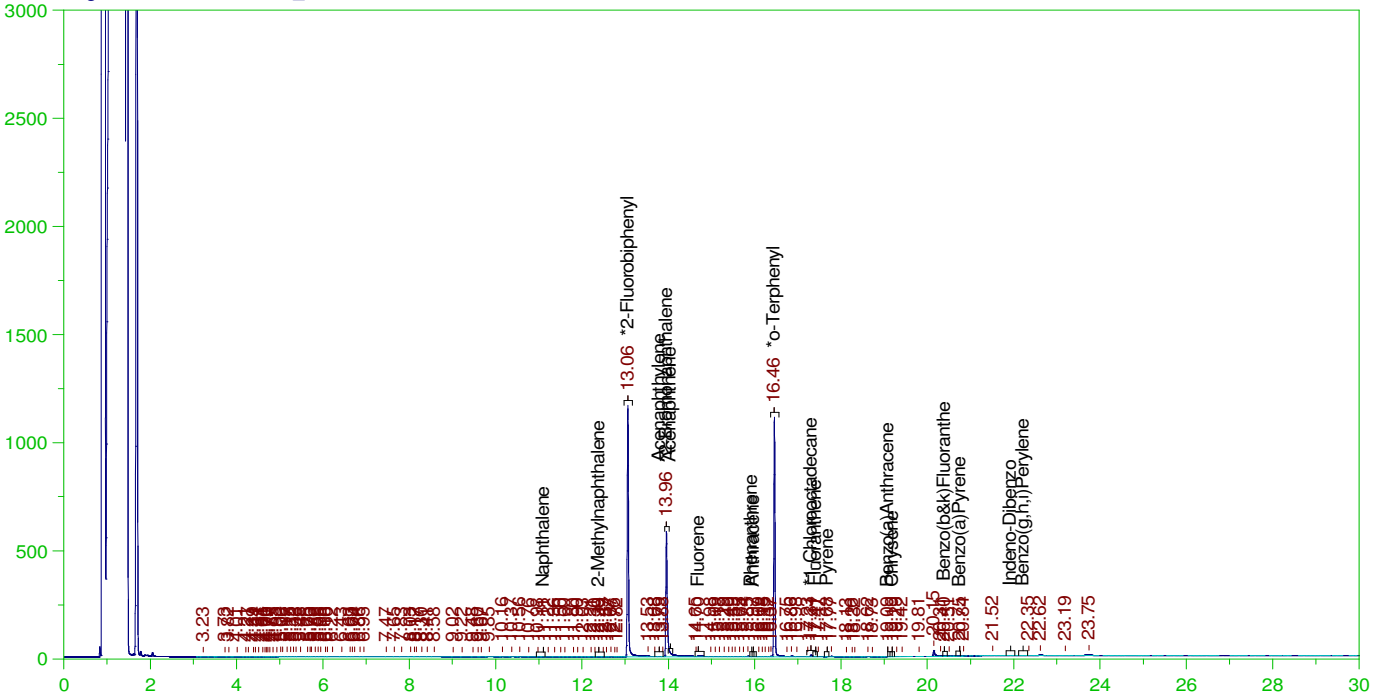
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.301	190.476	102.008	53.55	-

DRO Area:204053.9 DRO Amount: 13.58148
TEH Area:626150.1 TEH Amount: 41.6755

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:426398.1 C9-C18 Amount: 28.83792
C19-C36 Area:130002.3 C19-C36 Amount: 8.550973

L-87-6_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0020.RAW B15061723-018A ;0629HP4 , Arom. $HC-ARO-GRP-W, V20



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-018A ;0629HP4 , Arom. $HC-ARO-GRP-W, V20
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0020.RAW
Date & Time Acquired: 6/29/2015 10:49:11 PM
Method File: g:\org\HP4\Methods\RR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.945 to 22.318

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	13.061	190.476	181.589	95.33	-
*2-Bromonaphthalene	13.957	190.476	153.854	80.77	-
*o-Terphenyl	16.455	190.476	133.838	70.27	-
*1-Chlorooctadecane	17.307	190.476	2.014	1.06	-

C11-C22 Aromatics Area:390225.3 C11-C22 Aromatics Amount: 26.79803
EPH Aromatics total Area:744842.1 EPH Aromatics Total Amount: 51.15072

L-87-6_061615 Batch ID: 90895

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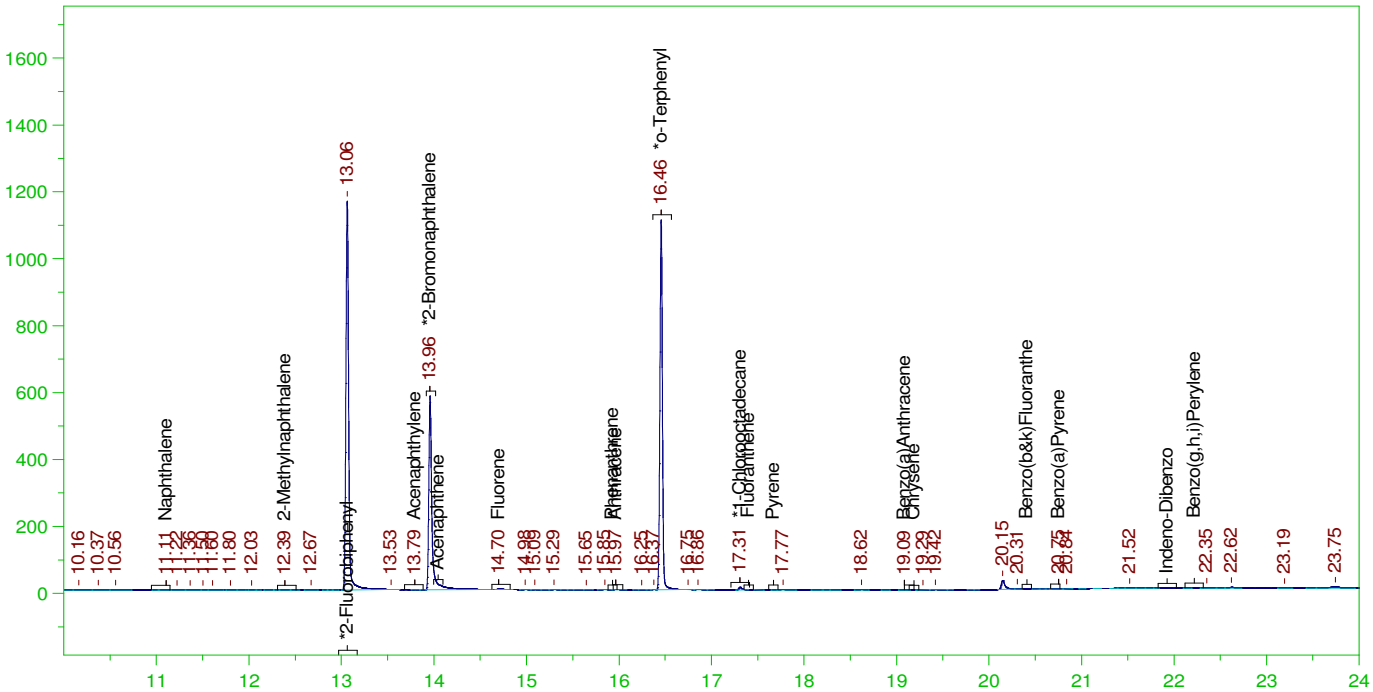


EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

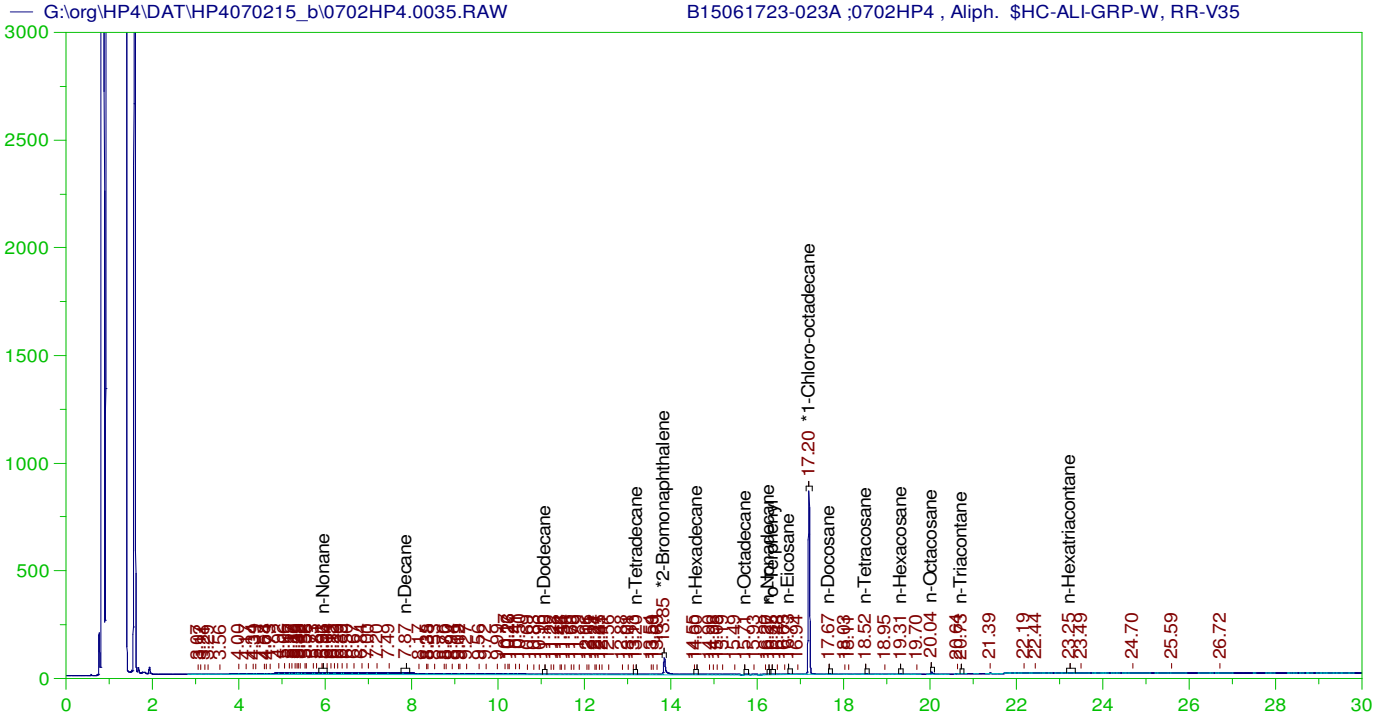
Sample Name: B15061723-018A ;0629HP4 , Arom. $HC-ARO-GRP-W, V20
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0020.RAW
Date & Time Acquired: 6/29/2015 10:49:11 PM
Method File: g:\org\HP4\Methods\RS_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	11.105	11.105	11.105	1005	1.905	U
2-Methylnaphthalene	12.389	12.389	12.389	722	1.905	U
Acenaphthylene	13.792	13.792	13.792	1028	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.7	14.7	14.7	5029	1.905	U
Phenanthrene	.	.	.		1.905	U
Anthracene	15.966	15.966	15.966	3057	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	19.086	19.086	19.086	1335	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	20.753	20.753	20.753	915	1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	.	.	.		1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	13.061	190.476	178.903	93.92	40-140
*2-Bromonaphthalene	13.957	190.476	146.886	77.12	40-140
*o-Terphenyl	16.455	190.476	132.114	69.36	40-140
*1-Chlorooctadecane	17.307	190.476	1.464	.77	40-140

EX-24_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0035.RAW B15061723-023A ;0702HP4 , Aliph. $HC-ALI-GRP-W, RR-V35



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-023A ;0702HP4 , Aliph. $HC-ALI-GRP-W, RR-V35
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0035.RAW
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Method File: g:\org\HP4\Methods\LR_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.76 to 20.11
Rt range for C9 to C18 Aliphatic Hydrocarbons: 5.853 to 16.222
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.247 to 23.37

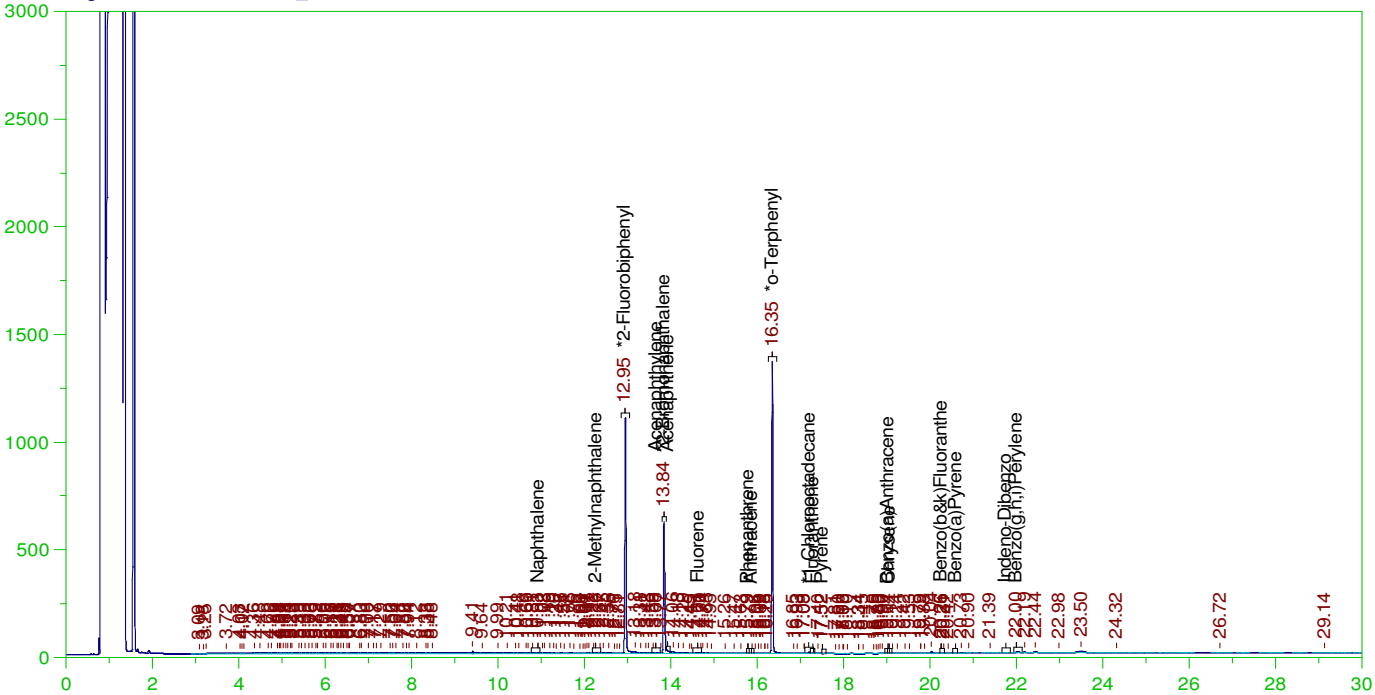
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.197	190.476	145.35	76.31	-

DRO Area:1095392 DRO Amount: 72.9074
TEH Area:2752406 TEH Amount: 183.1955

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:1986622 C9-C18 Amount: 134.3581
C19-C36 Area:117125.6 C19-C36 Amount: 7.703999

EX-24_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0036.RAW B15061723-023A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V36



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-023A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V36
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Date & Time Acquired: 7/3/2015 3:39:56 PM
Method File: g:\org\HP4\Methods\RR_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

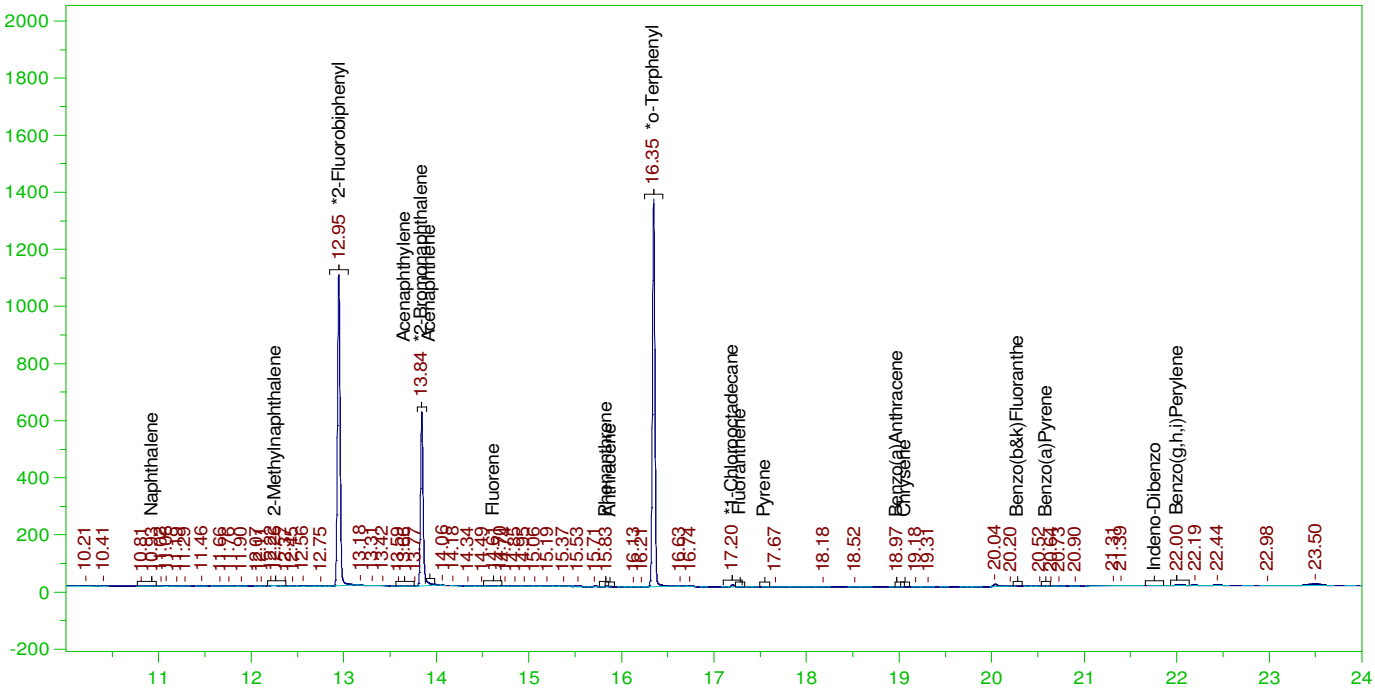
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.946	190.476	165.247	86.75	-
*2-Bromonaphthalene	13.842	190.476	135.518	71.15	-
*o-Terphenyl	16.347	190.476	160.632	84.33	-
*1-Chlorooctadecane	29.965	190.476	.	.	-

C11-C22 Aromatics Area:774308.7 C11-C22 Aromatics Amount: 53.17428
EPH Aromatics total Area:2443575 EPH Aromatics Total Amount: 167.8082

EX-24_061615 Batch ID: 90895

— G:\org\HP4\DAT\HP4070215_b\0702HP4.0036.RAW B15061723-023A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V36



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

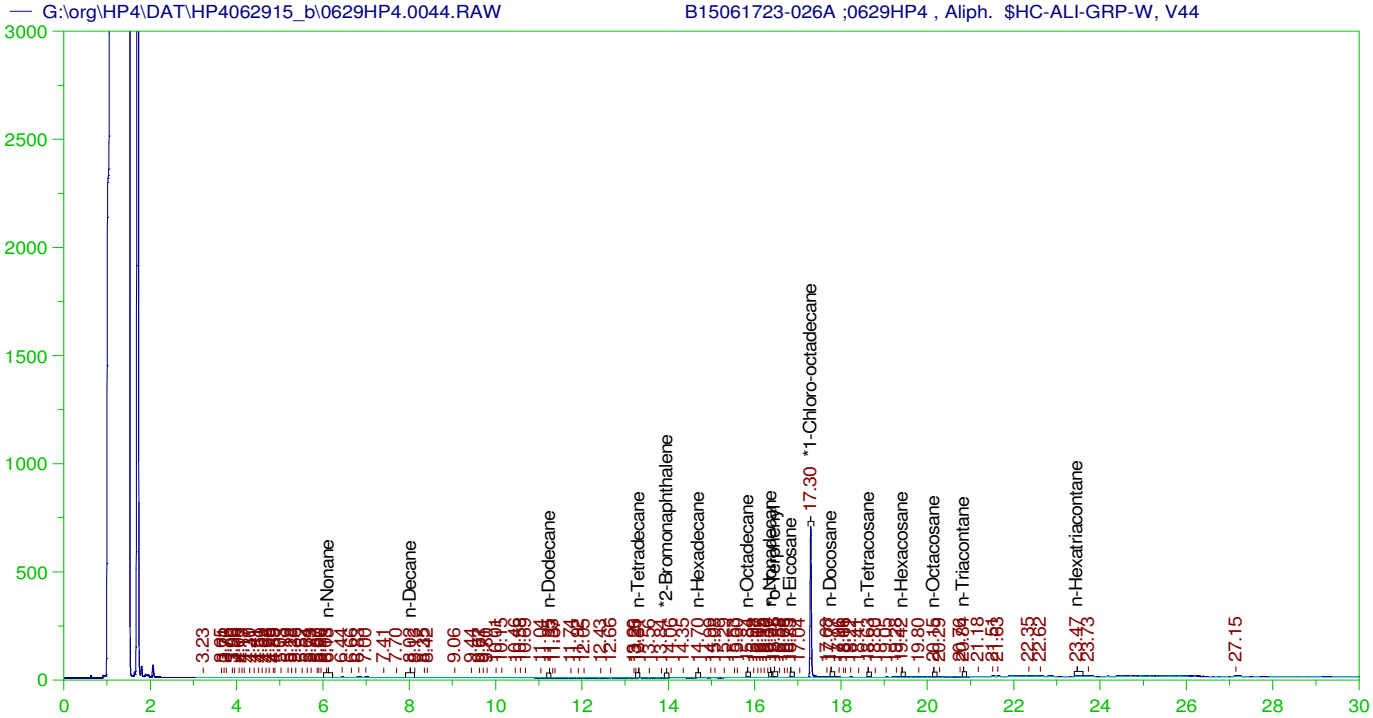
Sample Name: B15061723-023A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V36
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0036.RAW
Date & Time Acquired: 7/3/2015 3:39:56 PM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.927	10.927	10.927	1142	1.905	U
2-Methylnaphthalene	12.264	12.264	12.264	1677	1.905	U
Acenaphthylene	13.657	13.657	13.657	602	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.614	14.614	14.614	4298	1.905	U
Phenanthrene	15.833	15.833	15.833	1028	1.905	U
Anthracene	.	.	.		1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	18.972	18.972	18.972	1265	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	21.996	21.996	21.996	1540	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.946	190.476	161.877	84.99	40-140
*2-Bromonaphthalene	13.842	190.476	130.564	68.55	40-140
*o-Terphenyl	16.347	190.476	161.091	84.57	40-140
*1-Chlorooctadecane	17.2	190.476	1.224	.64	40-140

EX-63_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0044.RAW B15061723-026A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V44



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-026A ;0629HP4 , Aliph. $HC-ALI-GRP-W, V44
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0044.RAW
Date & Time Acquired: 6/30/2015 4:11:16 PM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

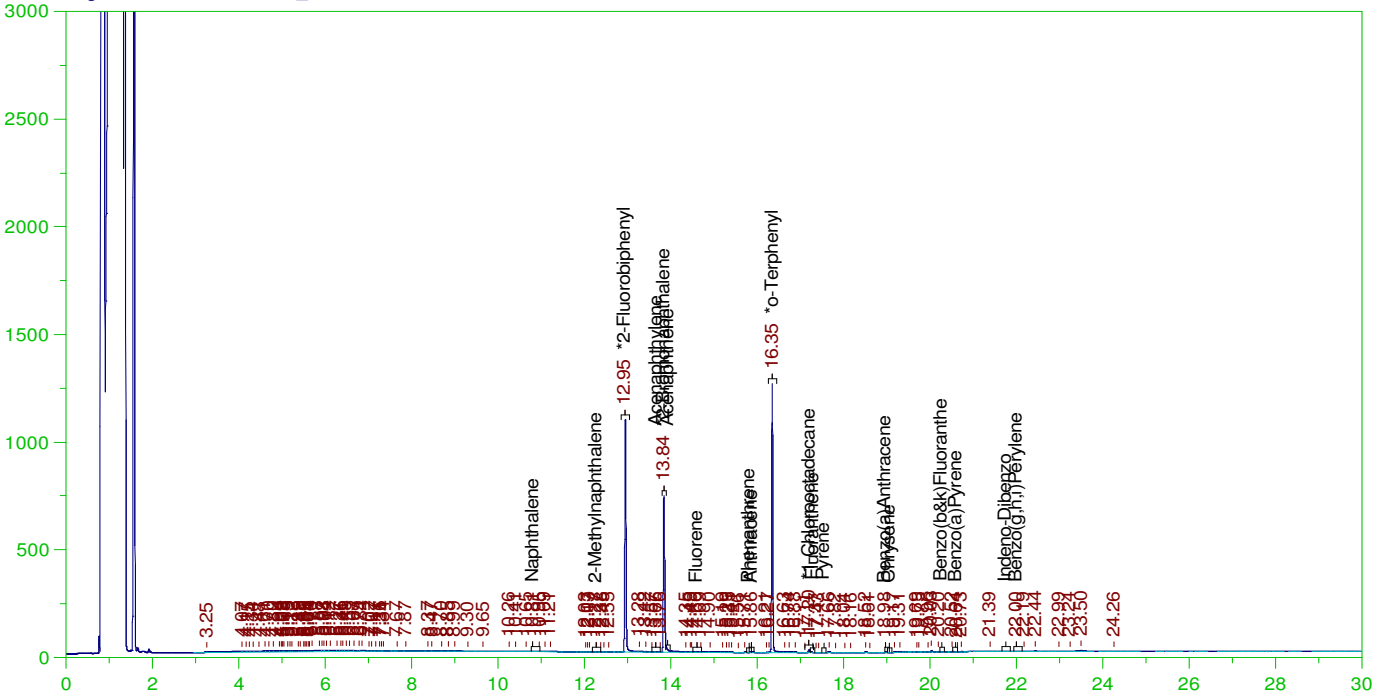
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.297	190.476	123.331	64.75	-

DRO Area:253999.3 DRO Amount: 16.90576
TEH Area:548456.1 TEH Amount: 36.50431

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:307008.6 C9-C18 Amount: 20.76344
C19-C36 Area:119845.9 C19-C36 Amount: 7.882929

EX-63_061615 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0060.RAW B15061723-026A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V60



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-026A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V60
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0060.RAW
Date & Time Acquired: 7/4/2015 8:31:10 AM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.946	190.476	165.	86.62	-
*2-Bromonaphthalene	13.841	190.476	164.464	86.34	-
*o-Terphenyl	16.346	190.476	149.583	78.53	-
*1-Chlorooctadecane	17.198	190.476	2.685	1.41	-

C11-C22 Aromatics Area:234880.5 C11-C22 Aromatics Amount: 16.13
EPH Aromatics total Area:988323.4 EPH Aromatics Total Amount: 67.87137

EX-63_061615 Batch ID: 90895

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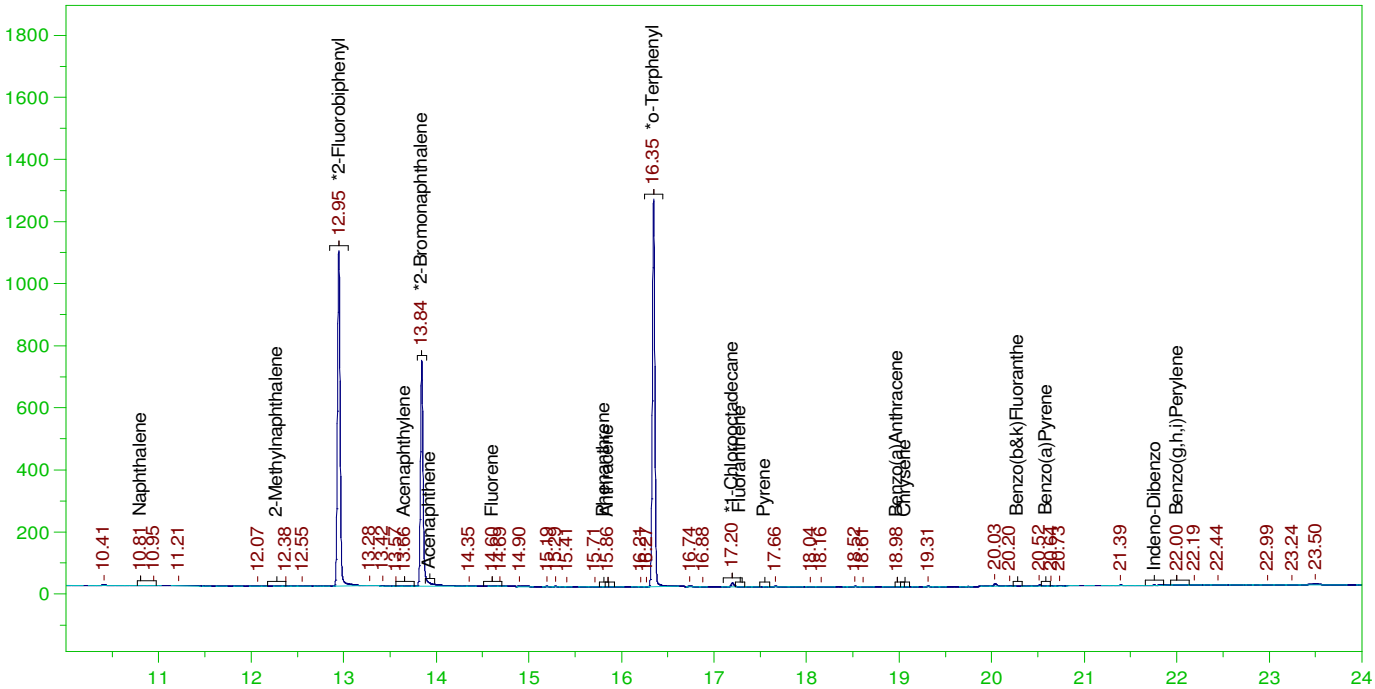


EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

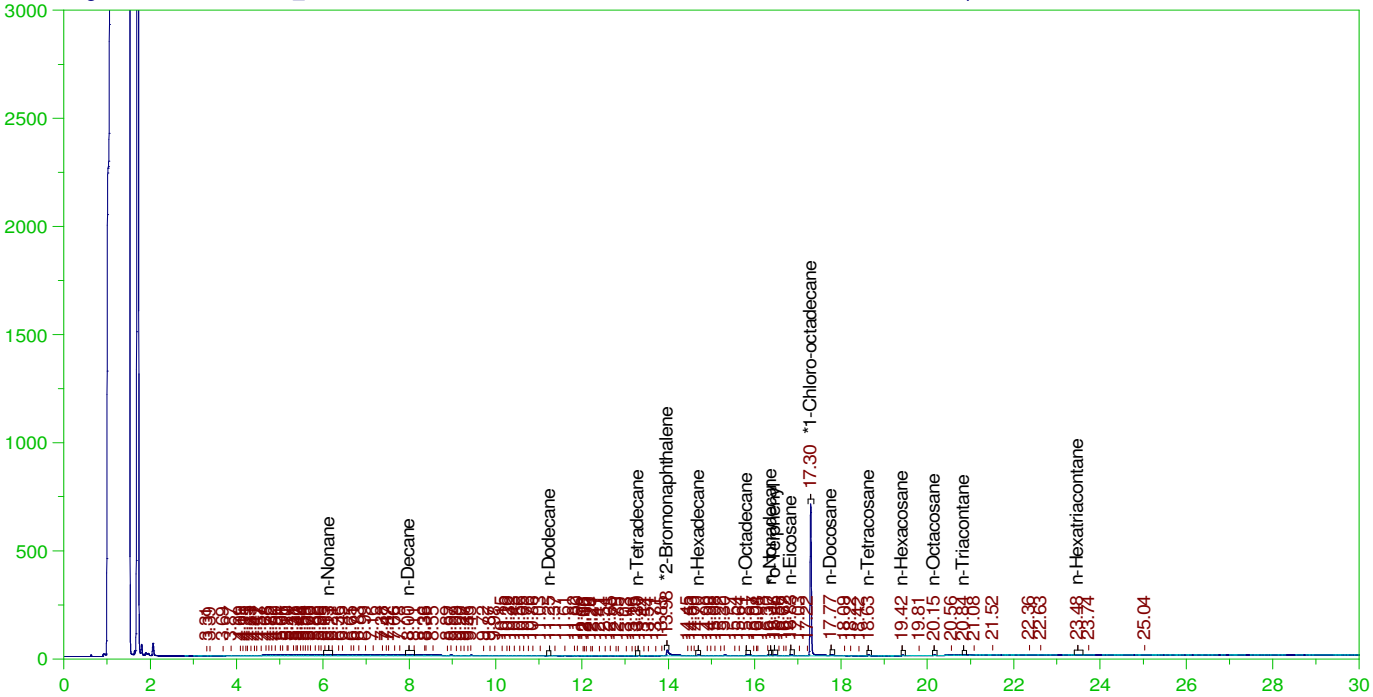
Sample Name: B15061723-026A ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V60
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0060.RAW
Date & Time Acquired: 7/4/2015 8:31:10 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.809	10.809	10.809	1578	1.905	U
2-Methylnaphthalene	.	.	.		1.905	U
Acenaphthylene	13.655	13.655	13.655	1178	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.603	14.603	14.603	2706	1.905	U
Phenanthrene	.	.	.		1.905	U
Anthracene	15.858	15.858	15.858	4385	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	18.977	18.977	18.977	1493	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	21.997	21.997	21.997	1478	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.946	190.476	162.981	85.57	40-140
*2-Bromonaphthalene	13.841	190.476	160.687	84.36	40-140
*o-Terphenyl	16.346	190.476	148.318	77.87	40-140
*1-Chlorooctadecane	17.198	190.476	2.459	1.29	40-140

D3_061715 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0049.RAW B15061723-027E ;0629HP4 , Aliph. $HC-ALI-GRP-W, V49



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-027E ;0629HP4 , Aliph. $HC-ALI-GRP-W, V49
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0049.RAW
Date & Time Acquired: 6/30/2015 7:46:42 PM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

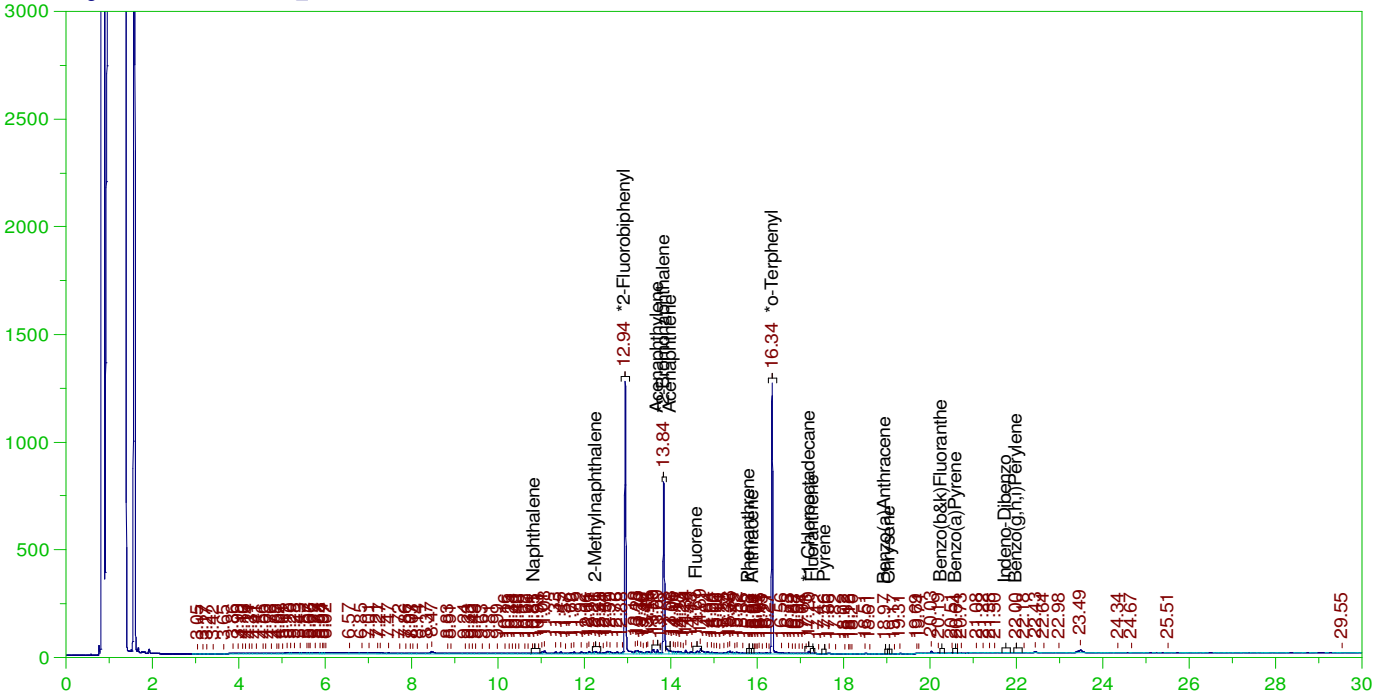
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.297	190.476	124.719	65.48	-

DRO Area:772568.1 DRO Amount: 51.42083
TEH Area:1734939 TEH Amount: 115.4746

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:1173868 C9-C18 Amount: 79.39037
C19-C36 Area:177175.5 C19-C36 Amount: 11.65382

D3_061715 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0051.RAW B15061723-027E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V51



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-027E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V51
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0051.RAW
Date & Time Acquired: 7/4/2015 2:16:06 AM
Method File: g:\org\HP4\Methods\RR_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

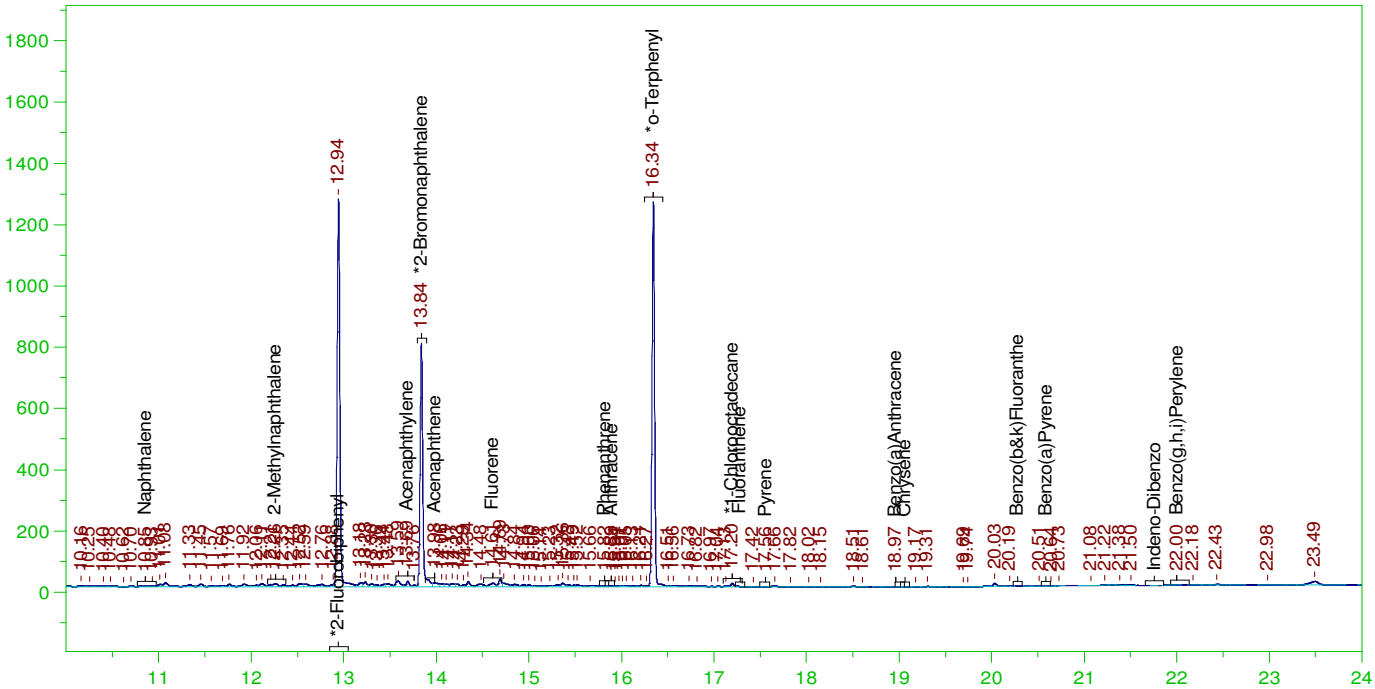
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.943	190.476	191.805	100.7	-
*2-Bromonaphthalene	13.837	190.476	173.256	90.96	-
*o-Terphenyl	16.343	190.476	153.146	80.4	-
*1-Chlorooctadecane	17.195	190.476	3.358	1.76	-

C11-C22 Aromatics Area:1978762 C11-C22 Aromatics Amount: 135.888
EPH Aromatics total Area:3536466 EPH Aromatics Total Amount: 242.8605

D3_061715 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0051.RAW B15061723-027E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V51



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

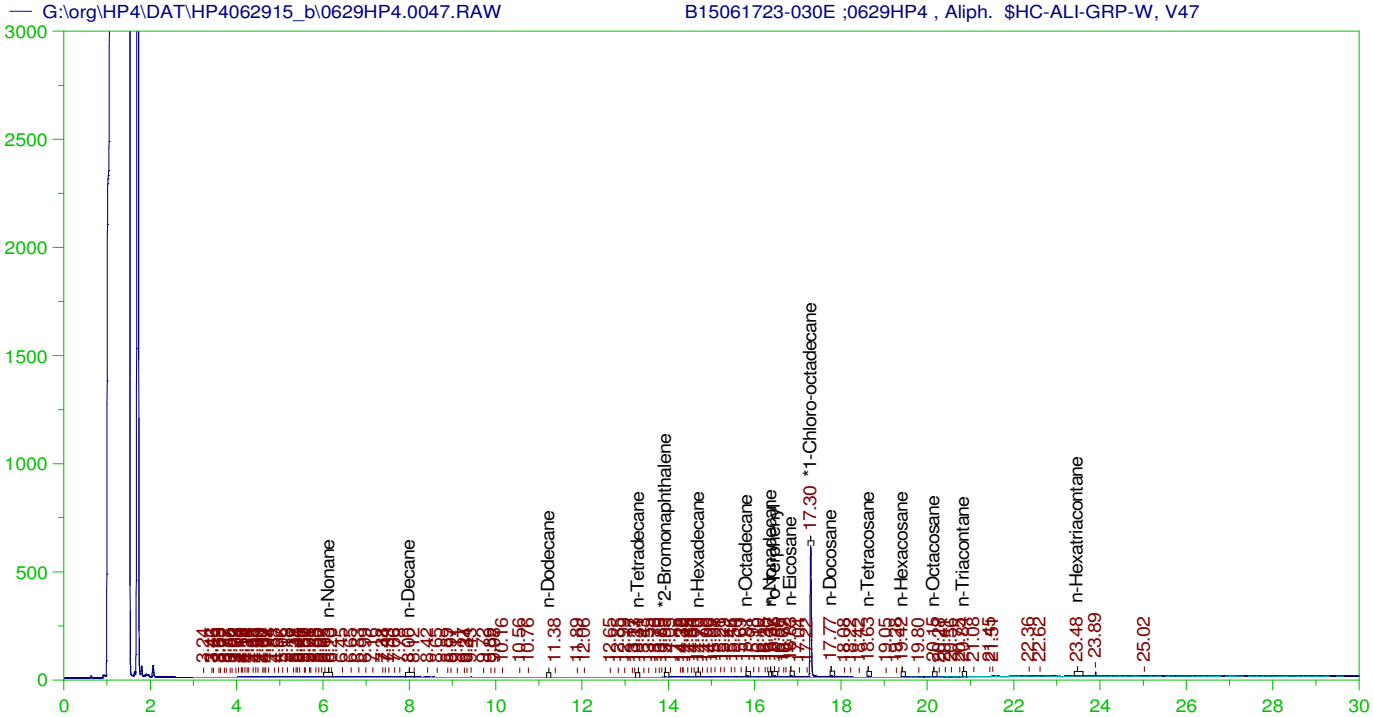
Sample Name: B15061723-027E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V51
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0051.RAW
Date & Time Acquired: 7/4/2015 2:16:06 AM
Method File: g:\org\HP4\Methods\RT_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.855	10.855	10.855	7534	1.905	U
2-Methylnaphthalene	12.262	1.571	1.576	31781	2.226	
Acenaphthylene	13.689	.185	.148	47063	3.351	
Acenaphthene	13.981	-.083	-.143	56064	3.665	
Fluorene	14.611	-.761	-.773	51546	3.547	
Phenanthrene	15.822	15.822	15.822	8817	1.905	U
Anthracene	15.891	15.891	15.891	11708	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	17.558	17.558	17.558	2338	1.905	U
Benzo(a)Anthracene	18.968	18.968	18.968	1188	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	21.998	21.998	21.998	627	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.943	190.476	190.93	100.24	40-140
*2-Bromonaphthalene	13.837	190.476	172.535	90.58	40-140
*o-Terphenyl	16.343	190.476	152.206	79.91	40-140
*1-Chlorooctadecane	17.195	190.476	3.164	1.66	40-140

EX-35_061715 Batch ID: 90895

G:\org\HP4\DAT\HP4062915_b\0629HP4.0047.RAW B15061723-030E ;0629HP4 , Aliph. $HC-ALI-GRP-W, V47



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061723-030E ;0629HP4 , Aliph. $HC-ALI-GRP-W, V47
Raw File: G:\org\HP4\DAT\HP4062915_b\0629HP4.0047.RAW
Date & Time Acquired: 6/30/2015 6:20:37 PM
Method File: g:\org\HP4\Methods\LR_EPH-AV-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AV.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.918 to 20.221
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.02 to 16.324
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.349 to 23.606

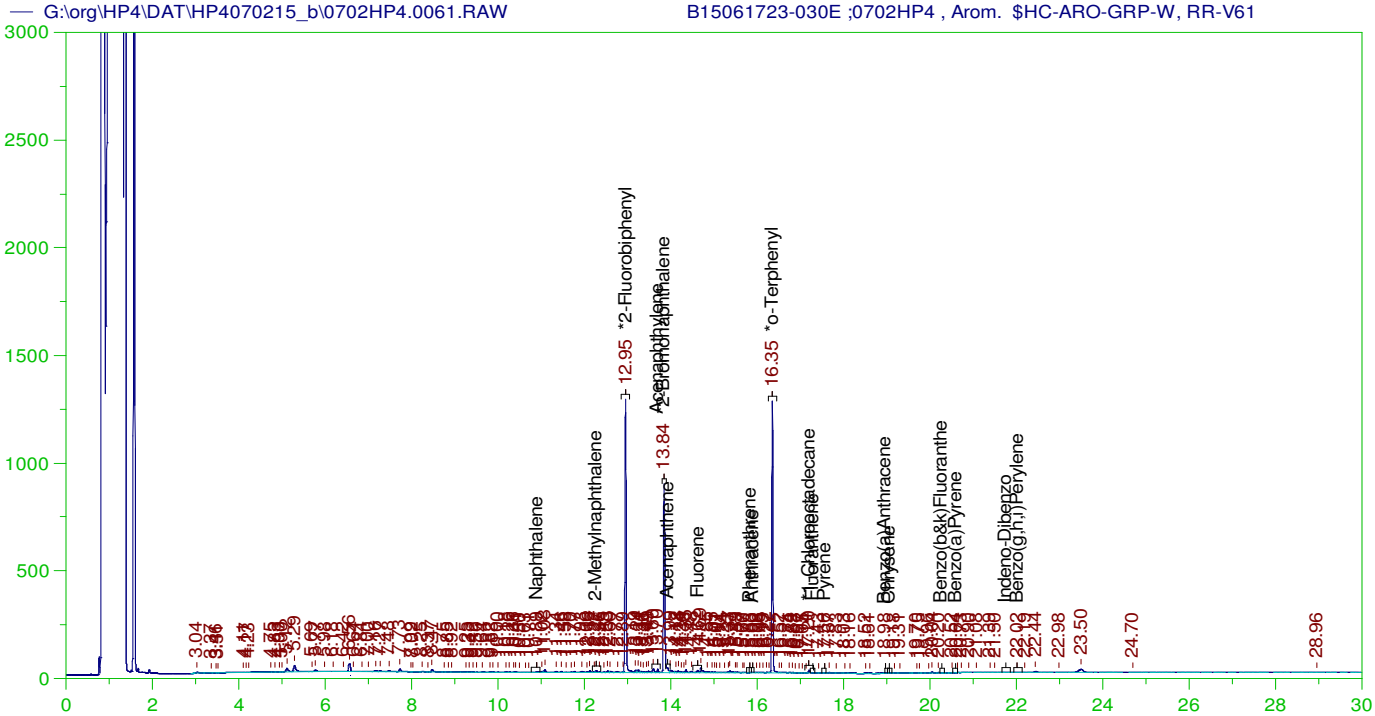
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.297	190.476	108.581	57.01	-

DRO Area:650740.3 DRO Amount: 43.31217
TEH Area:1016304 TEH Amount: 67.64346

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:597821.7 C9-C18 Amount: 40.43155
C19-C36 Area:252017.4 C19-C36 Amount: 16.57658

EX-35_061715 Batch ID: 90895

G:\org\HP4\DAT\HP4070215_b\0702HP4.0061.RAW B15061723-030E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V61



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-030E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V61
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0061.RAW
Date & Time Acquired: 7/4/2015 9:13:32 AM
Method File: g:\org\HP4\Methods\RR_EPH-070261AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

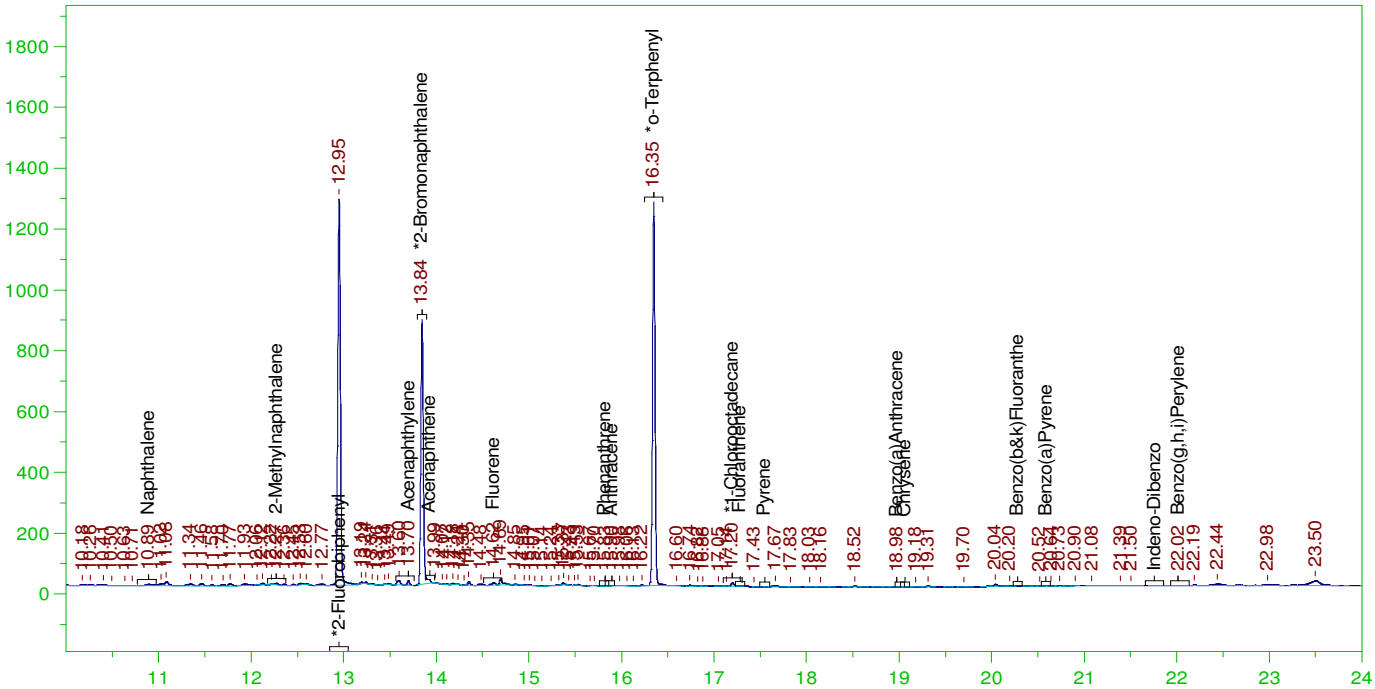
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.95	190.476	191.225	100.39	-
*2-Bromonaphthalene	13.845	190.476	188.338	98.88	-
*o-Terphenyl	16.348	190.476	150.71	79.12	-
*1-Chlorooctadecane	17.199	190.476	3.766	1.98	-

C11-C22 Aromatics Area:1585527 C11-C22 Aromatics Amount: 108.8832
EPH Aromatics total Area:2643808 EPH Aromatics Total Amount: 181.5588

EX-35_061715 Batch ID: 90895

— G:\org\HP4\DAT\HP4070215_b\0702HP4.0061.RAW B15061723-030E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V61



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

Sample Name: B15061723-030E ;0702HP4 , Arom. $HC-ARO-GRP-W, RR-V61
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0061.RAW
Date & Time Acquired: 7/4/2015 9:13:32 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.893	2.975	2.952	26716	1.862	J
2-Methylnaphthalene	12.27	12.27	12.27	11683	1.905	U
Acenaphthylene	13.697	.185	.148	27232	1.939	
Acenaphthene	.	.	.		1.905	U
Fluorene	14.618	-.761	-.774	23794	1.637	J
Phenanthrene	15.829	15.829	15.829	2317	1.905	U
Anthracene	15.899	15.899	15.899	1061	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	18.975	18.975	18.975	1207	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.015	22.015	22.015	1822	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.95	190.476	188.205	98.81	40-140
*2-Bromonaphthalene	13.845	190.476	179.736	94.36	40-140
*o-Terphenyl	16.348	190.476	148.259	77.84	40-140
*1-Chlorooctadecane	17.199	190.476	2.176	1.14	40-140

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 90924
Lab ID: MB-90924-90774-90668	Method Blank				Run: SV5973N2.I_150629D				06/30/15 11:32
Surr: 2-Fluorobiphenyl			4.0	82	40	140			
Surr: o-Terphenyl			4.0	62	40	140			
Lab ID: LCS-90924	Laboratory Control Sample				Run: SV5973N2.I_150629D				06/30/15 13:35
2-Methylnaphthalene	108	ug/L	4.0	54	40	140			
Acenaphthene	142	ug/L	4.0	71	40	140			
Acenaphthylene	122	ug/L	4.0	61	40	140			
Anthracene	164	ug/L	4.0	82	40	140			
Benzo(a)anthracene	183	ug/L	4.0	92	40	140			
Benzo(a)pyrene	195	ug/L	4.0	97	40	140			
Benzo(b)fluoranthene	184	ug/L	4.0	92	40	140			
Benzo(g,h,i)perylene	194	ug/L	4.0	97	40	140			
Benzo(k)fluoranthene	178	ug/L	4.0	89	40	140			
Chrysene	174	ug/L	4.0	87	40	140			
Dibenzo(a,h)anthracene	178	ug/L	4.0	89	40	140			
Fluoranthene	175	ug/L	4.0	88	40	140			
Fluorene	138	ug/L	4.0	69	40	140			
Indeno(1,2,3-cd)pyrene	157	ug/L	4.0	79	40	140			
Naphthalene	115	ug/L	4.0	57	40	140			
Phenanthrene	139	ug/L	4.0	69	40	140			
Pyrene	174	ug/L	4.0	87	40	140			
Surr: 2-Fluorobiphenyl			4.0	83	40	140			
Surr: o-Terphenyl			4.0	68	40	140			
Lab ID: B15061630-001AMS	Sample Matrix Spike				Run: SV5973N2.I_150629D				06/30/15 14:37
2-Methylnaphthalene	183	ug/L	7.7	48	40	140			
Acenaphthene	243	ug/L	7.7	63	40	140			
Acenaphthylene	207	ug/L	7.7	54	40	140			
Anthracene	289	ug/L	7.7	75	40	140			
Benzo(a)anthracene	304	ug/L	7.7	79	40	140			
Benzo(a)pyrene	331	ug/L	7.7	86	40	140			
Benzo(b)fluoranthene	287	ug/L	7.7	75	40	140			
Benzo(g,h,i)perylene	342	ug/L	7.7	89	40	140			
Benzo(k)fluoranthene	329	ug/L	7.7	86	40	140			
Chrysene	301	ug/L	7.7	78	40	140			
Dibenzo(a,h)anthracene	300	ug/L	7.7	78	40	140			
Fluoranthene	308	ug/L	7.7	80	40	140			
Fluorene	233	ug/L	7.7	61	40	140			
Indeno(1,2,3-cd)pyrene	268	ug/L	7.7	70	40	140			
Naphthalene	193	ug/L	7.7	50	40	140			
Phenanthrene	242	ug/L	7.7	63	40	140			
Pyrene	308	ug/L	7.7	80	40	140			
Surr: 2-Fluorobiphenyl			7.7	73	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 90924
Lab ID: B15061630-001AMS	Sample Matrix Spike				Run: SV5973N2.I_150629D				06/30/15 14:37
Surr: o-Terphenyl			7.7	63	40	140			
Lab ID: B15061630-001AMSD	Sample Matrix Spike Duplicate				Run: SV5973N2.I_150629D				06/30/15 15:07
2-Methylnaphthalene	257	ug/L	7.7	67	40	140	34	40	
Acenaphthene	277	ug/L	7.7	72	40	140	13	40	
Acenaphthylene	235	ug/L	7.7	61	40	140	13	40	
Anthracene	311	ug/L	7.7	81	40	140	7.2	40	
Benzo(a)anthracene	342	ug/L	7.7	89	40	140	12	40	
Benzo(a)pyrene	351	ug/L	7.7	91	40	140	5.9	40	
Benzo(b)fluoranthene	332	ug/L	7.7	86	40	140	15	40	
Benzo(g,h,i)perylene	366	ug/L	7.7	95	40	140	7.0	40	
Benzo(k)fluoranthene	340	ug/L	7.7	88	40	140	3.2	40	
Chrysene	335	ug/L	7.7	87	40	140	11	40	
Dibenzo(a,h)anthracene	317	ug/L	7.7	82	40	140	5.5	40	
Fluoranthene	326	ug/L	7.7	85	40	140	5.8	40	
Fluorene	263	ug/L	7.7	68	40	140	12	40	
Indeno(1,2,3-cd)pyrene	275	ug/L	7.7	71	40	140	2.6	40	
Naphthalene	228	ug/L	7.7	59	40	140	16	40	
Phenanthrene	258	ug/L	7.7	67	40	140	6.8	40	
Pyrene	333	ug/L	7.7	87	40	140	7.9	40	
Surr: 2-Fluorobiphenyl			7.7	77	40	140			
Surr: o-Terphenyl			7.7	69	40	140			
Lab ID: MB-90924-90774-90668	Method Blank				Run: SV5973N2.I_150629D				06/30/15 12:03
2-Methylnaphthalene	ND	ug/L	0.20						
Acenaphthene	ND	ug/L	0.20						
Acenaphthylene	ND	ug/L	0.20						
Anthracene	ND	ug/L	0.20						
Benzo(a)anthracene	ND	ug/L	0.20						
Benzo(a)pyrene	ND	ug/L	0.20						
Benzo(b)fluoranthene	ND	ug/L	0.20						
Benzo(g,h,i)perylene	ND	ug/L	0.20						
Benzo(k)fluoranthene	ND	ug/L	0.20						
Chrysene	ND	ug/L	0.20						
Dibenzo(a,h)anthracene	ND	ug/L	0.20						
Fluoranthene	ND	ug/L	0.20						
Fluorene	ND	ug/L	0.20						
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.20						
Naphthalene	ND	ug/L	0.20						
Phenanthrene	ND	ug/L	0.20						
Pyrene	ND	ug/L	0.20						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Report Date: 07/06/15
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 90926
Lab ID: MB-90926-90895-90718	Method Blank				Run: SV5973N2.I_150629D				06/30/15 15:38
Surr: 2-Fluorobiphenyl			4.0	82	40	140			
Surr: o-Terphenyl			4.0	77	40	140			
Lab ID: LCS-90926	Laboratory Control Sample				Run: SV5973N2.I_150630A				07/01/15 00:43
2-Methylnaphthalene	122	ug/L	4.0	61	40	140			
Acenaphthene	133	ug/L	4.0	67	40	140			
Acenaphthylene	115	ug/L	4.0	58	40	140			
Anthracene	163	ug/L	4.0	81	40	140			
Benzo(a)anthracene	170	ug/L	4.0	85	40	140			
Benzo(a)pyrene	181	ug/L	4.0	91	40	140			
Benzo(b)fluoranthene	160	ug/L	4.0	80	40	140			
Benzo(g,h,i)perylene	188	ug/L	4.0	94	40	140			
Benzo(k)fluoranthene	182	ug/L	4.0	91	40	140			
Chrysene	174	ug/L	4.0	87	40	140			
Dibenzo(a,h)anthracene	156	ug/L	4.0	78	40	140			
Fluoranthene	172	ug/L	4.0	86	40	140			
Fluorene	128	ug/L	4.0	64	40	140			
Indeno(1,2,3-cd)pyrene	142	ug/L	4.0	71	40	140			
Naphthalene	106	ug/L	4.0	53	40	140			
Phenanthrene	130	ug/L	4.0	65	40	140			
Pyrene	173	ug/L	4.0	87	40	140			
Surr: 2-Fluorobiphenyl			4.0	75	40	140			
Surr: o-Terphenyl			4.0	70	40	140			
Lab ID: B15061741-001AMS	Sample Matrix Spike				Run: SV5973N2.I_150630A				07/01/15 01:44
2-Methylnaphthalene	294	ug/L	8.0	74	40	140			
Acenaphthene	322	ug/L	8.0	81	40	140			
Acenaphthylene	282	ug/L	8.0	70	40	140			
Anthracene	391	ug/L	8.0	98	40	140			
Benzo(a)anthracene	383	ug/L	8.0	96	40	140			
Benzo(a)pyrene	469	ug/L	8.0	117	40	140			
Benzo(b)fluoranthene	381	ug/L	8.0	95	40	140			
Benzo(g,h,i)perylene	447	ug/L	8.0	112	40	140			
Benzo(k)fluoranthene	414	ug/L	8.0	104	40	140			
Chrysene	391	ug/L	8.0	98	40	140			
Dibenzo(a,h)anthracene	408	ug/L	8.0	102	40	140			
Fluoranthene	401	ug/L	8.0	100	40	140			
Fluorene	312	ug/L	8.0	78	40	140			
Indeno(1,2,3-cd)pyrene	370	ug/L	8.0	92	40	140			
Naphthalene	252	ug/L	8.0	63	40	140			
Phenanthrene	307	ug/L	8.0	77	40	140			
Pyrene	393	ug/L	8.0	98	40	140			
Surr: 2-Fluorobiphenyl			8.0	82	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 90926
Lab ID: B15061741-001AMS	Sample Matrix Spike				Run: SV5973N2.I_150630A				07/01/15 01:44
Surr: o-Terphenyl			8.0	64	40	140			
Lab ID: B15061741-001AMSD	Sample Matrix Spike Duplicate				Run: SV5973N2.I_150630A				07/01/15 02:15
2-Methylnaphthalene	223	ug/L	8.0	56	40	140	28	40	
Acenaphthene	297	ug/L	8.0	74	40	140	8.3	40	
Acenaphthylene	261	ug/L	8.0	65	40	140	7.7	40	
Anthracene	349	ug/L	8.0	87	40	140	11	40	
Benzo(a)anthracene	382	ug/L	8.0	96	40	140	0.2	40	
Benzo(a)pyrene	420	ug/L	8.0	105	40	140	11	40	
Benzo(b)fluoranthene	378	ug/L	8.0	95	40	140	0.6	40	
Benzo(g,h,i)perylene	398	ug/L	8.0	99	40	140	12	40	
Benzo(k)fluoranthene	386	ug/L	8.0	96	40	140	7.2	40	
Chrysene	362	ug/L	8.0	90	40	140	7.9	40	
Dibenzo(a,h)anthracene	394	ug/L	8.0	99	40	140	3.4	40	
Fluoranthene	386	ug/L	8.0	97	40	140	3.7	40	
Fluorene	308	ug/L	8.0	77	40	140	1.3	40	
Indeno(1,2,3-cd)pyrene	324	ug/L	8.0	81	40	140	13	40	
Naphthalene	222	ug/L	8.0	55	40	140	13	40	
Phenanthrene	284	ug/L	8.0	71	40	140	7.8	40	
Pyrene	376	ug/L	8.0	94	40	140	4.4	40	
Surr: 2-Fluorobiphenyl			8.0	77	40	140			
Surr: o-Terphenyl			8.0	64	40	140			
Lab ID: MB-90926-90895-90718	Method Blank				Run: SV5973N2.I_150701A				07/01/15 11:45
2-Methylnaphthalene	ND	ug/L	0.20						
Acenaphthene	ND	ug/L	0.20						
Acenaphthylene	ND	ug/L	0.20						
Anthracene	ND	ug/L	0.20						
Benzo(a)anthracene	ND	ug/L	0.20						
Benzo(a)pyrene	ND	ug/L	0.20						
Benzo(b)fluoranthene	ND	ug/L	0.20						
Benzo(g,h,i)perylene	ND	ug/L	0.20						
Benzo(k)fluoranthene	ND	ug/L	0.20						
Chrysene	ND	ug/L	0.20						
Dibenzo(a,h)anthracene	ND	ug/L	0.20						
Fluoranthene	ND	ug/L	0.20						
Fluorene	ND	ug/L	0.20						
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.20						
Naphthalene	ND	ug/L	0.20						
Phenanthrene	0.208	ug/L	0.20						
Pyrene	ND	ug/L	0.20						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Analytical Run: R245401
Lab ID: 29-Jun-15_CCV_44	Continuing Calibration Verification Standard								06/30/15 11:01
2-Methylnaphthalene	1.96	ug/L	0.10	98	80	120			
Acenaphthene	2.03	ug/L	0.10	101	80	120			
Acenaphthylene	1.92	ug/L	0.10	96	80	120			
Anthracene	2.01	ug/L	0.10	100	80	120			
Benzo(a)anthracene	2.13	ug/L	0.10	106	80	120			
Benzo(a)pyrene	2.13	ug/L	0.10	106	80	120			
Benzo(b)fluoranthene	2.10	ug/L	0.10	105	80	120			
Benzo(g,h,i)perylene	2.08	ug/L	0.10	104	80	120			
Benzo(k)fluoranthene	2.04	ug/L	0.10	102	80	120			
Chrysene	1.84	ug/L	0.10	92	80	120			
Dibenzo(a,h)anthracene	1.98	ug/L	0.10	99	80	120			
Fluoranthene	2.03	ug/L	0.10	101	80	120			
Fluorene	2.04	ug/L	0.10	102	80	120			
Indeno(1,2,3-cd)pyrene	1.88	ug/L	0.10	94	80	120			
Naphthalene	1.94	ug/L	0.10	97	80	120			
o-Terphenyl	1.93	ug/L	0.10	97	80	120			
Phenanthrene	1.82	ug/L	0.10	91	80	120			
Pyrene	1.97	ug/L	0.10	99	80	120			
Surr: 2-Fluorobiphenyl			0.10	102	80	120			
Surr: Nitrobenzene-d5			0.10	97	80	120			
Surr: Terphenyl-d14			0.10	100	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Analytical Run: R245405
Lab ID: 29-Jun-15_CCV_67	Continuing Calibration Verification Standard								06/30/15 22:40
2-Methylnaphthalene	1.92	ug/L	0.10	96	80	120			
Acenaphthene	2.05	ug/L	0.10	102	80	120			
Acenaphthylene	1.89	ug/L	0.10	94	80	120			
Anthracene	2.17	ug/L	0.10	108	80	120			
Benzo(a)anthracene	2.14	ug/L	0.10	107	80	120			
Benzo(a)pyrene	1.97	ug/L	0.10	99	80	120			
Benzo(b)fluoranthene	1.97	ug/L	0.10	99	80	120			
Benzo(g,h,i)perylene	2.14	ug/L	0.10	107	80	120			
Benzo(k)fluoranthene	2.09	ug/L	0.10	104	80	120			
Chrysene	2.02	ug/L	0.10	101	80	120			
Dibenzo(a,h)anthracene	2.07	ug/L	0.10	103	80	120			
Fluoranthene	2.00	ug/L	0.10	100	80	120			
Fluorene	2.01	ug/L	0.10	100	80	120			
Indeno(1,2,3-cd)pyrene	1.59	ug/L	0.10	80	80	120			
Naphthalene	1.93	ug/L	0.10	97	80	120			
o-Terphenyl	1.99	ug/L	0.10	100	80	120			
Phenanthrene	1.87	ug/L	0.10	94	80	120			
Pyrene	1.99	ug/L	0.10	100	80	120			
Surr: 2-Fluorobiphenyl			0.10	102	80	120			
Surr: Nitrobenzene-d5			0.10	95	80	120			
Surr: Terphenyl-d14			0.10	98	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/06/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15061723

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Analytical Run: R245457
Lab ID: 01-Jul-15_CCV_3	Continuing Calibration Verification Standard								07/01/15 10:44
2-Methylnaphthalene	1.88	ug/L	0.10	94	80	120			
Acenaphthene	1.90	ug/L	0.10	95	80	120			
Acenaphthylene	1.91	ug/L	0.10	96	80	120			
Anthracene	1.98	ug/L	0.10	99	80	120			
Benzo(a)anthracene	1.99	ug/L	0.10	100	80	120			
Benzo(a)pyrene	2.20	ug/L	0.10	110	80	120			
Benzo(b)fluoranthene	2.13	ug/L	0.10	106	80	120			
Benzo(g,h,i)perylene	1.93	ug/L	0.10	97	80	120			
Benzo(k)fluoranthene	1.90	ug/L	0.10	95	80	120			
Chrysene	1.75	ug/L	0.10	88	80	120			
Dibenzo(a,h)anthracene	2.17	ug/L	0.10	108	80	120			
Fluoranthene	1.84	ug/L	0.10	92	80	120			
Fluorene	1.87	ug/L	0.10	94	80	120			
Indeno(1,2,3-cd)pyrene	2.25	ug/L	0.10	113	80	120			
Naphthalene	1.88	ug/L	0.10	94	80	120			
Phenanthrene	1.74	ug/L	0.10	87	80	120			
Pyrene	1.83	ug/L	0.10	92	80	120			
Surr: 2-Fluorobiphenyl			0.10	95	80	120			
Surr: Nitrobenzene-d5			0.10	96	80	120			
Surr: Terphenyl-d14			0.10	89	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061723

Login completed by:	Randa Nees	Date Received:	6/18/2015
Reviewed by:	BL2000\jmueller	Received by:	dlf
Reviewed Date:	6/18/2015	Carrier name:	Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temp Blank temperature for Cooler 1 was 2.7°C, Cooler 2 was 4.4°C, Cooler 3 was 0.4°C, Cooler 4 was 0.6°C, Cooler 5 was 2.4°C and Cooler 6 was 0.6°C.

Sample RX_061715 asks for "NAP" on the Chain of Custody and no containers were received. Per phone call with Amanda Aldersley "NAP" is not needed for this sample.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page _____ of _____

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Shipped by: Rtn UPS Grd

Cooler ID(s): TB

Receipt Temp _____ °C

On Ice: (Yes) No

Custody Seal (Y) N

Intact (Y) N

Signature Match (Y) N

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Cooler 1 - 2.7
2 - 4.4
3 - 0.4
4 - 0.6
5 - 2.4
6 - 0.6

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	LABORATORY USE ONLY
1	TB1_061615	6/16/15	0800	1 - W		X									X		B15061723-001
2	LS-6_061615	6/16/15	1015	7 - W		X	X	X		X	X	X			X		002
3	L-88-9_061615	6/16/15	1120	5 - W		X	X	X							X		003
4	EX-3_061615	6/16/15	1225	5 - W		X	X	X							X		004
5																	
6																	
7																	
8																	
9																	
10																	

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Chris LaRose	6/17/15 1430		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
				4/18/15 0915	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

Page _____ of _____

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: Rtn UPS Grd
Cooler ID(s): TB
Receipt Temp _____ °C
On Ice: (Yes) No
Custody Seal (Y) N
Intact (Y) N
Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	TB1_061715	6/17/15	0800	1 - W		X	X								X		Cooler 1 - 2.7	1506 1723-005
2	D1_061715	6/17/15	0800	9 - W		X	X	X	X						X		2 - 4.4	006
3	EX-17_061715	6/17/15	0935	9 - W		X	X	X	X						X		3 - 0.4	007
4	EX-16_061715	6/17/15	1130	9 - W		X	X	X	X						X		4 - 0.6	008
5	RX_061715	6/17/15	1030	9 - W		X	X	X	X						X		5 - 2.4	009
6																	6 - 0.6	
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Chris LaRose	6/17/15 1430		Sealed for Shipment		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
				6/18/15 0915	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

Page _____ of _____

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: Rtn UPS Grd

Cooler ID(s): TB

Receipt Temp _____ °C

On Ice: (Yes) No

Custody Seal (Y) N

Intact (Y) N

Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN, Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
1	TB5_061615	6/16/15	0800	1 - W		X	X								X		Cooler 1-2.7 2-4.4 3-0.4 4-0.6 5-2.4 6-0.6	61506172 3-010
2	D1_061615	6/16/15	0800	5 - W		X	X	X							X			011
3	EX-51_061615	6/1615	1455	5 - W		X	X	X							X			012
4	EX-59_061615	6/16/15	1340	5 - W		X	X	X							X			013
5																		
6																		
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Chris LaRose	6/17/15 1430		SEALED	FOR	SHIPMENT CL
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
			6/18/15	0915	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page ____ of ____

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

ANALYSIS REQUESTED

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: Ron UPS Grd

Cooler ID(s): TB

Receipt Temp: ____ °C

On Ice: (Yes) No

Custody Seal (Y) N

Intact (Y) N

Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	TB2_061615	6/16/15	0800	1 - W		X	X								X		Cooler 1-2.7	B1506 1723-014
2	RX_061615	6/16/15	0840	5 - W		X	X	X							X		2-4.4	015
3	EX-11_061615	6/16/15	0935	5 - W		X	X	X							X		3-0.4	016
4	HRO-13_061615	6/16/15	1040	5 - W		X	X	X							X		4-0.6	017
5	L-87-6_061615	6/16/15	1150	5 - W		X	X	X							X		5-2.4	018
6																	6-0.6	
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
Chris LaDose	6/15/15 1430	[signature]	SEALED FOR SHIPMENT		
Received by Laboratory:	Date/Time:	Signature:			
	6/18/15 0915	[signature]			

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page _____ of _____

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments
1	TB4_061615	6/16/15	0800	1 - W		X	X								X		Cooler 1 - 2.7
2	EX-1_061615	6/16/15	1310	5 - W		X	X	X							X		2 - 4.4
3	LS-10_061615	6/16/15	1415	5 - W		X	X	X							X		3 - 0.4
4	EX-54_061615	6/16/15	1530	5 - W		X	X	X							X		4 - 0.6
5	EX-24_061615	6/16/15	1820	8 - W	X	X		X							X		5 - 2.4
6	TB6_061615	6/16/15	0800	1 - W	X										X		6 - 0.6
7																	
8																	
9																	
10																	

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: Rtn UPS Grd

Cooler ID(s): TB

Receipt Temp _____ °C

On Ice: (Yes) No

Custody Seal (Y) N

Intact (Y) N

Signature Match (Y) N

LABORATORY USE ONLY: L15061723-019, 020, 021, 022, 023, 024

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Chris LaRose	6/17/15 1430		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
			6/18/15	0915	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

Page _____ of _____

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: Rto UPS Grd

Cooler ID(s): TB

Receipt Temp _____ °C

On Ice: (Yes) No

Custody Seal (Y) N

Intact (Y) N

Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	TB3_061615	6/16/15	0800	1 - W		X	X								X		Cooler 1 - 2.7	6/15 06/723-025
2	EX-63_061615	6/16/15	1720	5 - W		X	X	X							X		2 - 4.4	026
3	D3_061715	6/17/15	0800	9 - W		X	X	X	X						X		3 - 0.4	027
4	TB3_061715	6/17/15	0800	1 - W		X	X								X		4 - 0.6	028
5	EX-42_061715	6/17/15	0925	6 - W					X	X	X	X			X		5 - 2.4	029
6	EX-35_061715	6/17/15	1120	9 - W		X	X	X	X						X		6 - 0.6	030
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Chris LaRose	6/17/15 1430		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: 6/18/15 0915	Date/Time:	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Randa Nees

From: Wynn Pippin <wpippin@energylab.com>
Sent: Wednesday, June 17, 2015 3:00 PM
To: billings_login
Subject: FW: Task G - COC

FYI-they labeled these NAP on the COCs-we should be getting the samples tomorrow.

From: Amanda Aldersley [mailto:AmandaAldersley@KennedyJenks.com]
Sent: Wednesday, June 17, 2015 1:22 PM
To: Wynn Pippin
Cc: John Lee; Chris LaRose
Subject: Task G - COC

Hi Wynn – Just to confirm.

On the Task G COCs – in the analyses requested – we have listed "NAP" (natural attenuation parameters) in one of the columns.

The NAP required are as follows:

- Nitrogen, Nitrate, nitrite and ammonia as N (EPA Method 353.2350.1/350.3, respectively)
- Sulfate (EPA Method 300.0)
- Sulfide (EPA Method 376.2)
- Alkalinity (SM 2320B)
- Dissolved Manganese (EPA 6010/6020) – sample will be field filtered
- Dissolved Iron (EPA 6010/6020) – sample will be field filtered

Amanda

ANALYTICAL SUMMARY REPORT

July 08, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061869 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex-Task G

Energy Laboratories Inc Billings MT received the following 18 samples for Kennedy Jenks Consultants on 6/19/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061869-001	L-87-1_061815	06/18/15 9:45	06/19/15	Aqueous	Metals by ICP/ICPMS, Total EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Preparation by EPA 200.2 Digestion, Total P TKN preparation Phosphorus, Total
B15061869-002	TB2_061815	06/18/15 8:00	06/19/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061869-003	EX-2_061815	06/18/15 11:25	06/19/15	Aqueous	Metals by ICP/ICPMS, Total EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Preparation by EPA 200.2 Digestion, Total P TKN preparation Phosphorus, Total
B15061869-004	RX_061815	06/18/15 10:35	06/19/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061869-005	EX-10_061815	06/18/15 12:25	06/19/15	Aqueous	Same As Above
B15061869-006	TB5_061715	06/17/15 8:00	06/19/15	Trip Blank	Volatile Petroleum Hydrocarbons
B15061869-007	EX-6_061715	06/17/15 17:10	06/19/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061869-008	EX-5_061715	06/17/15 18:10	06/19/15	Aqueous	Same As Above
B15061869-009	EX-43_061715	06/17/15 19:25	06/19/15	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

B15061869-010	D1_061815	06/18/15 8:00	06/19/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061869-011	90-1C_061815	06/18/15 9:50	06/19/15	Aqueous	Same As Above
B15061869-012	95-1_061815	06/18/15 11:00	06/19/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15061869-013	LB-6_061815	06/18/15 12:10	06/19/15	Aqueous	Same As Above
B15061869-014	EX-28_061715	06/17/15 16:50	06/19/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons 8260-Volatile Organic Compounds-Short List
B15061869-015	EX-4_061715	06/17/15 17:50	06/19/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15061869-016	EX-29_061715	06/17/15 19:15	06/19/15	Aqueous	Metals by ICP/ICPMS, Total EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Preparation by EPA 200.2 Digestion, Total P TKN preparation Phosphorus, Total
B15061869-017	TB4_061715	06/17/15 8:00	06/19/15	Trip Blank	8260-Volatile Organic Compounds-Short List
B15061869-018	D2_061715	06/17/15 8:00	06/19/15	Aqueous	Metals by ICP/ICPMS, Total EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Preparation by EPA 200.2 Digestion, Total P TKN preparation Phosphorus, Total

ANALYTICAL SUMMARY REPORT

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Report Date: 07/08/15

CASE NARRATIVE

Fractionations with PAHs were added to the following samples per instructions on COC:

B15061869-010	D1_061815
B15061869-011	90-1C_061815
B15061869-015	EX-4_061715

DATES REPORT

Work Order: B15061869
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-T

Report Date: 07/08/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061869-001A	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Metals by ICP/ICPMS, Total		06/22/2015 E200.7 [90676]	6/23/2015
B15061869-001B	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061869-001B	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Nitrogen, Total (TKN+NO3+NO2)		NA	6/25/2015
B15061869-001B	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/22/2015 E351.2 [90677]	6/23/2015
B15061869-001B	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/23/2015 E351.2 [90762]	6/24/2015
B15061869-001B	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Phosphorus, Total		06/22/2015 E365.1 [90674]	6/22/2015
B15061869-001C	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/26/2015
B15061869-001D	L-87-1_061815	6/18/2015 9:45:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061869-002A	TB2_061815	6/18/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061869-003A	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Metals by ICP/ICPMS, Total		06/22/2015 E200.7 [90676]	6/23/2015
B15061869-003B	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061869-003B	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Nitrogen, Total (TKN+NO3+NO2)		NA	6/25/2015
B15061869-003B	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/22/2015 E351.2 [90677]	6/23/2015
B15061869-003B	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/23/2015 E351.2 [90762]	6/24/2015
B15061869-003B	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Phosphorus, Total		06/22/2015 E365.1 [90674]	6/22/2015
B15061869-003C	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-003D	EX-2_061815	6/18/2015 11:25:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061869-004A	RX_061815	6/18/2015 10:35:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-004B	RX_061815	6/18/2015 10:35:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061869-005A	EX-10_061815	6/18/2015 12:25:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-005B	EX-10_061815	6/18/2015 12:25:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061869-006A	TB5_061715	6/17/2015 8:00:00 AM	Trip Blank	Volatile Petroleum Hydrocarbons		NA	6/22/2015
B15061869-007A	EX-6_061715	6/17/2015 5:10:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-007B	EX-6_061715	6/17/2015 5:10:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-008A	EX-5_061715	6/17/2015 6:10:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-008B	EX-5_061715	6/17/2015 6:10:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-009A	EX-43_061715	6/17/2015 7:25:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-009B	EX-43_061715	6/17/2015 7:25:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015

DATES REPORT

Work Order: B15061869
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-T

Report Date: 07/08/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061869-010A	D1_061815	6/18/2015 8:00:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		07/02/2015 MA-EPH [91015]	7/4/2015
B15061869-010A	D1_061815	6/18/2015 8:00:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		07/02/2015 MA-EPH [91015]	7/4/2015
B15061869-010A	D1_061815	6/18/2015 8:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-010A	D1_061815	6/18/2015 8:00:00 AM	Aqueous	Low Level PAH		06/25/2015 SW8270C [91037]	7/3/2015
B15061869-010A	D1_061815	6/18/2015 8:00:00 AM	Aqueous	Low Level PAH		06/25/2015 SW8270C [91037]	7/3/2015
B15061869-010B	D1_061815	6/18/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-011A	90-1C_061815	6/18/2015 9:50:00 AM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		07/02/2015 MA-EPH [91015]	7/4/2015
B15061869-011A	90-1C_061815	6/18/2015 9:50:00 AM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		07/02/2015 MA-EPH [91015]	7/4/2015
B15061869-011A	90-1C_061815	6/18/2015 9:50:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-011A	90-1C_061815	6/18/2015 9:50:00 AM	Aqueous	Low Level PAH		06/25/2015 SW8270C [91037]	7/3/2015
B15061869-011A	90-1C_061815	6/18/2015 9:50:00 AM	Aqueous	Low Level PAH		06/25/2015 SW8270C [91037]	7/3/2015
B15061869-011B	90-1C_061815	6/18/2015 9:50:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-012A	95-1_061815	6/18/2015 11:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-012B	95-1_061815	6/18/2015 11:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-013A	LB-6_061815	6/18/2015 12:10:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-013B	LB-6_061815	6/18/2015 12:10:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-014A	EX-28_061715	6/17/2015 4:50:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-014B	EX-28_061715	6/17/2015 4:50:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-014C	EX-28_061715	6/17/2015 4:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/24/2015
B15061869-015A	EX-4_061715	6/17/2015 5:50:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		07/02/2015 MA-EPH [91015]	7/4/2015
B15061869-015A	EX-4_061715	6/17/2015 5:50:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		07/02/2015 MA-EPH [91015]	7/4/2015
B15061869-015A	EX-4_061715	6/17/2015 5:50:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-015A	EX-4_061715	6/17/2015 5:50:00 PM	Aqueous	Low Level PAH		06/25/2015 SW8270C [91037]	7/3/2015
B15061869-015A	EX-4_061715	6/17/2015 5:50:00 PM	Aqueous	Low Level PAH		06/25/2015 SW8270C [91037]	7/3/2015
B15061869-015B	EX-4_061715	6/17/2015 5:50:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015

DATES REPORT

Work Order: B15061869
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-T

Report Date: 07/08/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061869-016A	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Metals by ICP/ICPMS, Total		06/22/2015 E200.7 [90676]	6/23/2015
B15061869-016B	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061869-016B	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Nitrogen, Total (TKN+NO3+NO2)		NA	6/25/2015
B15061869-016B	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Nitrogen, Total Kjeldahl		06/22/2015 E351.2 [90677]	6/23/2015
B15061869-016B	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Nitrogen, Total Kjeldahl		06/23/2015 E351.2 [90762]	6/24/2015
B15061869-016B	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Phosphorus, Total		06/22/2015 E365.1 [90674]	6/22/2015
B15061869-016C	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/30/2015
B15061869-016D	EX-29_061715	6/17/2015 7:15:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015
B15061869-017A	TB4_061715	6/17/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/24/2015
B15061869-018A	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Metals by ICP/ICPMS, Total		06/22/2015 E200.7 [90676]	6/23/2015
B15061869-018B	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/22/2015
B15061869-018B	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Total (TKN+NO3+NO2)		NA	6/25/2015
B15061869-018B	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/22/2015 E351.2 [90677]	6/23/2015
B15061869-018B	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Nitrogen, Total Kjeldahl		06/23/2015 E351.2 [90762]	6/24/2015
B15061869-018B	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Phosphorus, Total		06/22/2015 E365.1 [90674]	6/22/2015
B15061869-018C	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/25/2015 SW8015M [90849]	6/29/2015
B15061869-018D	D2_061715	6/17/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/23/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-001
Client Sample ID: L-87-1_061815

Report Date: 07/08/15
Collection Date: 06/18/15 09:45
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.58	mg/L		0.01		E353.2	06/22/15 13:22 / bas
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	06/24/15 15:44 / cal
Nitrogen, Total	0.6	mg/L		0.5		Calculation	06/25/15 09:38 / jpv
Phosphorus, Total as P	0.014	mg/L		0.005		E365.1	06/22/15 14:04 / gap
METALS, TOTAL							
Potassium	2	mg/L		1		E200.7	06/23/15 19:24 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 17:11 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 17:11 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 17:11 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 17:11 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 17:11 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 17:11 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 17:11 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 17:11 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 17:11 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 17:11 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 17:11 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 17:11 / pbf
Surr: VPH Aromatics Surrogate	86.0	%REC		70-130		MA-VPH	06/22/15 17:11 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/22/15 17:11 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/26/15 14:43 / mdw
Surr: o-Terphenyl	84.0	%REC		40-140		SW8015M	06/26/15 14:43 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-002
Client Sample ID: TB2_061815

Report Date: 07/08/15
Collection Date: 06/18/15 08:00
DateReceived: 06/19/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 14:40 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 14:40 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 14:40 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 14:40 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 14:40 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 14:40 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 14:40 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 14:40 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 14:40 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 14:40 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 14:40 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 14:40 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/22/15 14:40 / pbf
Surr: VPH Aliphatics Surrogate	85.0	%REC		70-130		MA-VPH	06/22/15 14:40 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-003
Client Sample ID: EX-2_061815

Report Date: 07/08/15
Collection Date: 06/18/15 11:25
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.69	mg/L		0.01		E353.2	06/22/15 13:24 / bas
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	06/24/15 15:48 / cal
Nitrogen, Total	0.7	mg/L		0.5		Calculation	06/25/15 09:38 / jpv
Phosphorus, Total as P	0.018	mg/L		0.005		E365.1	06/22/15 14:05 / gap
METALS, TOTAL							
Potassium	2	mg/L		1		E200.7	06/23/15 19:27 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 21:42 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 21:42 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 21:42 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 21:42 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 21:42 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 21:42 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 21:42 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 21:42 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 21:42 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 21:42 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 21:42 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 21:42 / pbf
Surr: VPH Aromatics Surrogate	75.0	%REC		70-130		MA-VPH	06/22/15 21:42 / pbf
Surr: VPH Aliphatics Surrogate	80.0	%REC		70-130		MA-VPH	06/22/15 21:42 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 12:02 / mdw
Surr: o-Terphenyl	79.0	%REC		40-140		SW8015M	06/29/15 12:02 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-004
Client Sample ID: RX_061815

Report Date: 07/08/15
Collection Date: 06/18/15 10:35
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 22:24 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 22:24 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 22:24 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 22:24 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 22:24 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 22:24 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 22:24 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 22:24 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 22:24 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 22:24 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 22:24 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 22:24 / pbf
Surr: VPH Aromatics Surrogate	87.0	%REC		70-130		MA-VPH	06/22/15 22:24 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/22/15 22:24 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 12:47 / mdw
Surr: o-Terphenyl	74.0	%REC		40-140		SW8015M	06/29/15 12:47 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-005
Client Sample ID: EX-10_061815

Report Date: 07/08/15
Collection Date: 06/18/15 12:25
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 23:04 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 23:04 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 23:04 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 23:04 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 23:04 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 23:04 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 23:04 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 23:04 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 23:04 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 23:04 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 23:04 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 23:04 / pbf
Surr: VPH Aromatics Surrogate	84.0	%REC		70-130		MA-VPH	06/22/15 23:04 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/22/15 23:04 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 13:32 / mdw
Surr: o-Terphenyl	83.0	%REC		40-140		SW8015M	06/29/15 13:32 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-006
Client Sample ID: TB5_061715

Report Date: 07/08/15
Collection Date: 06/17/15 08:00
DateReceived: 06/19/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/22/15 15:30 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/22/15 15:30 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/22/15 15:30 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/22/15 15:30 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/22/15 15:30 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/22/15 15:30 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/22/15 15:30 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/22/15 15:30 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/22/15 15:30 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/22/15 15:30 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/22/15 15:30 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/22/15 15:30 / pbf
Surr: VPH Aromatics Surrogate	84.0	%REC		70-130		MA-VPH	06/22/15 15:30 / pbf
Surr: VPH Aliphatics Surrogate	85.0	%REC		70-130		MA-VPH	06/22/15 15:30 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-007
Client Sample ID: EX-6_061715

Report Date: 07/08/15
Collection Date: 06/17/15 17:10
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 00:10 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 00:10 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 00:10 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 00:10 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 00:10 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 00:10 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 00:10 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 00:10 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 00:10 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 00:10 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 00:10 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 00:10 / pbf
Surr: VPH Aromatics Surrogate	85.0	%REC		70-130		MA-VPH	06/23/15 00:10 / pbf
Surr: VPH Aliphatics Surrogate	89.0	%REC		70-130		MA-VPH	06/23/15 00:10 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 14:16 / mdw
Surr: o-Terphenyl	71.0	%REC		40-140		SW8015M	06/29/15 14:16 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-008
Client Sample ID: EX-5_061715

Report Date: 07/08/15
Collection Date: 06/17/15 18:10
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 00:52 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 00:52 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 00:52 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 00:52 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 00:52 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 00:52 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 00:52 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 00:52 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 00:52 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 00:52 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 00:52 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 00:52 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/23/15 00:52 / pbf
Surr: VPH Aliphatics Surrogate	87.0	%REC		70-130		MA-VPH	06/23/15 00:52 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 15:45 / mdw
Surr: o-Terphenyl	80.0	%REC		40-140		SW8015M	06/29/15 15:45 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-009
Client Sample ID: EX-43_061715

Report Date: 07/08/15
Collection Date: 06/17/15 19:25
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 02:14 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 02:14 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 02:14 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 02:14 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 02:14 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 02:14 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 02:14 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 02:14 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 02:14 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 02:14 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 02:14 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 02:14 / pbf
Surr: VPH Aromatics Surrogate	84.0	%REC		70-130		MA-VPH	06/23/15 02:14 / pbf
Surr: VPH Aliphatics Surrogate	88.0	%REC		70-130		MA-VPH	06/23/15 02:14 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 16:29 / mdw
Surr: o-Terphenyl	79.0	%REC		40-140		SW8015M	06/29/15 16:29 / mdw

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-010
Client Sample ID: D1_061815

Report Date: 07/08/15
Collection Date: 06/18/15 08:00
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 04:10 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 04:10 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 04:10 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 04:10 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 04:10 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 04:10 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 04:10 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 04:10 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 04:10 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 04:10 / pbf
C9 to C12 Aliphatics	27	ug/L		20	1000	MA-VPH	06/23/15 04:10 / pbf
Total Purgeable Hydrocarbons	43	ug/L		20	1000	MA-VPH	06/23/15 04:10 / pbf
Surr: VPH Aromatics Surrogate	94.0	%REC		70-130		MA-VPH	06/23/15 04:10 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/23/15 04:10 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	4360	ug/L	*	300	1000	SW8015M	06/29/15 17:57 / mdw
Surr: o-Terphenyl	74.0	%REC		40-140		SW8015M	06/29/15 17:57 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/04/15 11:20 / mdw
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/04/15 11:20 / mdw
Surr: 1-Chloro-octadecane	88.0	%REC		40-140		MA-EPH	07/04/15 11:20 / mdw
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 12:03 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 12:03 / mdw
Surr: 2-Bromonaphthalene	82.0	%REC		40-140		MA-EPH	07/04/15 12:03 / mdw
Surr: 2-Fluorobiphenyl	92.0	%REC		40-140		MA-EPH	07/04/15 12:03 / mdw
Surr: o-Terphenyl	71.0	%REC		40-140		MA-EPH	07/04/15 12:03 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/03/15 03:27 / dsm
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/03/15 03:27 / dsm
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/03/15 03:27 / dsm
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/03/15 03:27 / dsm
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 03:27 / dsm
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/03/15 03:27 / dsm
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 03:27 / dsm
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/03/15 03:27 / dsm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-010
Client Sample ID: D1_061815

Report Date: 07/08/15
Collection Date: 06/18/15 08:00
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/03/15 03:27 / dsm
Chrysene	ND	ug/L		0.19	50	SW8270C	07/03/15 03:27 / dsm
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/03/15 03:27 / dsm
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/03/15 03:27 / dsm
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/03/15 03:27 / dsm
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 03:27 / dsm
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/03/15 03:27 / dsm
Phenanthrene	ND	ug/L		0.19		SW8270C	07/03/15 03:27 / dsm
Pyrene	ND	ug/L		0.19	830	SW8270C	07/03/15 03:27 / dsm
Surr: 2-Fluorobiphenyl	74.0	%REC		40-140		SW8270C	07/03/15 03:57 / dsm
Surr: o-Terphenyl	53.0	%REC		40-140		SW8270C	07/03/15 03:57 / dsm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-011
Client Sample ID: 90-1C_061815

Report Date: 07/08/15
Collection Date: 06/18/15 09:50
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 05:49 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 05:49 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 05:49 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 05:49 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 05:49 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 05:49 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 05:49 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 05:49 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 05:49 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 05:49 / pbf
C9 to C12 Aliphatics	28	ug/L		20	1000	MA-VPH	06/23/15 05:49 / pbf
Total Purgeable Hydrocarbons	46	ug/L		20	1000	MA-VPH	06/23/15 05:49 / pbf
Surr: VPH Aromatics Surrogate	97.0	%REC		70-130		MA-VPH	06/23/15 05:49 / pbf
Surr: VPH Aliphatics Surrogate	94.0	%REC		70-130		MA-VPH	06/23/15 05:49 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	5030	ug/L	*	300	1000	SW8015M	06/29/15 21:37 / tmc
Surr: o-Terphenyl	55.0	%REC		40-140		SW8015M	06/29/15 21:37 / tmc
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/04/15 12:45 / mdw
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/04/15 12:45 / mdw
Surr: 1-Chloro-octadecane	46.0	%REC		40-140		MA-EPH	07/04/15 12:45 / mdw
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 13:28 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 13:28 / mdw
Surr: 2-Bromonaphthalene	80.0	%REC		40-140		MA-EPH	07/04/15 13:28 / mdw
Surr: 2-Fluorobiphenyl	91.0	%REC		40-140		MA-EPH	07/04/15 13:28 / mdw
Surr: o-Terphenyl	53.0	%REC		40-140		MA-EPH	07/04/15 13:28 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/03/15 04:27 / dsm
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/03/15 04:27 / dsm
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/03/15 04:27 / dsm
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/03/15 04:27 / dsm
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 04:27 / dsm
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/03/15 04:27 / dsm
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 04:27 / dsm
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/03/15 04:27 / dsm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-011
Client Sample ID: 90-1C_061815

Report Date: 07/08/15
Collection Date: 06/18/15 09:50
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/03/15 04:27 / dsm
Chrysene	ND	ug/L		0.19	50	SW8270C	07/03/15 04:27 / dsm
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/03/15 04:27 / dsm
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/03/15 04:27 / dsm
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/03/15 04:27 / dsm
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 04:27 / dsm
Naphthalene	0.22	ug/L	B	0.19	100	SW8270C	07/03/15 04:27 / dsm
Phenanthrene	0.20	ug/L	B	0.19		SW8270C	07/03/15 04:27 / dsm
Pyrene	ND	ug/L		0.19	830	SW8270C	07/03/15 04:27 / dsm
Surr: 2-Fluorobiphenyl	73.0	%REC		40-140		SW8270C	07/03/15 04:57 / dsm
Surr: o-Terphenyl	39.0	%REC	S	40-140		SW8270C	07/03/15 04:57 / dsm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-012
Client Sample ID: 95-1_061815

Report Date: 07/08/15
Collection Date: 06/18/15 11:00
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 07:18 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 07:18 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 07:18 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 07:18 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 07:18 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 07:18 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 07:18 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 07:18 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 07:18 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 07:18 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 07:18 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 07:18 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/23/15 07:18 / pbf
Surr: VPH Aliphatics Surrogate	84.0	%REC		70-130		MA-VPH	06/23/15 07:18 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 20:10 / tmc
Surr: o-Terphenyl	87.0	%REC		40-140		SW8015M	06/29/15 20:10 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-013
Client Sample ID: LB-6_061815

Report Date: 07/08/15
Collection Date: 06/18/15 12:10
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 08:38 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 08:38 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 08:38 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 08:38 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 08:38 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 08:38 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 08:38 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 08:38 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 08:38 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 08:38 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 08:38 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 08:38 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/23/15 08:38 / pbf
Surr: VPH Aliphatics Surrogate	89.0	%REC		70-130		MA-VPH	06/23/15 08:38 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 20:54 / tmc
Surr: o-Terphenyl	87.0	%REC		40-140		SW8015M	06/29/15 20:54 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-014
Client Sample ID: EX-28_061715

Report Date: 07/08/15
Collection Date: 06/17/15 16:50
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 17:29 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 17:29 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Tetrachloroethene	1.5	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-014
Client Sample ID: EX-28_061715

Report Date: 07/08/15
Collection Date: 06/17/15 16:50
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.27	ug/L	J	0.50		SW8260B	06/24/15 17:29 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 17:29 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 17:29 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/24/15 17:29 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/24/15 17:29 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/24/15 17:29 / nl
Surr: p-Bromofluorobenzene	120	%REC		76-127		SW8260B	06/24/15 17:29 / nl
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 09:16 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 09:16 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 09:16 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 09:16 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 09:16 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 09:16 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 09:16 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 09:16 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 09:16 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 09:16 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 09:16 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 09:16 / pbf
Surr: VPH Aromatics Surrogate	85.0	%REC		70-130		MA-VPH	06/23/15 09:16 / pbf
Surr: VPH Aliphatics Surrogate	86.0	%REC		70-130		MA-VPH	06/23/15 09:16 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 23:05 / tmc
Surr: o-Terphenyl	87.0	%REC		40-140		SW8015M	06/29/15 23:05 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:

RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-015
Client Sample ID: EX-4_061715

Report Date: 07/08/15
Collection Date: 06/17/15 17:50
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 09:52 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 09:52 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 09:52 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 09:52 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 09:52 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 09:52 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 09:52 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 09:52 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 09:52 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 09:52 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 09:52 / pbf
Total Purgeable Hydrocarbons	29	ug/L		20	1000	MA-VPH	06/23/15 09:52 / pbf
Surr: VPH Aromatics Surrogate	82.0	%REC		70-130		MA-VPH	06/23/15 09:52 / pbf
Surr: VPH Aliphatics Surrogate	83.0	%REC		70-130		MA-VPH	06/23/15 09:52 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	1770	ug/L	*	300	1000	SW8015M	06/29/15 17:13 / mdw
Surr: o-Terphenyl	54.0	%REC		40-140		SW8015M	06/29/15 17:13 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/04/15 09:55 / mdw
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/04/15 09:55 / mdw
Surr: 1-Chloro-octadecane	53.0	%REC		40-140		MA-EPH	07/04/15 09:55 / mdw
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/04/15 10:38 / mdw
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/04/15 10:38 / mdw
Surr: 2-Bromonaphthalene	84.0	%REC		40-140		MA-EPH	07/04/15 10:38 / mdw
Surr: 2-Fluorobiphenyl	93.0	%REC		40-140		MA-EPH	07/04/15 10:38 / mdw
Surr: o-Terphenyl	62.0	%REC		40-140		MA-EPH	07/04/15 10:38 / mdw
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/03/15 05:28 / dsm
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/03/15 05:28 / dsm
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/03/15 05:28 / dsm
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/03/15 05:28 / dsm
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 05:28 / dsm
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/03/15 05:28 / dsm
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 05:28 / dsm
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/03/15 05:28 / dsm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-015
Client Sample ID: EX-4_061715

Report Date: 07/08/15
Collection Date: 06/17/15 17:50
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/03/15 05:28 / dsm
Chrysene	ND	ug/L		0.19	50	SW8270C	07/03/15 05:28 / dsm
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/03/15 05:28 / dsm
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/03/15 05:28 / dsm
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/03/15 05:28 / dsm
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/03/15 05:28 / dsm
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/03/15 05:28 / dsm
Phenanthrene	0.21	ug/L	B	0.19		SW8270C	07/03/15 05:28 / dsm
Pyrene	ND	ug/L		0.19	830	SW8270C	07/03/15 05:28 / dsm
Surr: 2-Fluorobiphenyl	71.0	%REC		40-140		SW8270C	07/03/15 05:58 / dsm
Surr: o-Terphenyl	44.0	%REC		40-140		SW8270C	07/03/15 05:58 / dsm

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-016
Client Sample ID: EX-29_061715

Report Date: 07/08/15
Collection Date: 06/17/15 19:15
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	06/22/15 13:27 / bas
Nitrogen, Kjeldahl, Total as N	0.6	mg/L		0.5		E351.2	06/24/15 15:49 / cal
Nitrogen, Total	0.6	mg/L		0.5		Calculation	06/25/15 09:38 / jpv
Phosphorus, Total as P	0.041	mg/L		0.005		E365.1	06/22/15 14:06 / gap
METALS, TOTAL							
Potassium	3	mg/L		1		E200.7	06/23/15 19:31 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 10:29 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 10:29 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 10:29 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 10:29 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 10:29 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 10:29 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 10:29 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 10:29 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 10:29 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 10:29 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 10:29 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 10:29 / pbf
Surr: VPH Aromatics Surrogate	81.0	%REC		70-130		MA-VPH	06/23/15 10:29 / pbf
Surr: VPH Aliphatics Surrogate	82.0	%REC		70-130		MA-VPH	06/23/15 10:29 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/30/15 00:32 / tmc
Surr: o-Terphenyl	80.0	%REC		40-140		SW8015M	06/30/15 00:32 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-017
Client Sample ID: TB4_061715

Report Date: 07/08/15
Collection Date: 06/17/15 08:00
DateReceived: 06/19/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 17:00 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 17:00 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-017
Client Sample ID: TB4_061715

Report Date: 07/08/15
Collection Date: 06/17/15 08:00
DateReceived: 06/19/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 17:00 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 17:00 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/24/15 17:00 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/24/15 17:00 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/24/15 17:00 / nl
Surr: p-Bromofluorobenzene	118	%REC		76-127		SW8260B	06/24/15 17:00 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G
Lab ID: B15061869-018
Client Sample ID: D2_061715

Report Date: 07/08/15
Collection Date: 06/17/15 08:00
DateReceived: 06/19/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	06/22/15 13:31 / bas
Nitrogen, Kjeldahl, Total as N	0.6	mg/L		0.5		E351.2	06/24/15 15:50 / cal
Nitrogen, Total	0.6	mg/L		0.5		Calculation	06/25/15 09:38 / jpv
Phosphorus, Total as P	0.041	mg/L		0.005		E365.1	06/22/15 14:07 / gap
METALS, TOTAL							
Potassium	2	mg/L		1		E200.7	06/23/15 19:34 / prw
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/23/15 11:06 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/23/15 11:06 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/23/15 11:06 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/23/15 11:06 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/23/15 11:06 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/23/15 11:06 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/23/15 11:06 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/23/15 11:06 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/23/15 11:06 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/23/15 11:06 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/23/15 11:06 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/23/15 11:06 / pbf
Surr: VPH Aromatics Surrogate	80.0	%REC		70-130		MA-VPH	06/23/15 11:06 / pbf
Surr: VPH Aliphatics Surrogate	83.0	%REC		70-130		MA-VPH	06/23/15 11:06 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	06/29/15 23:48 / tmc
Surr: o-Terphenyl	77.0	%REC		40-140		SW8015M	06/29/15 23:48 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E351.2								Analytical Run: FIA204-B_150624A	
Lab ID: ICV	Initial Calibration Verification Standard							06/24/15 15:33	
Nitrogen, Kjeldahl, Total as N	9.53	mg/L	0.50	95	90	110			
Method: E351.2								Batch: 90762	
Lab ID: MB-90762	Method Blank				Run: FIA204-B_150624A			06/24/15 15:35	
Nitrogen, Kjeldahl, Total as N	ND	mg/L	0.2						
Lab ID: LCS-90762	Laboratory Control Sample				Run: FIA204-B_150624A			06/24/15 15:36	
Nitrogen, Kjeldahl, Total as N	9.48	mg/L	0.50	95	90	110			
Lab ID: B15061869-001BMS	Sample Matrix Spike				Run: FIA204-B_150624A			06/24/15 15:45	
Nitrogen, Kjeldahl, Total as N	9.76	mg/L	0.50	98	90	110			
Lab ID: B15061869-001BMSD	Sample Matrix Spike Duplicate				Run: FIA204-B_150624A			06/24/15 15:46	
Nitrogen, Kjeldahl, Total as N	9.78	mg/L	0.50	98	90	110	0.2	10	
Lab ID: B15062023-005DMS	Sample Matrix Spike				Run: FIA204-B_150624A			06/24/15 16:09	
Nitrogen, Kjeldahl, Total as N	9.79	mg/L	0.50	98	90	110			
Lab ID: B15062023-005DMSD	Sample Matrix Spike Duplicate				Run: FIA204-B_150624A			06/24/15 16:10	
Nitrogen, Kjeldahl, Total as N	9.66	mg/L	0.50	97	90	110	1.3	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/26/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-B_150622A	
Lab ID: ICV	Initial Calibration Verification Standard							06/22/15 10:28	
Nitrogen, Nitrate+Nitrite as N	0.565	mg/L	0.010	100	90	110			
Method: E353.2								Batch: R244879	
Lab ID: MBLK	Method Blank				Run: FIA203-B_150622A			06/22/15 10:30	
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.010						
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-B_150622A			06/22/15 10:31	
Nitrogen, Nitrate+Nitrite as N	0.987	mg/L	0.010	99	90	110			
Lab ID: B15061869-016BMS	Sample Matrix Spike				Run: FIA203-B_150622A			06/22/15 13:28	
Nitrogen, Nitrate+Nitrite as N	0.948	mg/L	0.010	91	90	110			
Lab ID: B15061869-016BMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150622A			06/22/15 13:30	
Nitrogen, Nitrate+Nitrite as N	0.961	mg/L	0.010	93	90	110	1.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex-Task G

Report Date: 06/26/15
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E365.1								Analytical Run: FIA202-B_150622A	
Lab ID: ICV	Initial Calibration Verification Standard							06/22/15 13:18	
Phosphorus, Total as P	0.518	mg/L	0.0050	104	90	110			
Method: E365.1								Batch: 90674	
Lab ID: MB-90674	Method Blank				Run: FIA202-B_150622A			06/22/15 13:55	
Phosphorus, Total as P	0.003	mg/L	0.003						
Lab ID: LCS-90674	Laboratory Control Sample				Run: FIA202-B_150622A			06/22/15 13:56	
Phosphorus, Total as P	0.191	mg/L	0.0050	94	90	110			
Lab ID: B15061828-003CMS	Sample Matrix Spike				Run: FIA202-B_150622A			06/22/15 13:58	
Phosphorus, Total as P	0.193	mg/L	0.0050	95	90	110			
Lab ID: B15061828-003CMSD	Sample Matrix Spike Duplicate				Run: FIA202-B_150622A			06/22/15 13:59	
Phosphorus, Total as P	0.193	mg/L	0.0050	95	90	110	0.0	10	
Lab ID: B15061880-001DMS	Sample Matrix Spike				Run: FIA202-B_150622A			06/22/15 14:09	
Phosphorus, Total as P	0.248	mg/L	0.0050	100	90	110			
Lab ID: B15061880-001DMSD	Sample Matrix Spike Duplicate				Run: FIA202-B_150622A			06/22/15 14:11	
Phosphorus, Total as P	0.247	mg/L	0.0050	100	90	110	0.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex-Task G **Work Order:** B15061869

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_150623A	
Lab ID: ICV		Continuing Calibration Verification Standard							06/23/15 11:08	
Potassium		24.6	mg/L	1.0	98	95	105			
Method: E200.7									Batch: 90676	
Lab ID: MB-90676		Method Blank				Run: ICP203-B_150623A			06/23/15 18:52	
Potassium		ND	mg/L	0.05						
Lab ID: LCS-90676		Laboratory Control Sample				Run: ICP203-B_150623A			06/23/15 18:56	
Potassium		26.7	mg/L	1.0	107	85	115			
Lab ID: B15061864-001CMS3		Sample Matrix Spike				Run: ICP203-B_150623A			06/23/15 19:17	
Potassium		30.1	mg/L	1.0	107	70	130			
Lab ID: B15061864-001CMSD		Sample Matrix Spike Duplicate				Run: ICP203-B_150623A			06/23/15 19:20	
Potassium		30.2	mg/L	1.0	108	70	130	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Analytical Run: R245085
Lab ID: CCV_0622PE205r-W	Continuing Calibration Verification Standard								06/22/15 12:05
1,2,4-Trimethylbenzene	22.7	ug/L	1.0	91	75	125			
2,2,4-Trimethylpentane	23.0	ug/L	1.0	92	75	125			
2-Methylpentane	24.2	ug/L	1.0	97	75	125			
n-Butylcyclohexane	22.6	ug/L	1.0	90	75	125			
n-Decane	23.9	ug/L	1.0	96	75	125			
Methyl tert-butyl ether (MTBE)	23.1	ug/L	1.0	92	75	125			
Benzene	22.9	ug/L	0.50	92	75	125			
Toluene	22.9	ug/L	0.50	92	75	125			
Ethylbenzene	22.8	ug/L	0.50	91	75	125			
m+p-Xylenes	45.5	ug/L	0.50	91	75	125			
o-Xylene	22.8	ug/L	0.50	91	75	125			
Naphthalene	24.7	ug/L	1.0	99	75	125			
n-Pentane	25.3	ug/L	1.0	101	75	125			
Surr: VPH Aromatics Surrogate			1.0	91	75	125			
Surr: VPH Aliphatics Surrogate			1.0	95	75	125			
Method: MA-VPH									Batch: R245085
Lab ID: LCS_0622PE206r	Laboratory Control Sample				Run: PE2_150622A				06/22/15 12:42
1,2,4-Trimethylbenzene	23.0	ug/L	1.0	92	70	130			
2,2,4-Trimethylpentane	22.3	ug/L	1.0	89	70	130			
2-Methylpentane	21.2	ug/L	1.0	85	70	130			
n-Butylcyclohexane	23.8	ug/L	1.0	95	70	130			
n-Decane	24.8	ug/L	1.0	99	70	130			
Methyl tert-butyl ether (MTBE)	22.8	ug/L	1.0	91	70	130			
Benzene	22.7	ug/L	0.50	91	70	130			
Toluene	22.7	ug/L	0.50	91	70	130			
Ethylbenzene	22.7	ug/L	0.50	91	70	130			
m+p-Xylenes	46.1	ug/L	0.50	92	70	130			
o-Xylene	23.0	ug/L	0.50	92	70	130			
Naphthalene	24.8	ug/L	1.0	99	70	130			
Total Purgeable Hydrocarbons	347	ug/L	20	92	70	130			
n-Pentane	22.6	ug/L	1.0	90	70	130			
Surr: VPH Aromatics Surrogate			1.0	86	70	130			
Surr: VPH Aliphatics Surrogate			1.0	88	70	130			
Lab ID: MBLK_0622PE208r	Method Blank				Run: PE2_150622A				06/22/15 14:01
Methyl tert-butyl ether (MTBE)	ND	ug/L	1.0						
Benzene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Batch: R245085
Lab ID: MBLK_0622PE208r	Method Blank				Run: PE2_150622A				06/22/15 14:01
Naphthalene	ND	ug/L	1.0						
C9 to C10 Aromatics	ND	ug/L	20						
C5 to C8 Aliphatics	ND	ug/L	20						
C9 to C12 Aliphatics	ND	ug/L	20						
Total Purgeable Hydrocarbons	ND	ug/L	20						
Surr: VPH Aromatics Surrogate			1.0	86	70	130			
Surr: VPH Aliphatics Surrogate			1.0	90	70	130			
Lab ID: B15061869-001DMS	Sample Matrix Spike				Run: PE2_150622A				06/22/15 18:03
Methyl tert-butyl ether (MTBE)	38.7	ug/L	2.0	77	70	130			
Benzene	40.4	ug/L	1.0	81	70	130			
Toluene	40.3	ug/L	1.0	81	70	130			
Ethylbenzene	40.4	ug/L	1.0	81	70	130			
m+p-Xylenes	81.9	ug/L	1.0	82	70	130			
o-Xylene	41.0	ug/L	1.0	82	70	130			
Naphthalene	42.7	ug/L	2.0	85	70	130			
Total Purgeable Hydrocarbons	599	ug/L	40	80	70	130			
Surr: VPH Aromatics Surrogate			2.0	88	70	130			
Surr: VPH Aliphatics Surrogate			2.0	83	70	130			
Lab ID: B15061869-001DMSD	Sample Matrix Spike Duplicate				Run: PE2_150622A				06/22/15 18:46
Methyl tert-butyl ether (MTBE)	44.5	ug/L	2.0	89	70	130	14	20	
Benzene	46.0	ug/L	1.0	92	70	130	13	20	
Toluene	46.1	ug/L	1.0	92	70	130	13	20	
Ethylbenzene	46.3	ug/L	1.0	93	70	130	13	20	
m+p-Xylenes	94.0	ug/L	1.0	94	70	130	14	20	
o-Xylene	47.0	ug/L	1.0	94	70	130	14	20	
Naphthalene	50.2	ug/L	2.0	100	70	130	16	20	
Total Purgeable Hydrocarbons	719	ug/L	40	96	70	130	18	20	
Surr: VPH Aromatics Surrogate			2.0	89	70	130			
Surr: VPH Aliphatics Surrogate			2.0	93	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

L-87-1_061815

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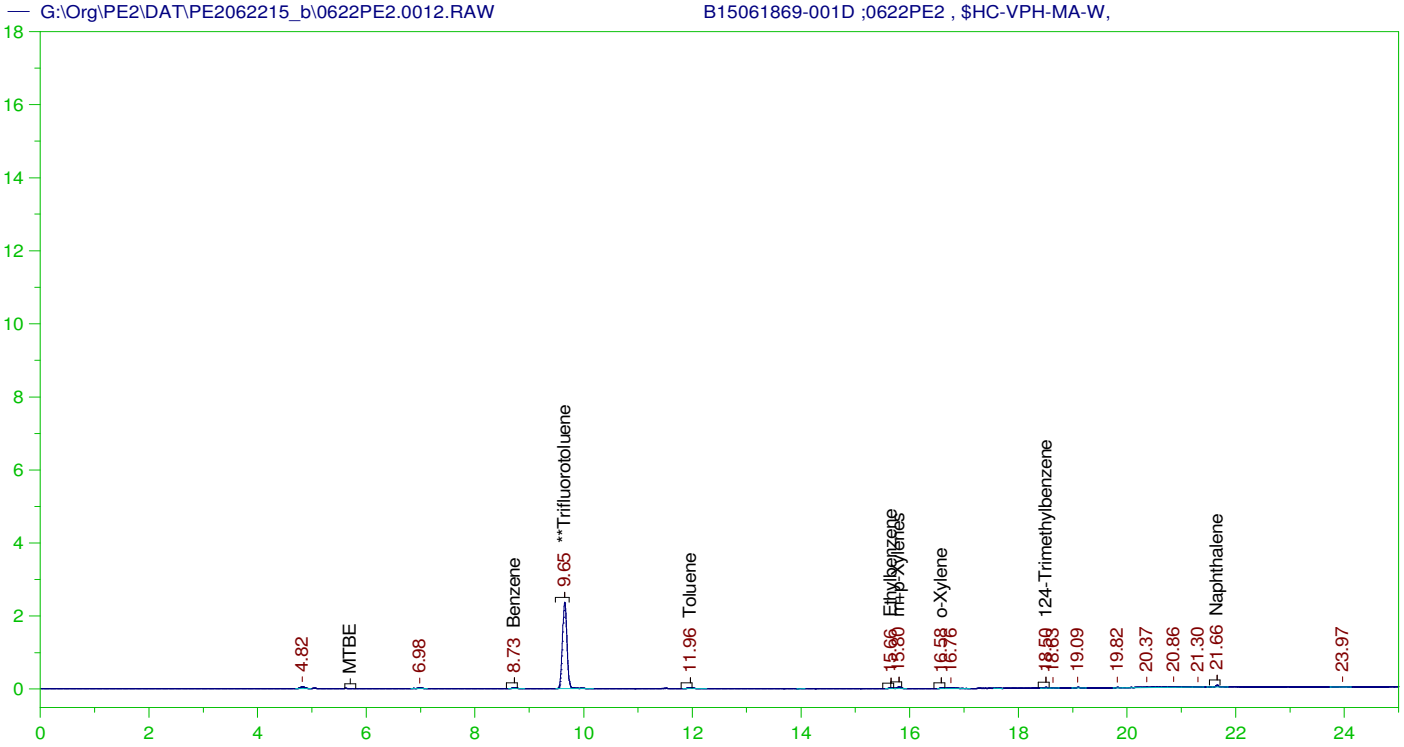

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-001D ;0622PE2 , $HC-VPH-MA-W,
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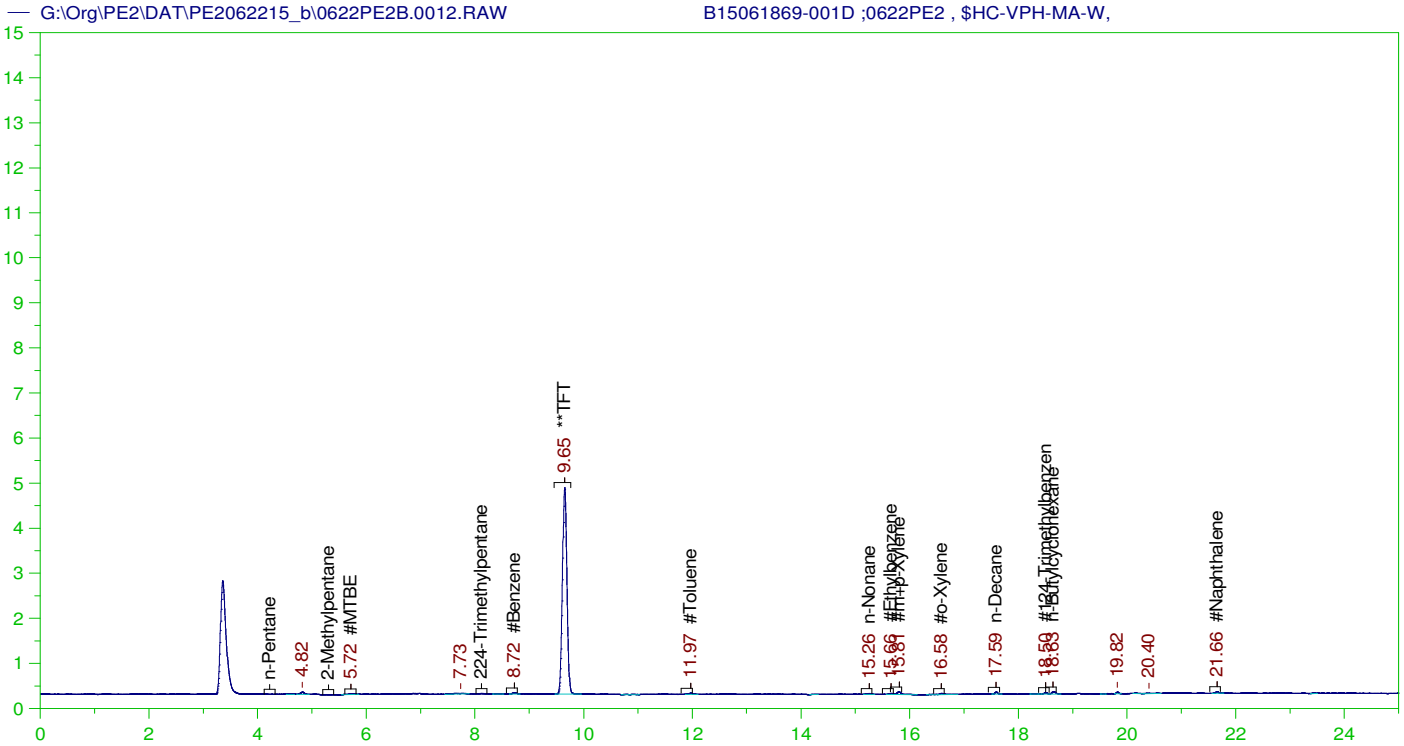
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1139.956 C9-C10 Aromatics Amount: 0.7183412

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.725	8.725	8.725	122	.5	U
Toluene	11.963	11.963	11.963	226	.5	U
Ethylbenzene	15.658	15.658	15.658	99	.5	U
m+p-Xylenes	15.803	15.803	15.803	241	.5	U
o-Xylene	16.584	16.584	16.584	107	.5	U
124-Trimethylbenzene	18.504	18.504	18.504	109	.5	U
Naphthalene	21.66	21.66	21.66	191	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.652	25.	21.413	85.65	70-130

L-87-1_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-001D ;0622PE2 , $HC-VPH-MA-W,
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Date & Time Acquired: 6/22/2015 5:11:47 PM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

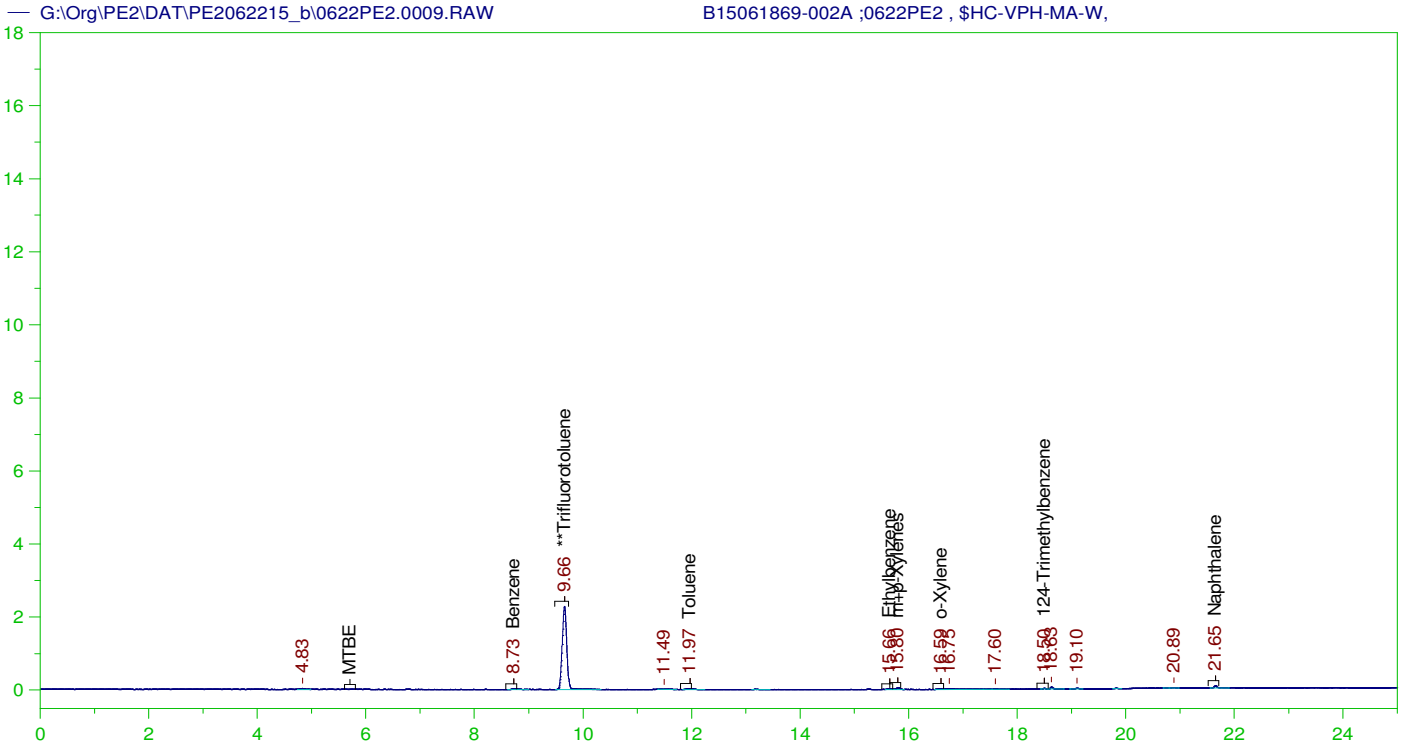
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.652	25.	22.427	89.71 -

GRO Area:1660.592 GRO Amount: 1.124292
TPH Area:2818.73 TPH Amount: 1.908402

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1067.283 C5-C8 Amount: 0.9417644
C9-C12 Area:1566.141 C9-C12 Amount: 1.439683

TB2_061815



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

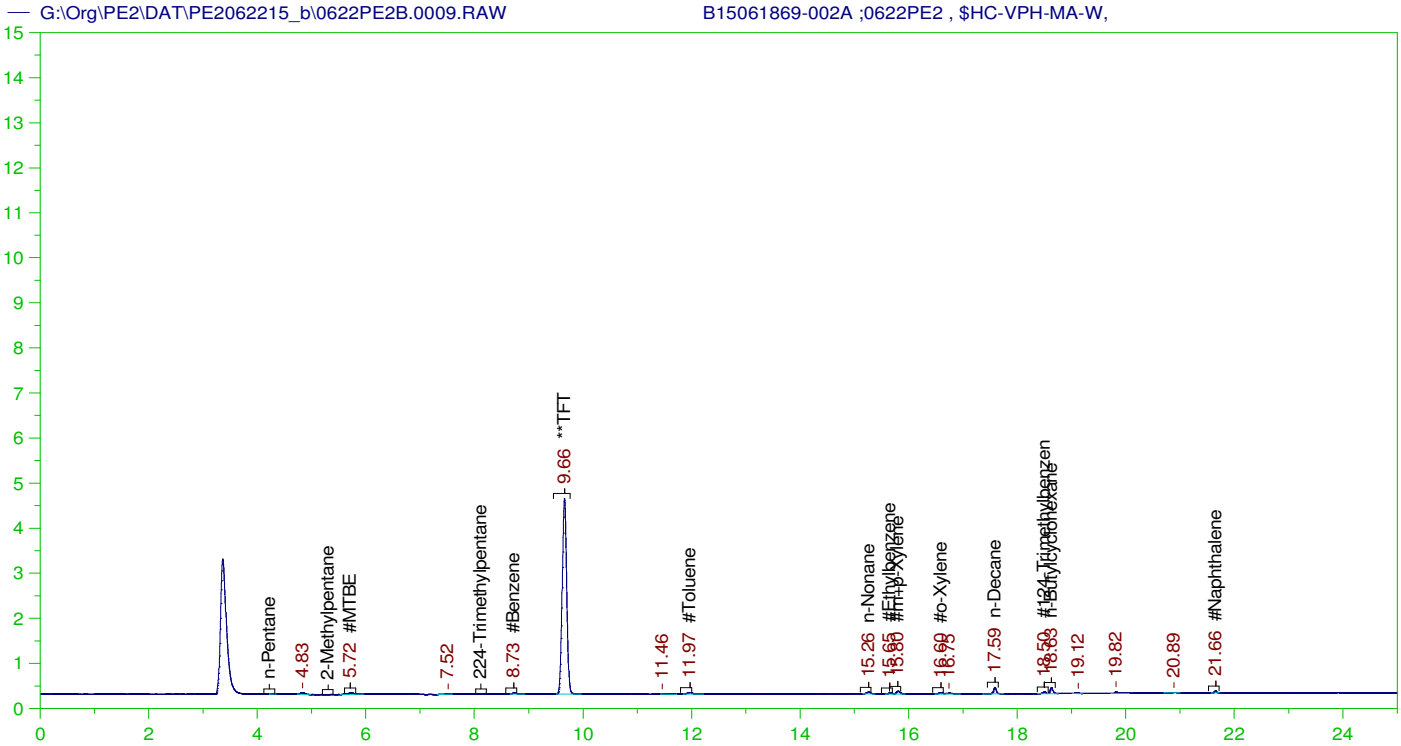
Sample Name: B15061869-002A ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0009.RAW
Date & Time Acquired: 6/22/2015 2:40:48 PM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:970.5505 C9-C10 Aromatics Amount: 0.6115907

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.728	8.728	8.728	153	.5	U
Toluene	11.972	11.972	11.972	213	.5	U
Ethylbenzene	15.657	15.657	15.657	103	.5	U
m+p-Xylenes	15.805	15.805	15.805	252	.5	U
o-Xylene	16.595	16.595	16.595	130	.5	U
124-Trimethylbenzene	18.503	18.503	18.503	96	.5	U
Naphthalene	.	.	.	234	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.659	25.	20.802	83.21	70-130

TB2_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-002A ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0009.RAW
Date & Time Acquired: 6/22/2015 2:40:48 PM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

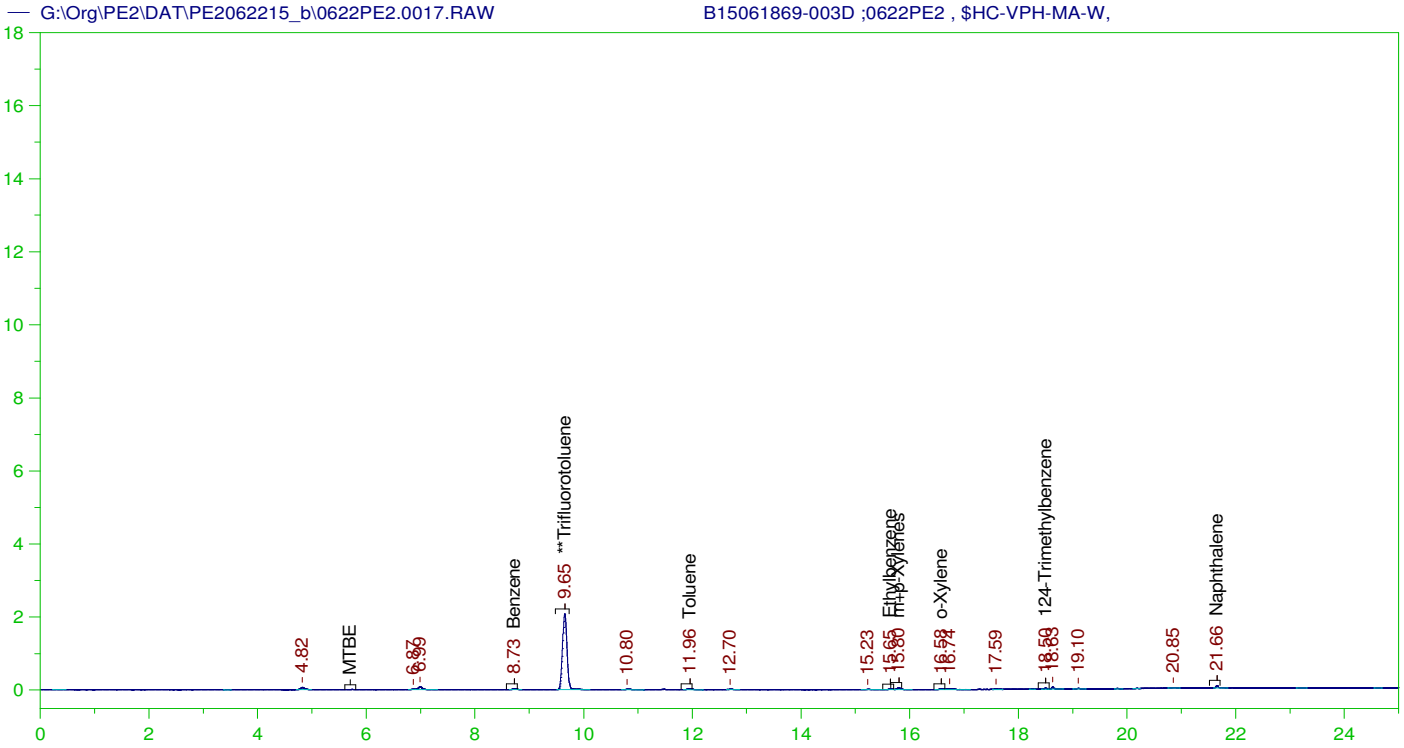
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.659	25.	21.296	85.18 -

GRO Area:2391.291 GRO Amount: 1.619007
TPH Area:3715.92 TPH Amount: 2.515838

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1024.422 C5-C8 Amount: 0.9039437
C9-C12 Area:2558.775 C9-C12 Amount: 2.352167

EX-2_061815



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

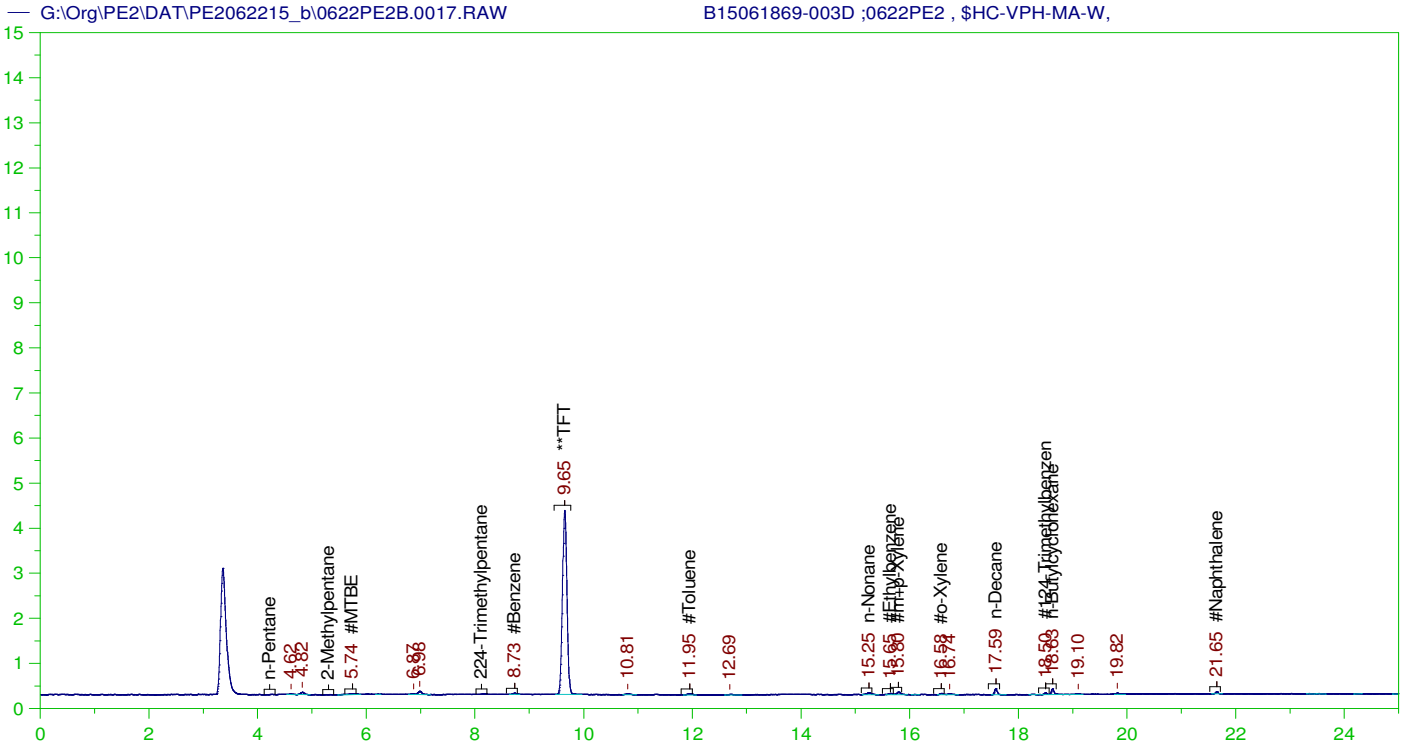
Sample Name: B15061869-003D ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0017.RAW
Date & Time Acquired: 6/22/2015 9:42:34 PM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:973.9675 C9-C10 Aromatics Amount: 0.613744

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.727	8.727	8.727	138	.5	U
Toluene	11.961	11.961	11.961	186	.5	U
Ethylbenzene	15.647	15.647	15.647	116	.5	U
m+p-Xylenes	15.799	15.799	15.799	299	.5	U
o-Xylene	16.583	16.583	16.583	134	.5	U
124-Trimethylbenzene	18.499	18.499	18.499	133	.5	U
Naphthalene	21.655	21.655	21.655	214	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.653	25.	18.799	75.19	70-130

EX-2_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-003D ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0017.RAW
Date & Time Acquired: 6/22/2015 9:42:34 PM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.653	25.	19.928	79.71 -

GRO Area:2539.467 GRO Amount: 1.719329
TPH Area:3991.156 TPH Amount: 2.702185

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1472.33 C5-C8 Amount: 1.299175
C9-C12 Area:2258.187 C9-C12 Amount: 2.07585

RX_061815

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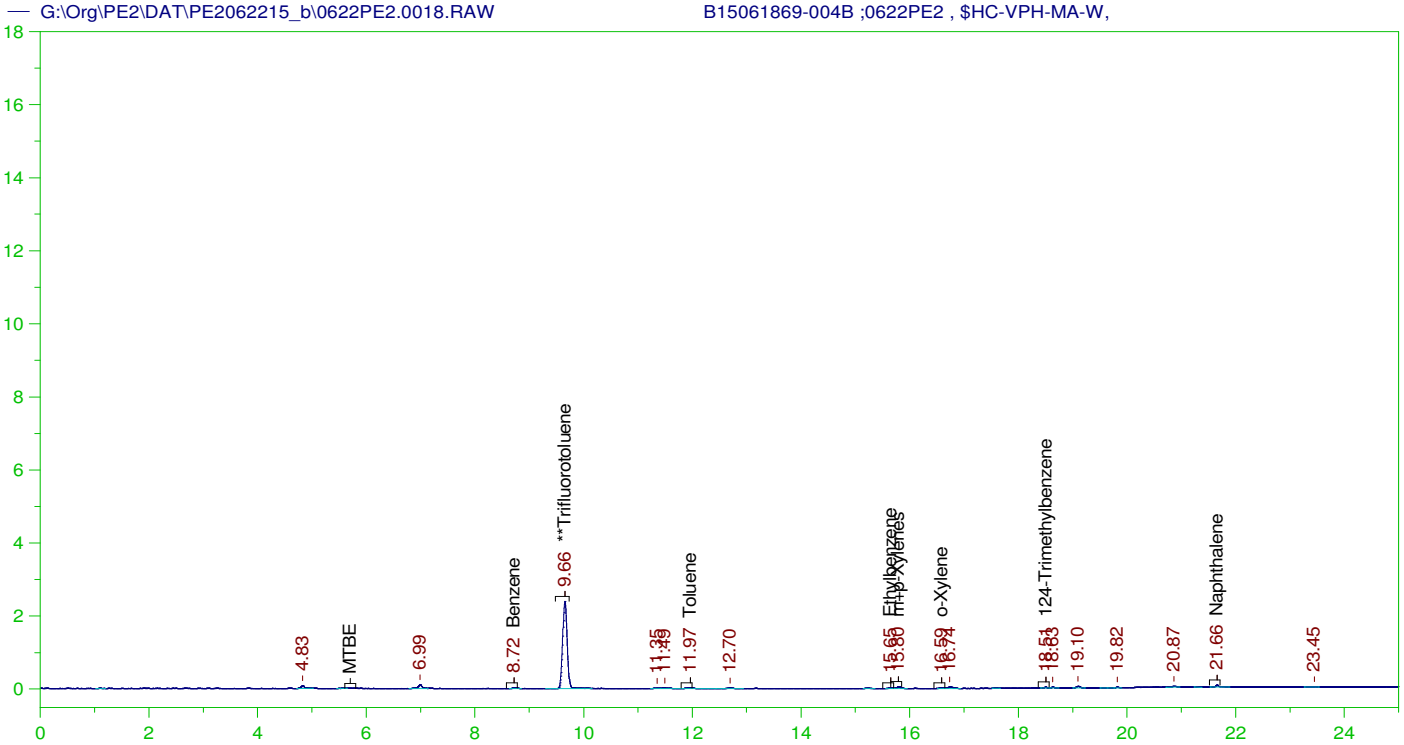


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

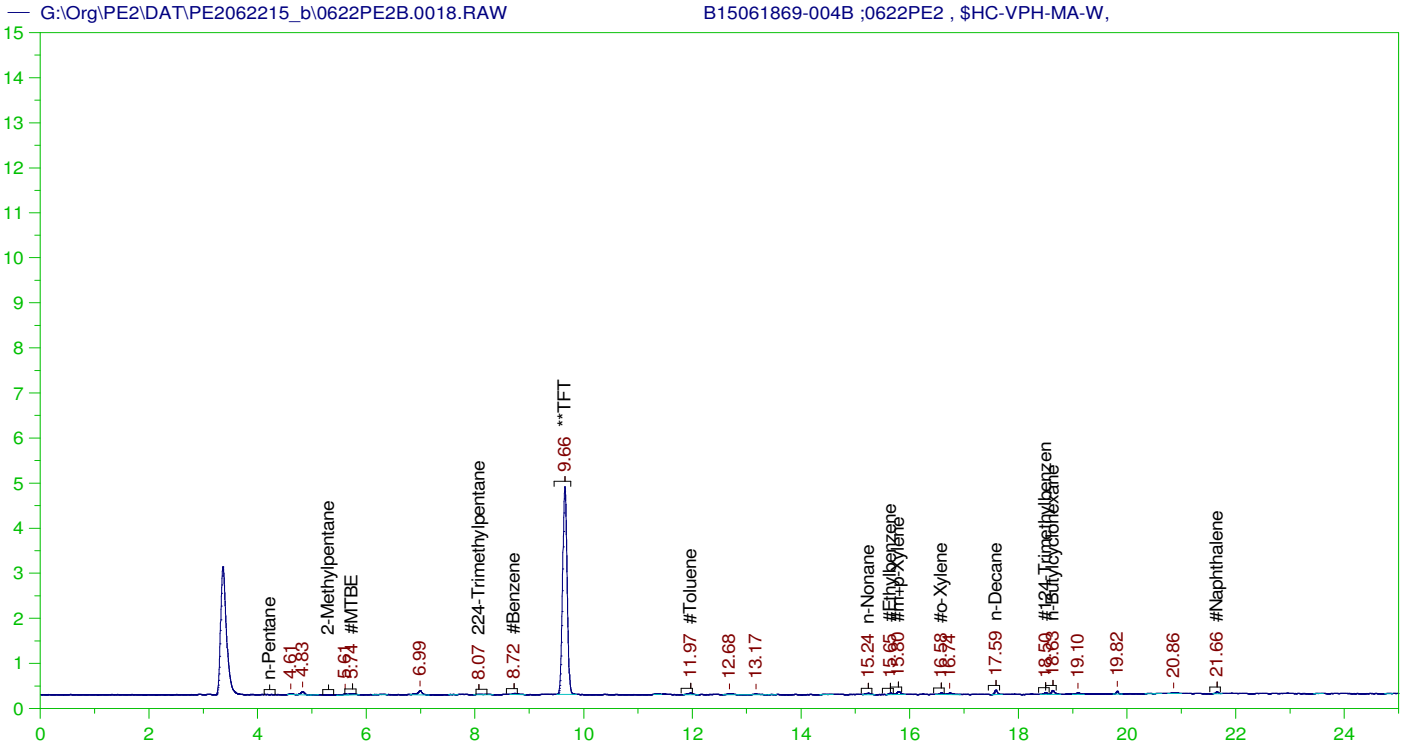
Sample Name: B15061869-004B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0018.RAW
Date & Time Acquired: 6/22/2015 10:24:04 PM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1208.482 C9-C10 Aromatics Amount: 0.7615232

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.724	8.724	8.724	150	.5	U
Toluene	11.967	11.967	11.967	254	.5	U
Ethylbenzene	15.654	15.654	15.654	101	.5	U
m+p-Xylenes	15.799	15.799	15.799	287	.5	U
o-Xylene	16.586	16.586	16.586	107	.5	U
124-Trimethylbenzene	18.505	18.505	18.505	123	.5	U
Naphthalene	21.657	21.657	21.657	229	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.656	25.	21.663	86.65	70-130

RX_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-004B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0018.RAW
Date & Time Acquired: 6/22/2015 10:24:04 PM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

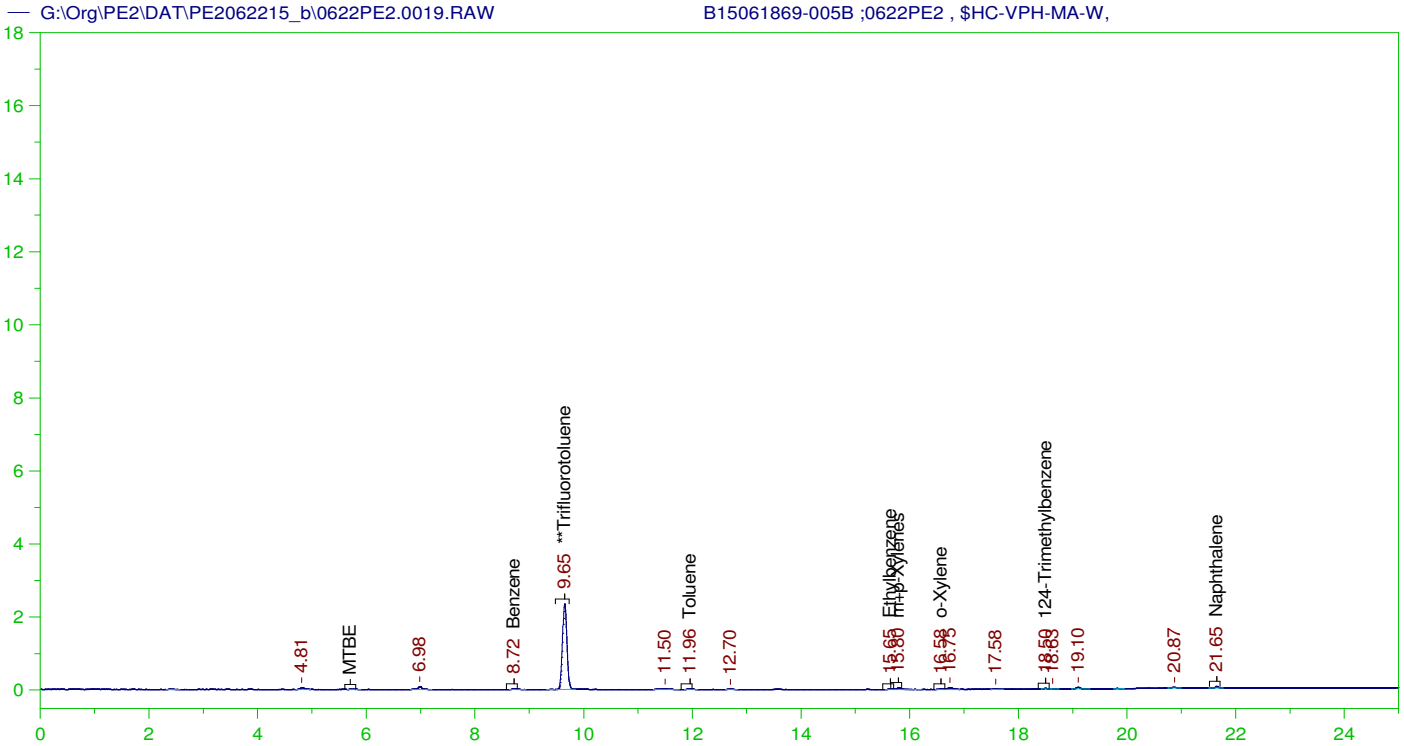
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.656	25.	22.565	90.26 -

GRO Area:3088.227 GRO Amount: 2.090863
TPH Area:4789.014 TPH Amount: 3.242369

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2187.85 C5-C8 Amount: 1.930545
C9-C12 Area:2407.963 C9-C12 Amount: 2.213533

EX-10_061815



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-005B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0019.RAW
Date & Time Acquired: 6/22/2015 11:04:11 PM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1139.129 C9-C10 Aromatics Amount: 0.7178205

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.719	8.719	8.719	140	.5	U
Toluene	11.958	11.958	11.958	159	.5	U
Ethylbenzene	15.648	15.648	15.648	122	.5	U
m+p-Xylenes	15.798	15.798	15.798	331	.5	U
o-Xylene	16.578	16.578	16.578	127	.5	U
124-Trimethylbenzene	18.503	18.503	18.503	124	.5	U
Naphthalene	.	.	.	163	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.652	25.	20.971	83.89	70-130

EX-10_061815

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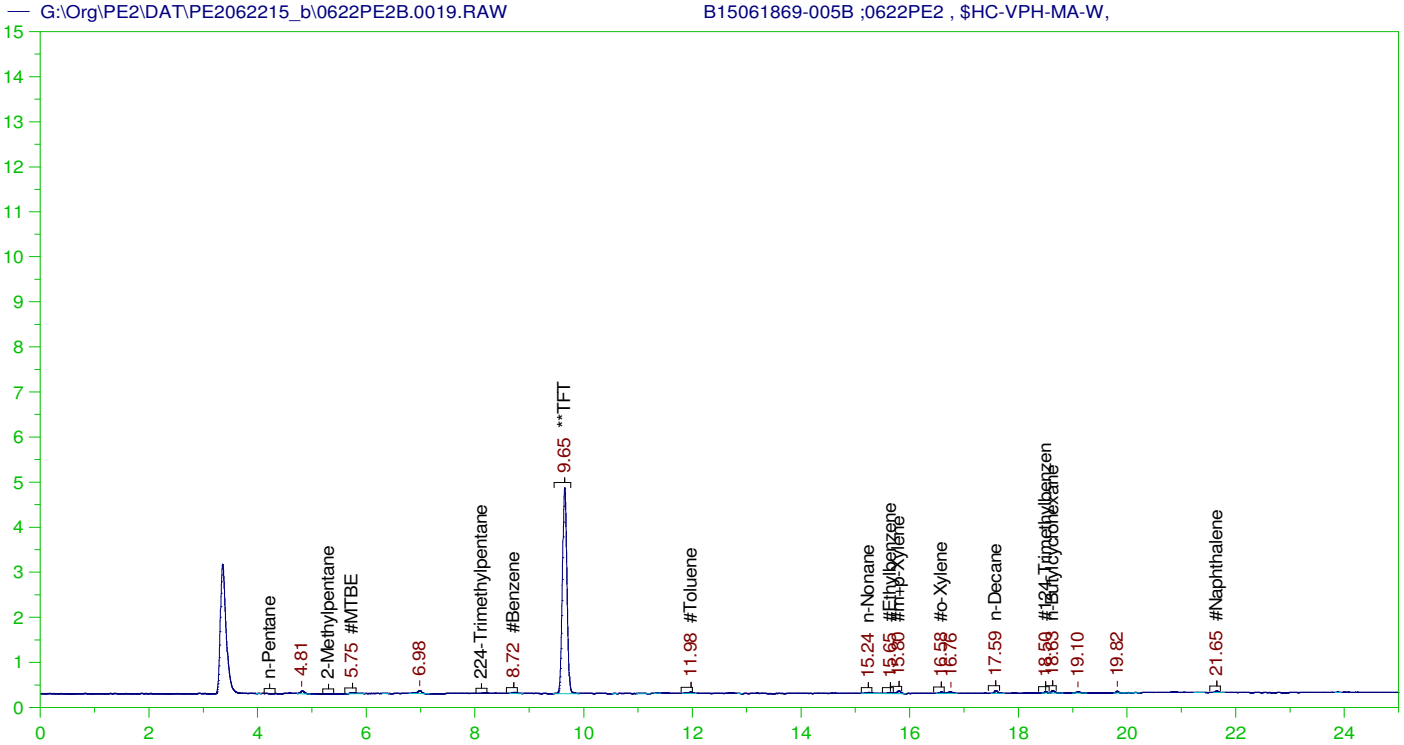

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-005B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0019.RAW
Date & Time Acquired: 6/22/2015 11:04:11 PM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.652	25.	22.408	89.63 -

GRO Area:2189.131 GRO Amount: 1.482136
TPH Area:3332.453 TPH Amount: 2.256215

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1250.936 C5-C8 Amount: 1.103818
C9-C12 Area:1924.981 C9-C12 Amount: 1.769549

TB5_061715

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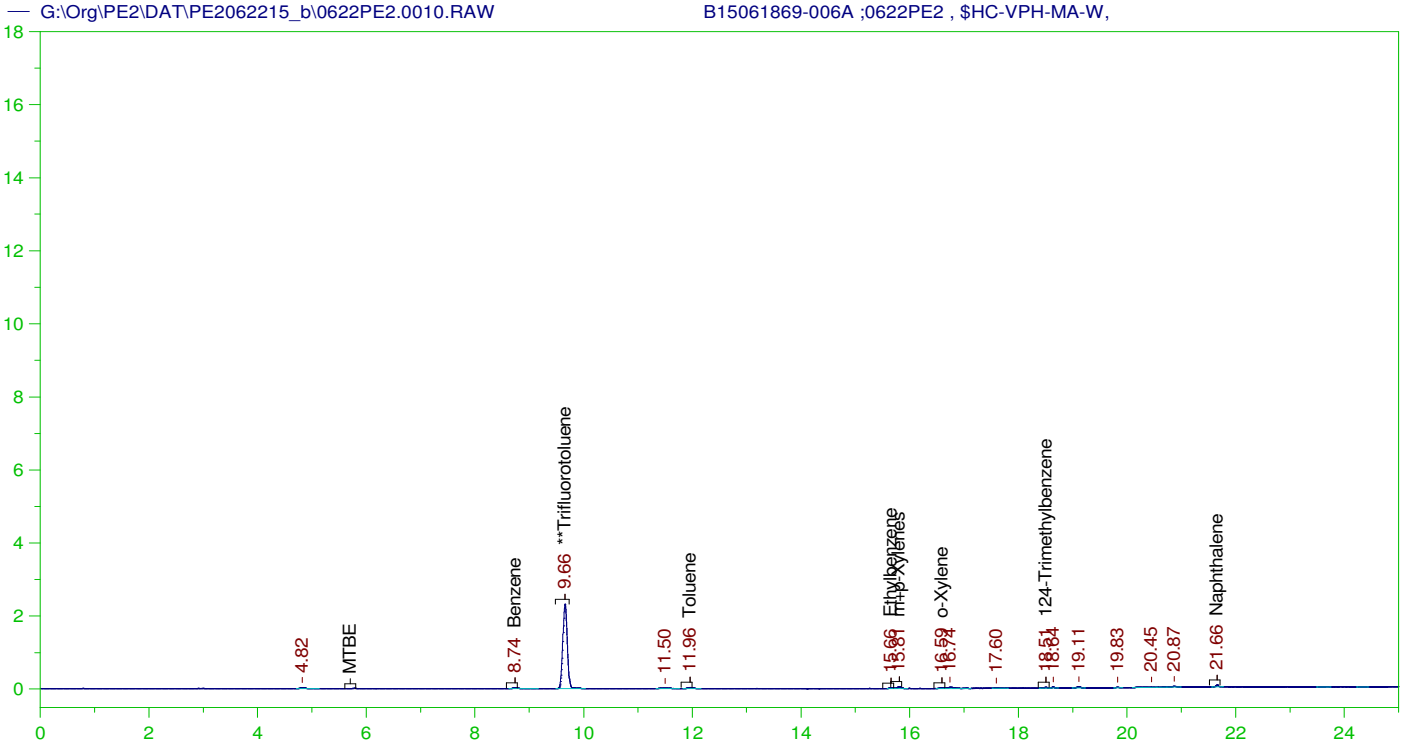

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-006A ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0010.RAW
Date & Time Acquired: 6/22/2015 3:30:52 PM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1191.806 C9-C10 Aromatics Amount: 0.7510148

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.74	8.74	8.74	202	.5	U
Toluene	11.958	11.958	11.958	253	.5	U
Ethylbenzene	15.658	15.658	15.658	97	.5	U
m+p-Xylenes	15.808	15.808	15.808	279	.5	U
o-Xylene	16.594	16.594	16.594	128	.5	U
124-Trimethylbenzene	18.505	18.505	18.505	119	.5	U
Naphthalene	21.658	21.658	21.658	163	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.658	25.	20.925	83.7	70-130

TB5_061715

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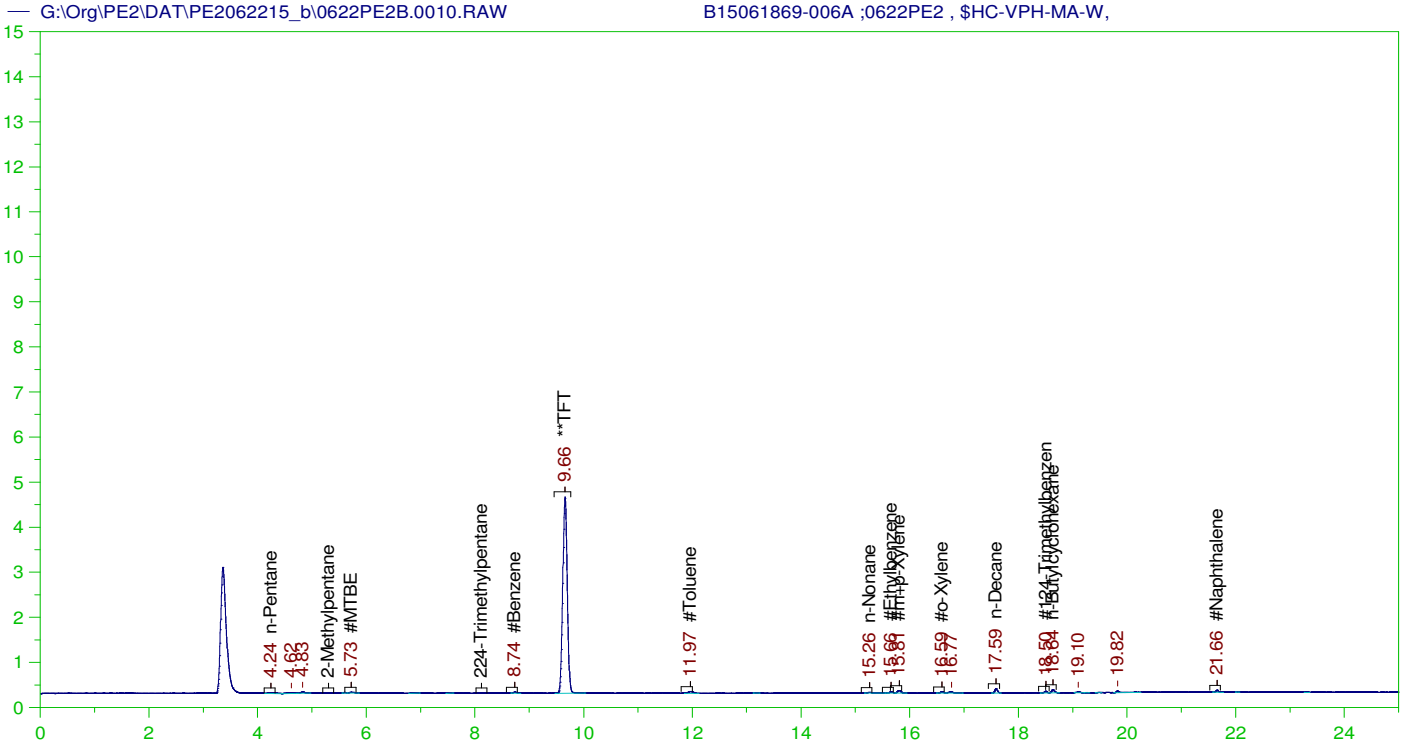

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-006A ;0622PE2 , $HC-VPH-MA-W,
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Date & Time Acquired: 6/22/2015 3:30:52 PM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

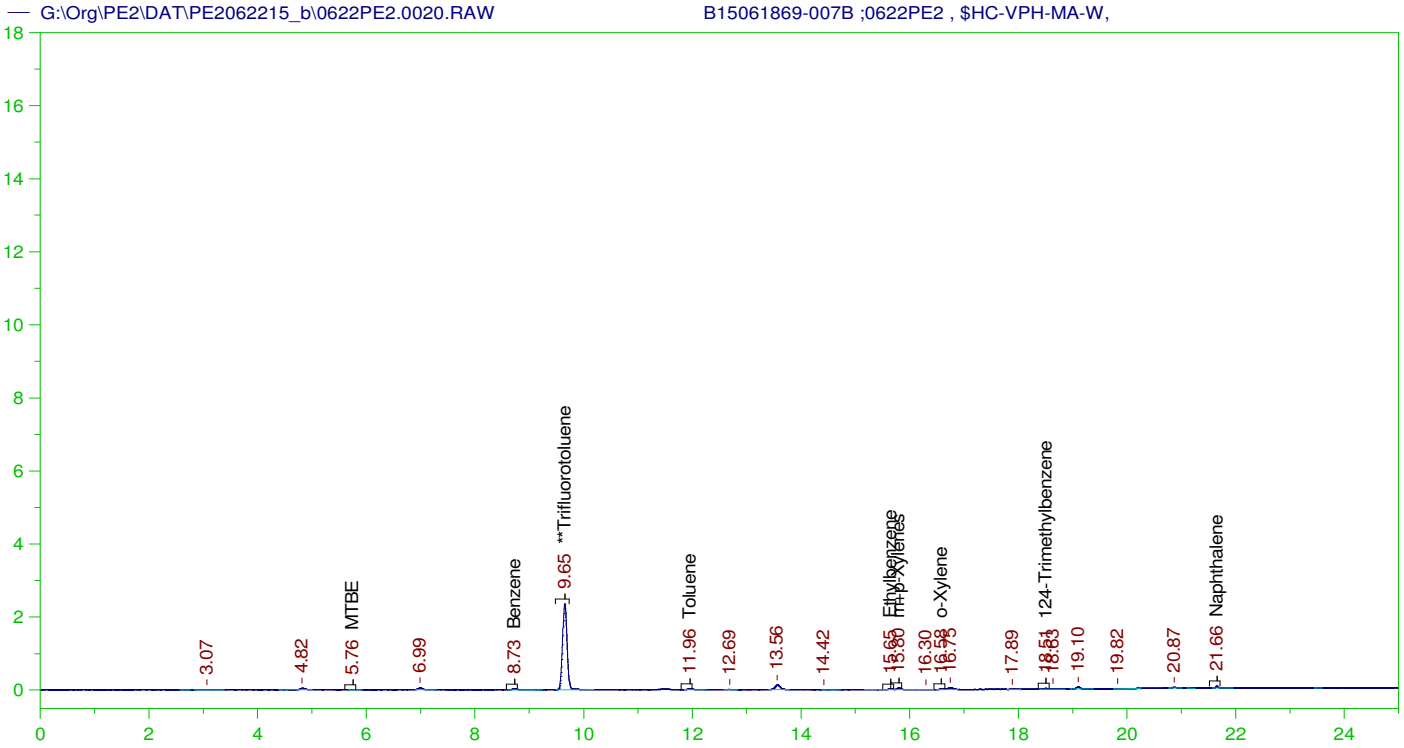
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.658	25.	21.305	85.22 -

GRO Area:1819.533 GRO Amount: 1.231903
TPH Area:3187.814 TPH Amount: 2.158288

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1052.695 C5-C8 Amount: 0.928892
C9-C12 Area:1946.88 C9-C12 Amount: 1.78968

EX-6_061715



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

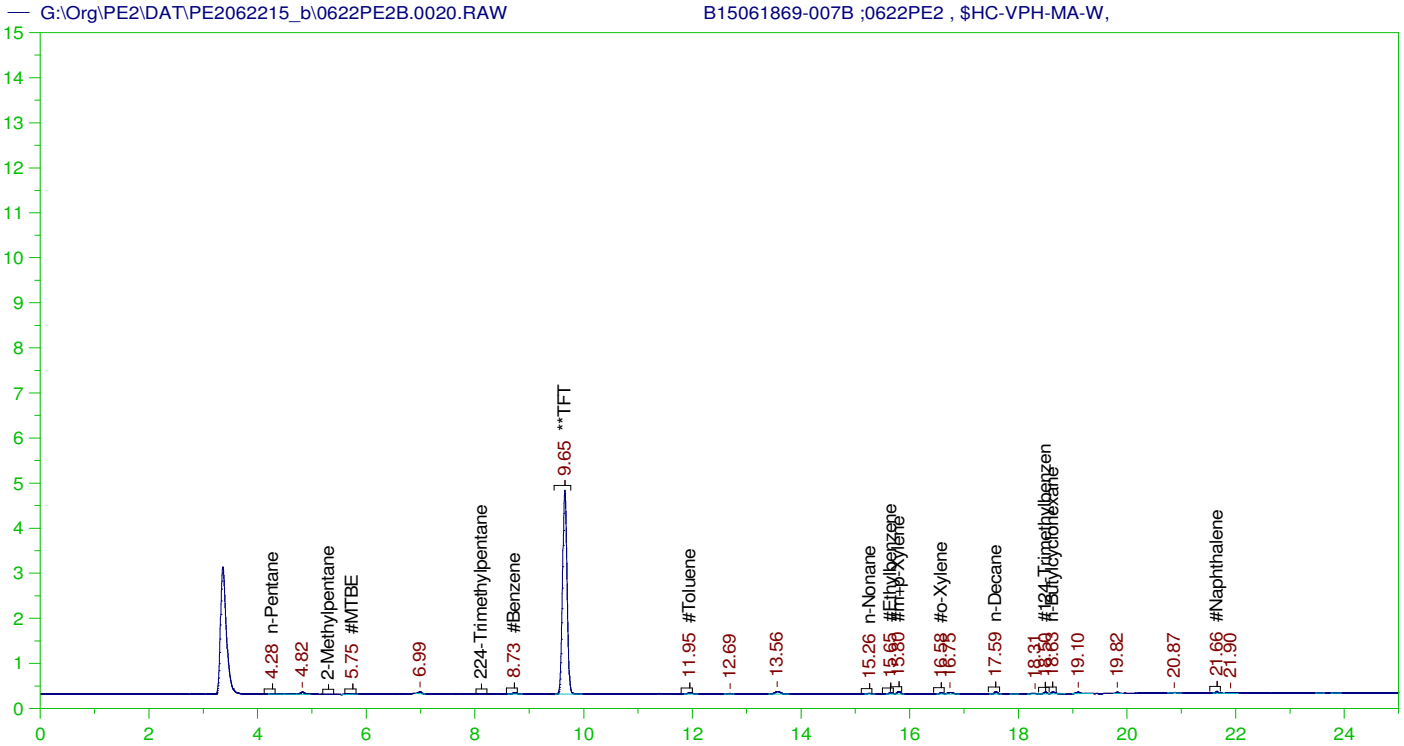
Sample Name: B15061869-007B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0020.RAW
Date & Time Acquired: 6/23/2015 12:10:41 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1288.761 C9-C10 Aromatics Amount: 0.8121106

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	5.758	5.758	5.758	51	1.	U
Benzene	8.732	8.732	8.732	176	.5	U
Toluene	11.959	11.959	11.959	181	.5	U
Ethylbenzene	15.651	15.651	15.651	118	.5	U
m+p-Xylenes	15.804	15.804	15.804	294	.5	U
o-Xylene	16.581	16.581	16.581	105	.5	U
124-Trimethylbenzene	18.506	18.506	18.506	115	.5	U
Naphthalene	21.655	21.655	21.655	220	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.655	25.	21.368	85.47	70-130

EX-6_061715



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-007B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0020.RAW
Date & Time Acquired: 6/23/2015 12:10:41 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.654	25.	22.144	88.58 -

GRO Area:2154.43 GRO Amount: 1.458642
TPH Area:3702.58 TPH Amount: 2.506807

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1449.848 C5-C8 Amount: 1.279337
C9-C12 Area:1943.72 C9-C12 Amount: 1.786775

EX-5_061715

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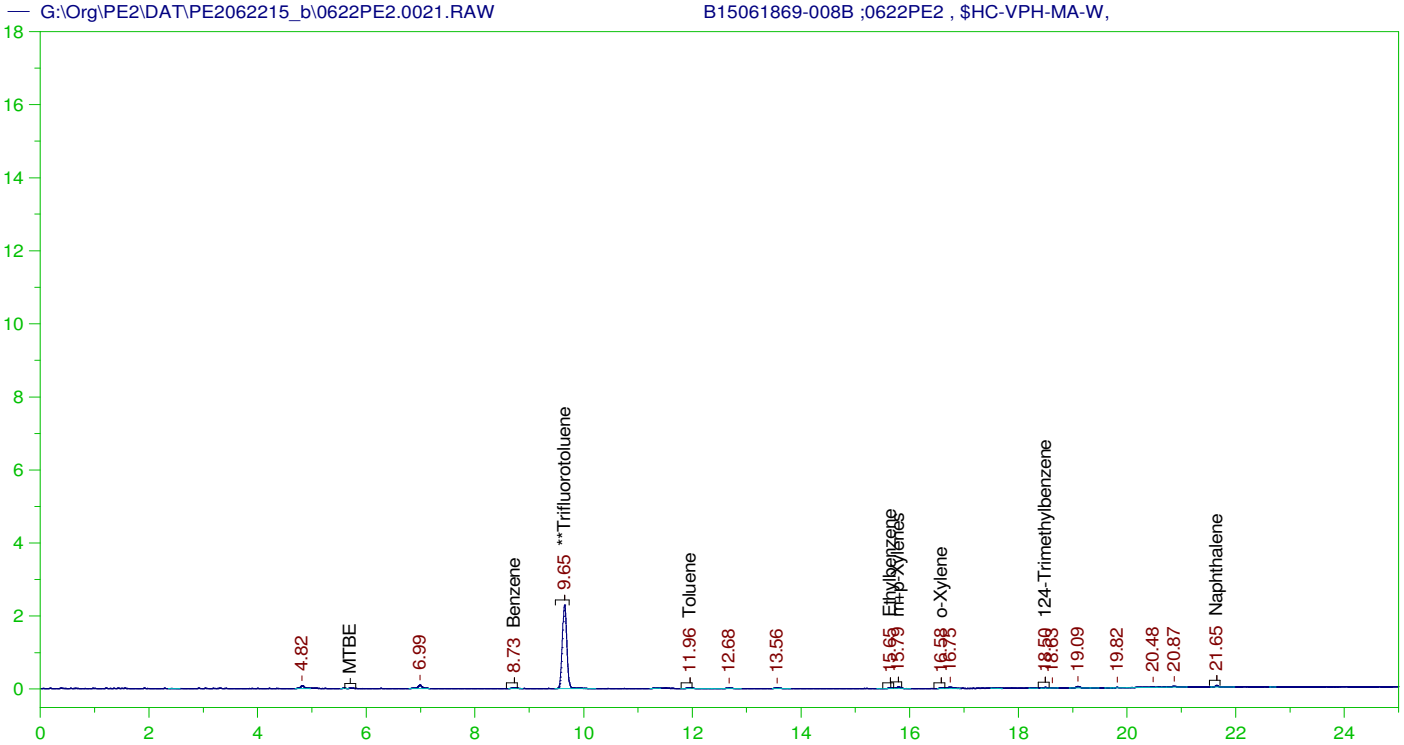


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

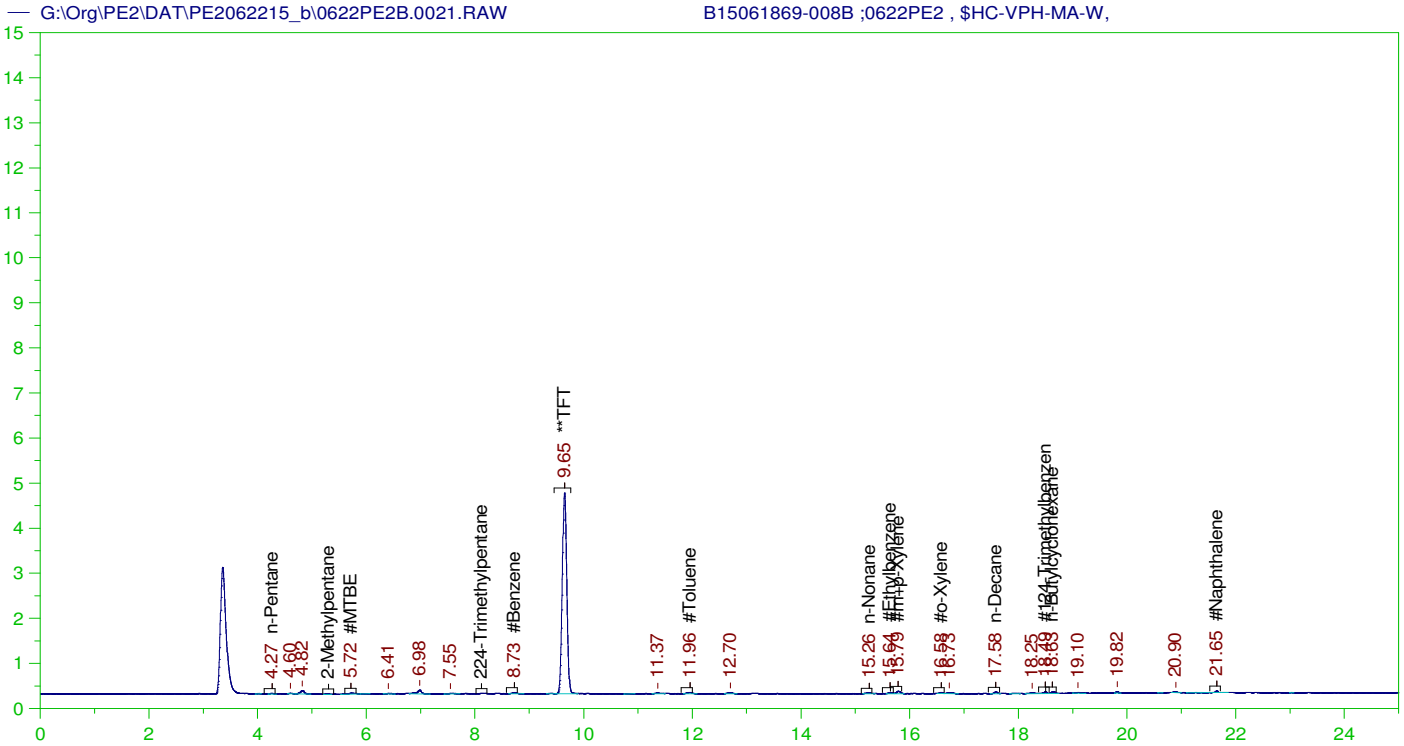
Sample Name: B15061869-008B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0021.RAW
Date & Time Acquired: 6/23/2015 12:52:04 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1432.239 C9-C10 Aromatics Amount: 0.9025232

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.728	8.728	8.728	140	.5	U
Toluene	11.959	11.959	11.959	220	.5	U
Ethylbenzene	15.649	15.649	15.649	121	.5	U
m+p-Xylenes	15.793	15.793	15.793	277	.5	U
o-Xylene	16.582	16.582	16.582	102	.5	U
124-Trimethylbenzene	18.495	18.495	18.495	120	.5	U
Naphthalene	21.649	21.649	21.649	218	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.649	25.	20.829	83.31	70-130

EX-5_061715



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-008B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0021.RAW
Date & Time Acquired: 6/23/2015 12:52:04 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.649	25.	21.798	87.19 -

GRO Area:2545.996 GRO Amount: 1.723749
TPH Area:4042.939 TPH Amount: 2.737245

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2165.529 C5-C8 Amount: 1.91085
C9-C12 Area:1706.865 C9-C12 Amount: 1.569045

EX-43_061715

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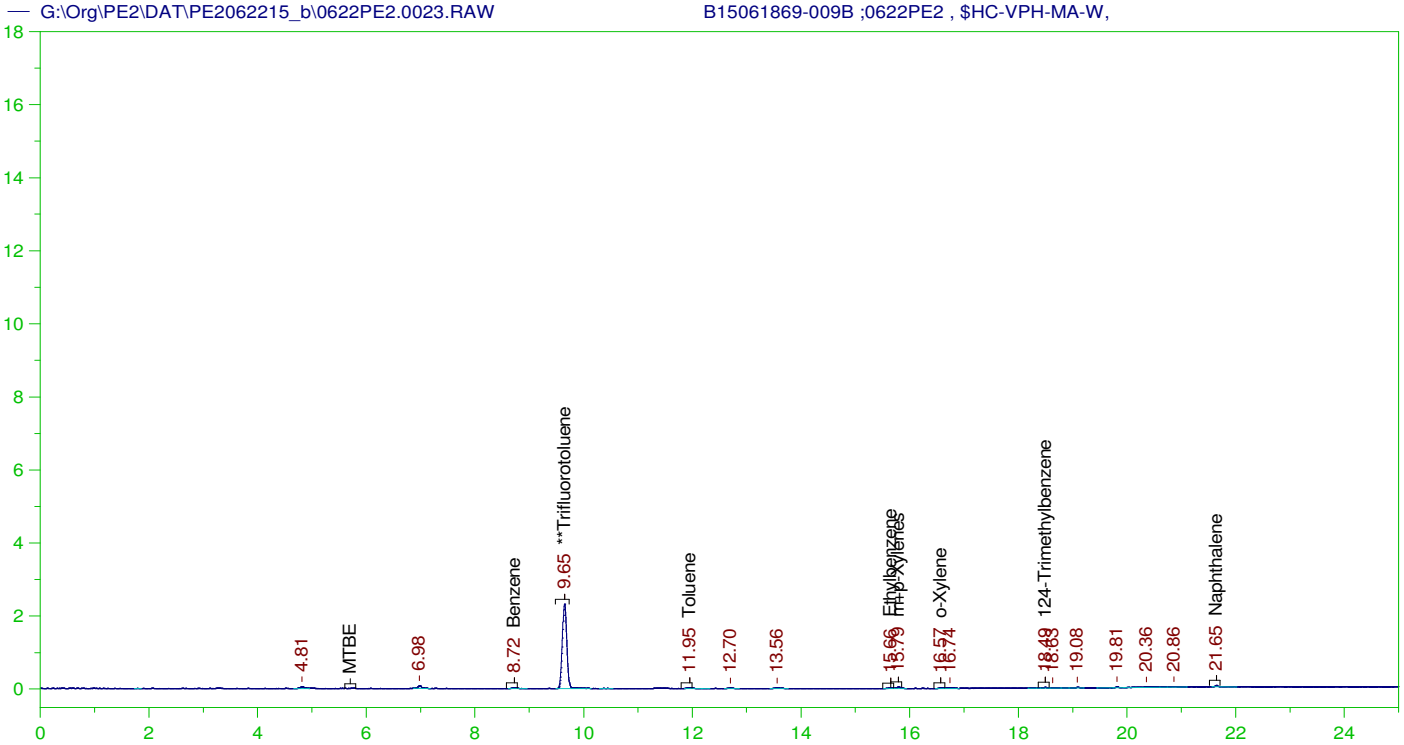

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-009B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0023.RAW
Date & Time Acquired: 6/23/2015 2:14:15 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1150.465 C9-C10 Aromatics Amount: 0.7249635

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.724	8.724	8.724	139	.5	U
Toluene	11.95	11.95	11.95	157	.5	U
Ethylbenzene	15.656	15.656	15.656	102	.5	U
m+p-Xylenes	15.794	15.794	15.794	241	.5	U
o-Xylene	16.572	16.572	16.572	132	.5	U
124-Trimethylbenzene	18.493	18.493	18.493	134	.5	U
Naphthalene	.	.	.	184	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.65	25.	21.029	84.12	70-130

EX-43_061715

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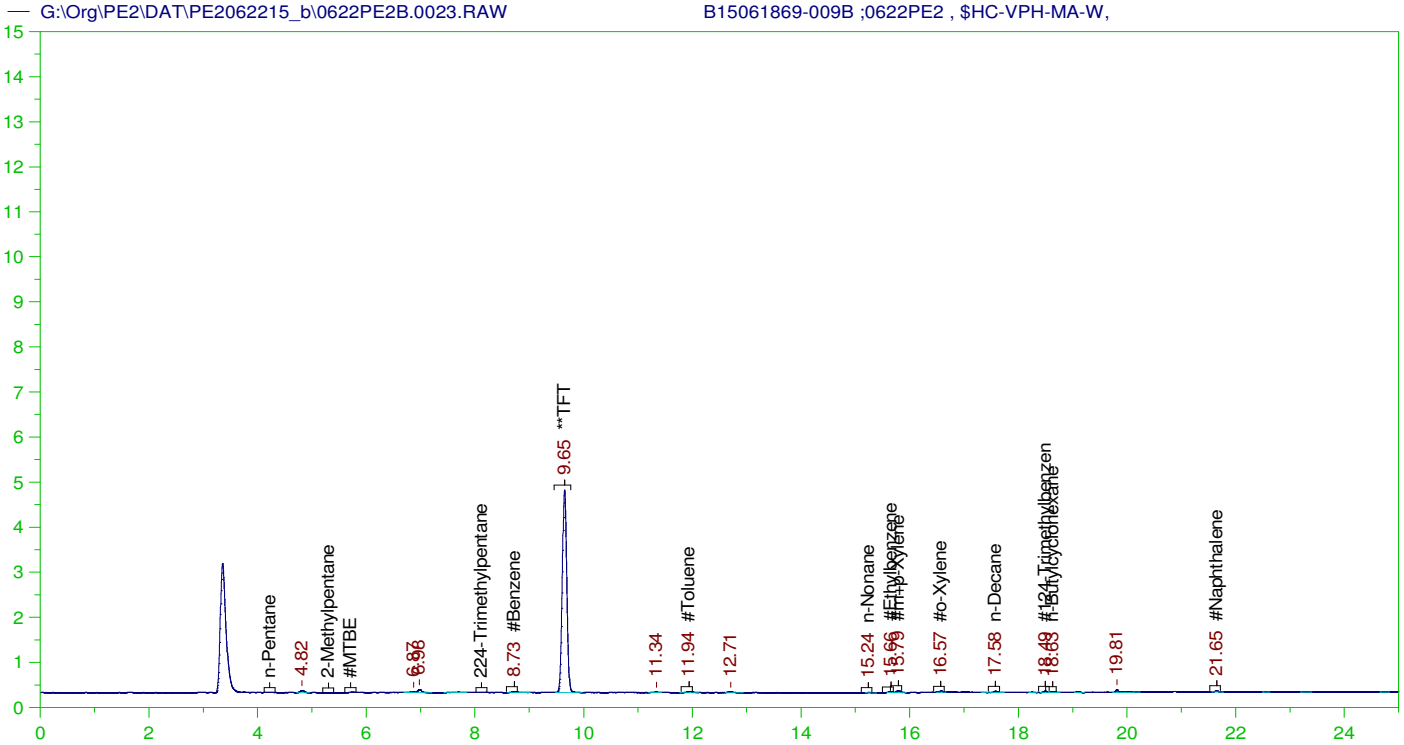

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-009B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0023.RAW
Date & Time Acquired: 6/23/2015 2:14:15 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.649	25.	21.931	87.73 -

GRO Area:1727.916 GRO Amount: 1.169874
TPH Area:2773 TPH Amount: 1.877441

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1388.539 C5-C8 Amount: 1.225239
C9-C12 Area:1165.256 C9-C12 Amount: 1.071168

D1_061815

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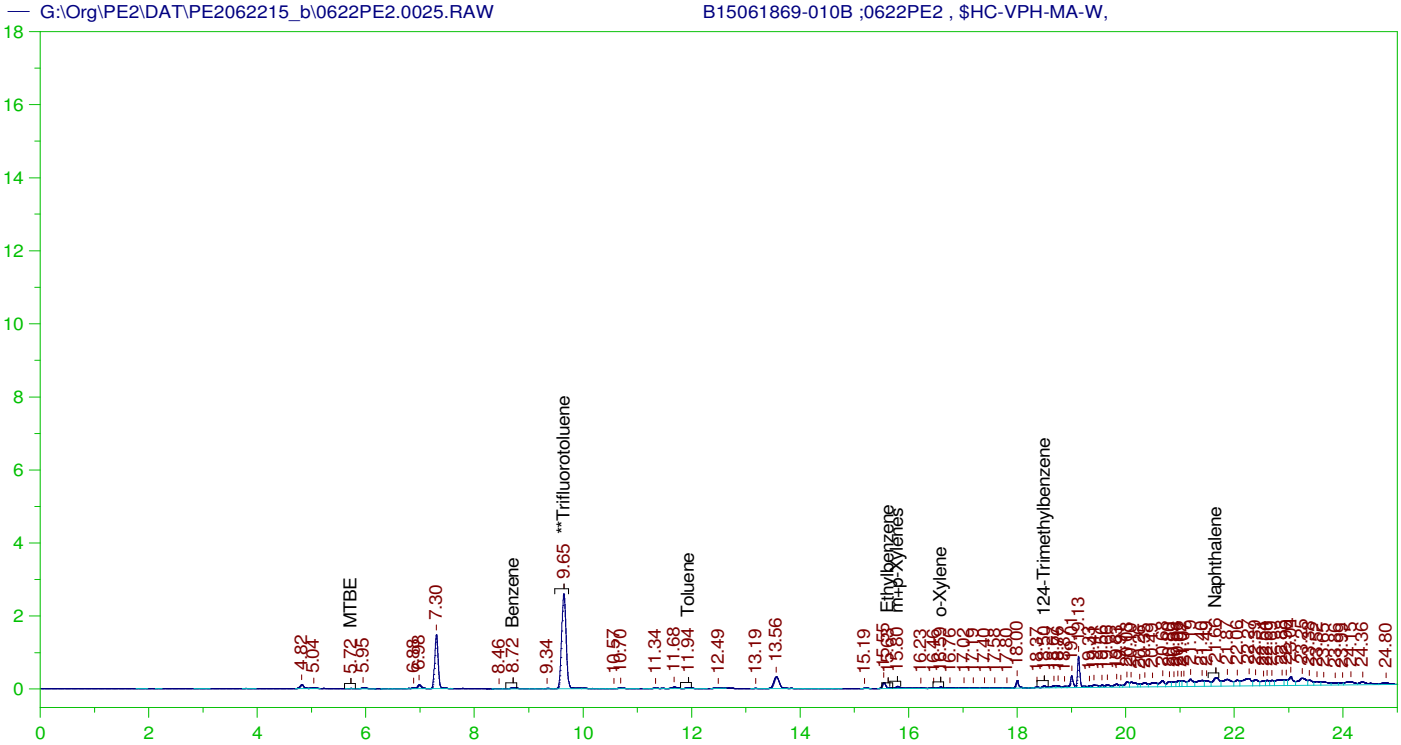

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-010B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0025.RAW
Date & Time Acquired: 6/23/2015 4:10:49 AM
Method File: G:\Org\PE2\Methods\150617VPH186910.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:20599.04 C9-C10 Aromatics Amount: 12.98045

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	5.723	5.723	5.723	60	1.	U
Benzene	8.717	8.717	8.717	275	.5	U
Toluene	11.944	11.944	11.944	268	.5	U
Ethylbenzene	15.625	15.625	15.625	124	.5	U
m+p-Xylenes	15.797	15.797	15.797	365	.5	U
o-Xylene	16.586	16.586	16.586	244	.5	U
124-Trimethylbenzene	18.498	18.498	18.498	330	.5	U
Naphthalene	21.66	-12.006	-12.012	1969	~~1.341~~	No JJB 6/25/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.648	25.	23.539	94.16	70-130

D1_061815

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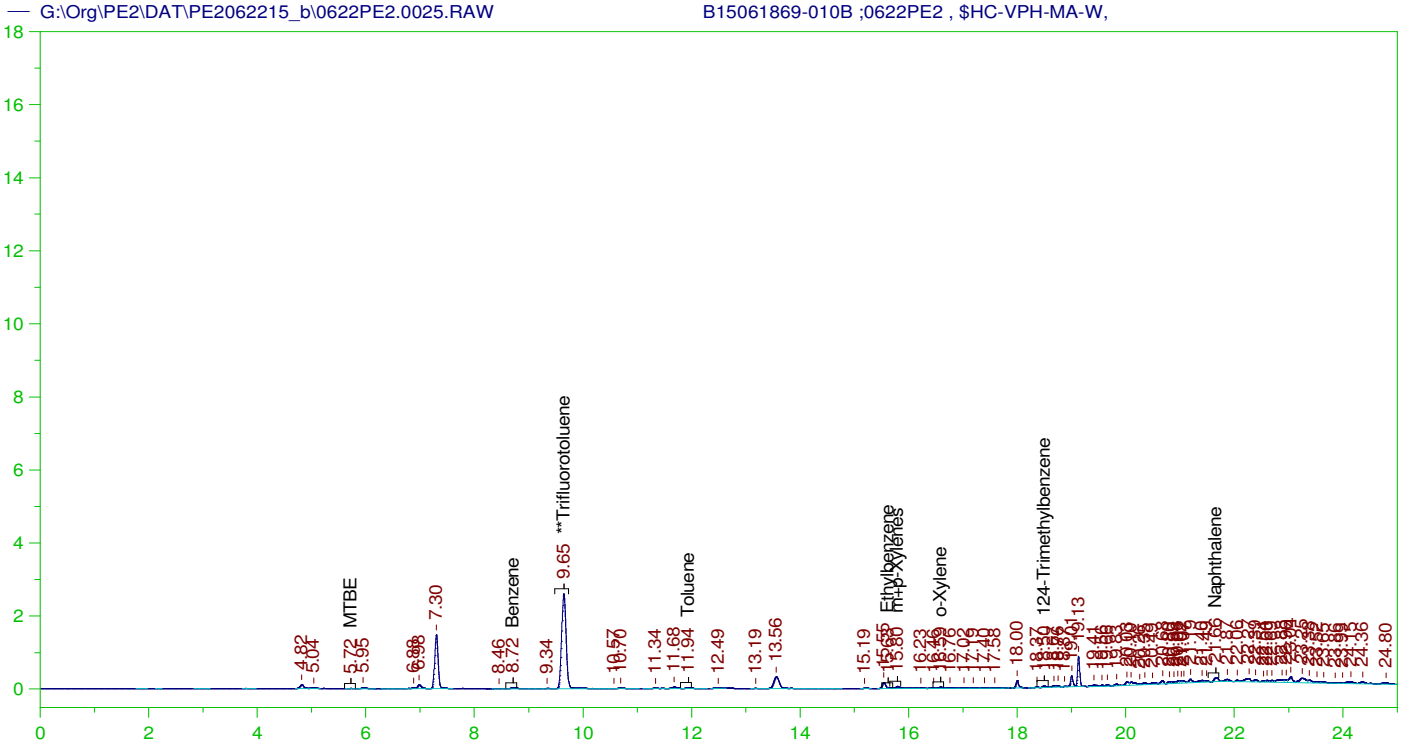

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-010B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0025.RAW
Date & Time Acquired: 6/23/2015 4:10:49 AM
Method File: G:\Org\PE2\Methods\150617VPH186910N.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:9922.43 C9-C10 Aromatics Amount: 6.252603

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	5.723	5.723	5.723	60	1.	U
Benzene	8.717	8.717	8.717	275	.5	U
Toluene	11.944	11.944	11.944	268	.5	U
Ethylbenzene	15.625	15.625	15.625	124	.5	U
m+p-Xylenes	15.797	15.797	15.797	365	.5	U
o-Xylene	16.586	16.586	16.586	244	.5	U
124-Trimethylbenzene	18.498	18.498	18.498	187	.5	U
Naphthalene	21.66	21.66	21.66	567	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.648	25.	23.539	94.16	70-130

D1_061815

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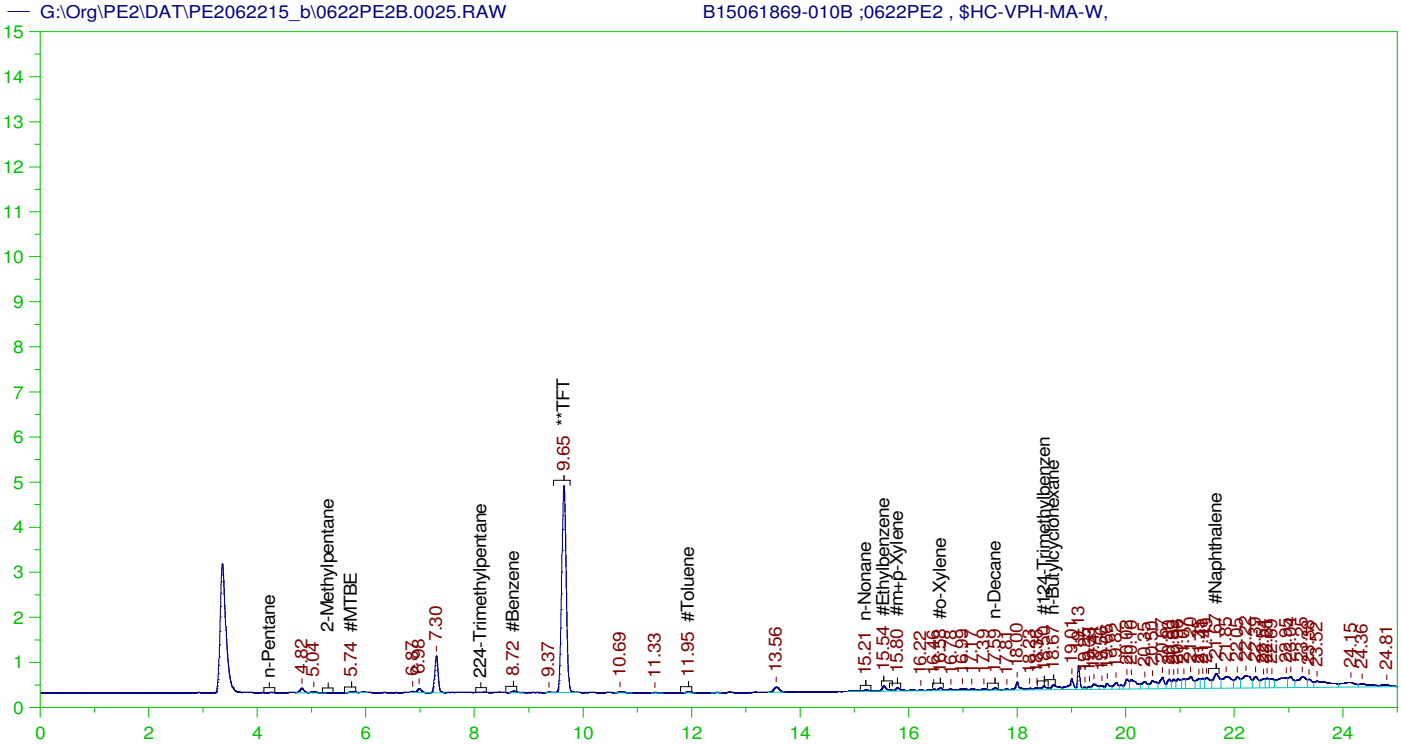

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-010B ;0622PE2 , $HC-VPH-MA-W,
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Method File: G:\Org\PE2\Methods\150617V186910B.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

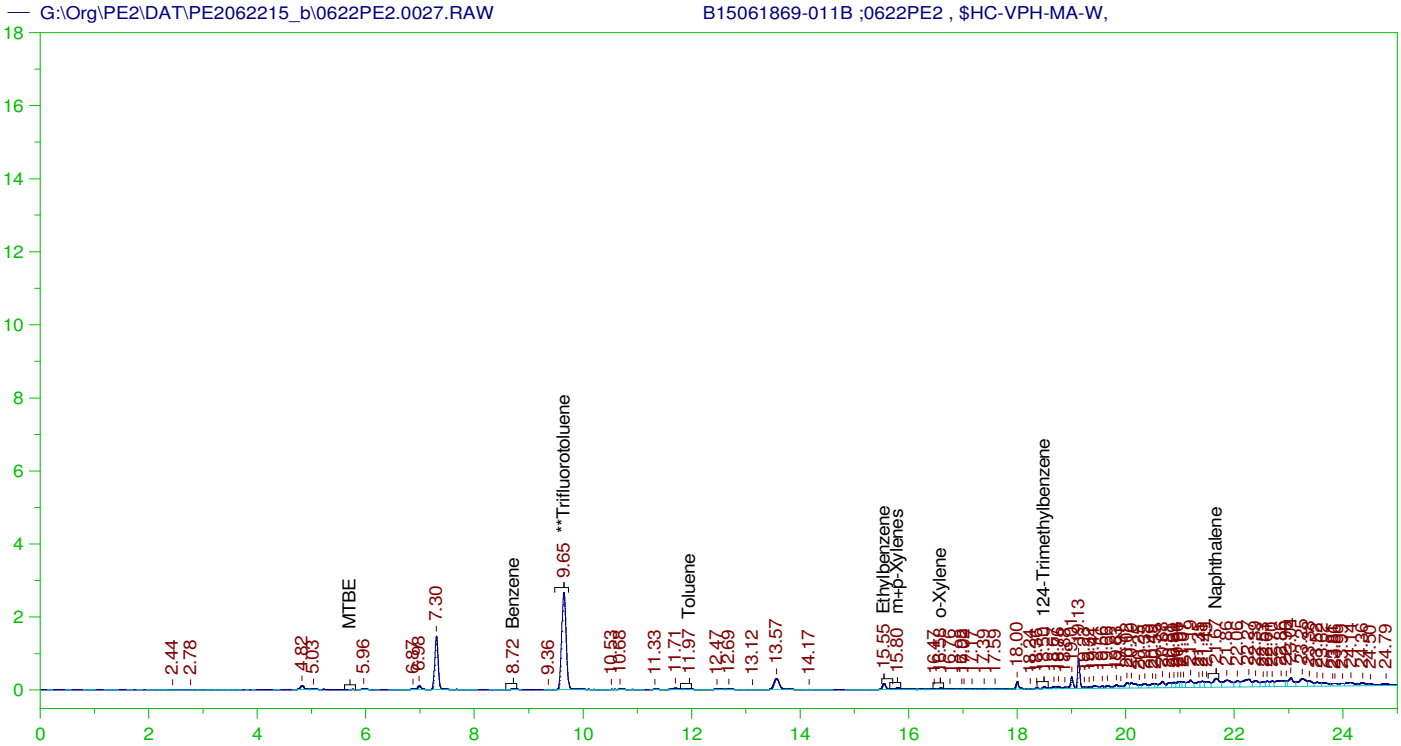
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.65	25.	22.454	89.82 -

GRO Area:8898.861 GRO Amount: 6.024913
TPH Area:64181.19 TPH Amount: 43.45343

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:6560.385 C5-C8 Amount: 5.788844
C9-C12 Area:28928.1 C9-C12 Amount: 26.59231

90-1C_061815



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-011B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0027.RAW
Date & Time Acquired: 6/23/2015 5:49:34 AM
Method File: G:\Org\PE2\Methods\150617V186911.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:20360.63 C9-C10 Aromatics Amount: 12.83022

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.723	8.723	8.723	171	.5	U
Toluene	11.966	11.966	11.966	289	.5	U
Ethylbenzene	15.546	-5.996	-5.897	793	~~.486~~	~~J~~ <0.5
m+p-Xylenes	15.796	15.796	15.796	326	.5	U
o-Xylene	16.583	16.583	16.583	239	.5	U
124-Trimethylbenzene	18.496	18.496	18.496	323	.5	U
Naphthalene	21.665	-12.006	-12.017	2010	~~1.369~~	No JJB 6/25/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.648	25.	24.214	96.86	70-130

90-1C_061815

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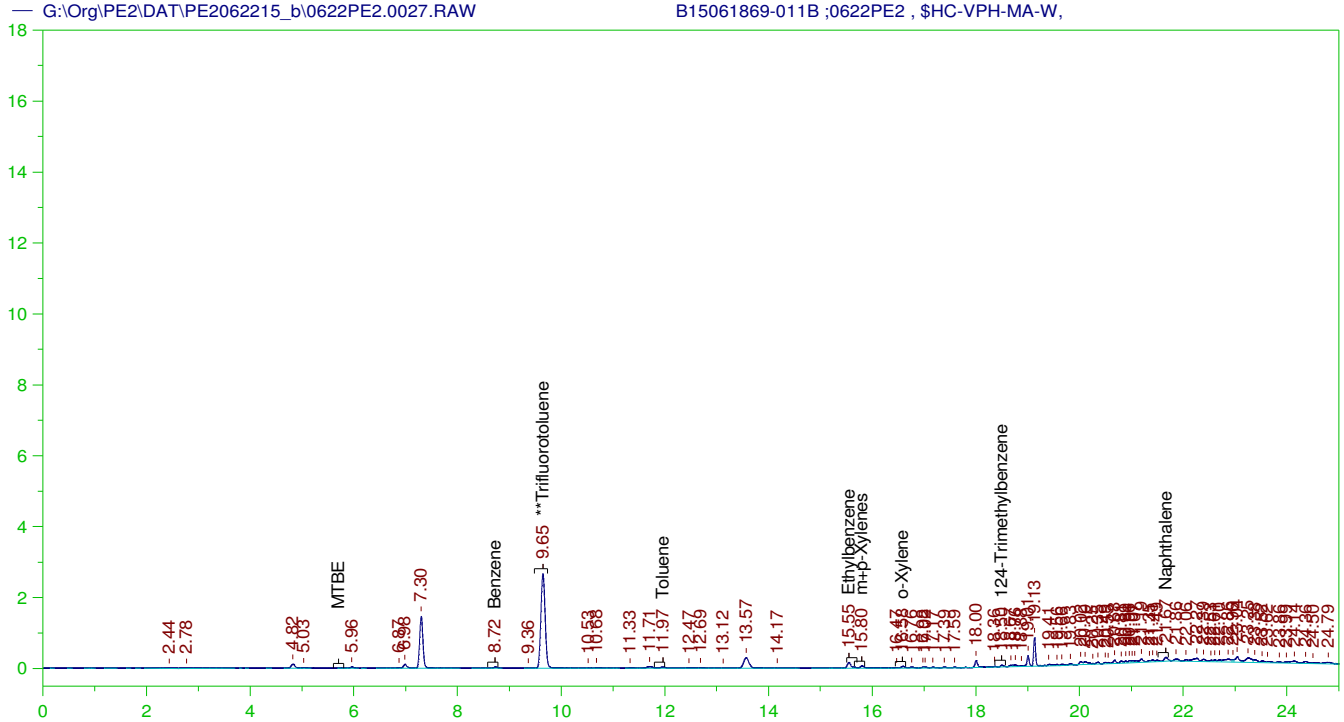

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-011B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0027.RAW
Date & Time Acquired: 6/23/2015 5:49:34 AM
Method File: G:\Org\PE2\Methods\150617V186911N.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:9992.221 C9-C10 Aromatics Amount: 6.296581

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.723	8.723	8.723	171	.5	U
Toluene	11.966	11.966	11.966	289	.5	U
Ethylbenzene	15.546	-5.996	-5.897	793	~~.486~~	~~J~~ <0.5 JJB 6/25/15
m+p-Xylenes	15.796	15.796	15.796	326	.5	U
o-Xylene	16.583	16.583	16.583	239	.5	U
124-Trimethylbenzene	18.496	18.496	18.496	211	.5	U
Naphthalene	21.665	21.665	21.665	547	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.648	25.	24.214	96.86	70-130

90-1C_061815

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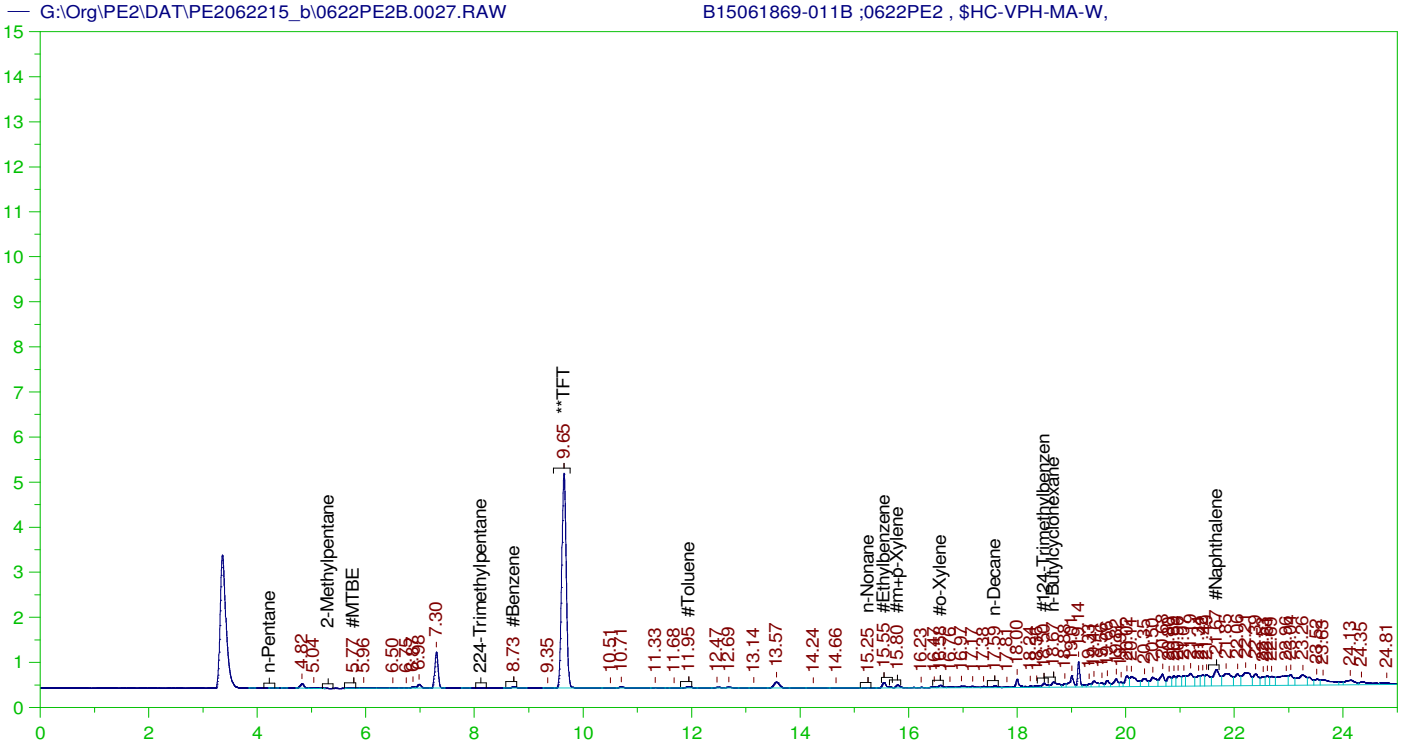

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-011B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0027.RAW
Date & Time Acquired: 6/23/2015 5:49:34 AM
Method File: G:\Org\PE2\Methods\150617V186911B.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.651	25.	23.498	93.99 -

GRO Area:10942.88 GRO Amount: 7.408803
TPH Area:67390.3 TPH Amount: 45.62615

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:8810.924 C5-C8 Amount: 7.774706
C9-C12 Area:30803.34 C9-C12 Amount: 28.31614

95-1_061815

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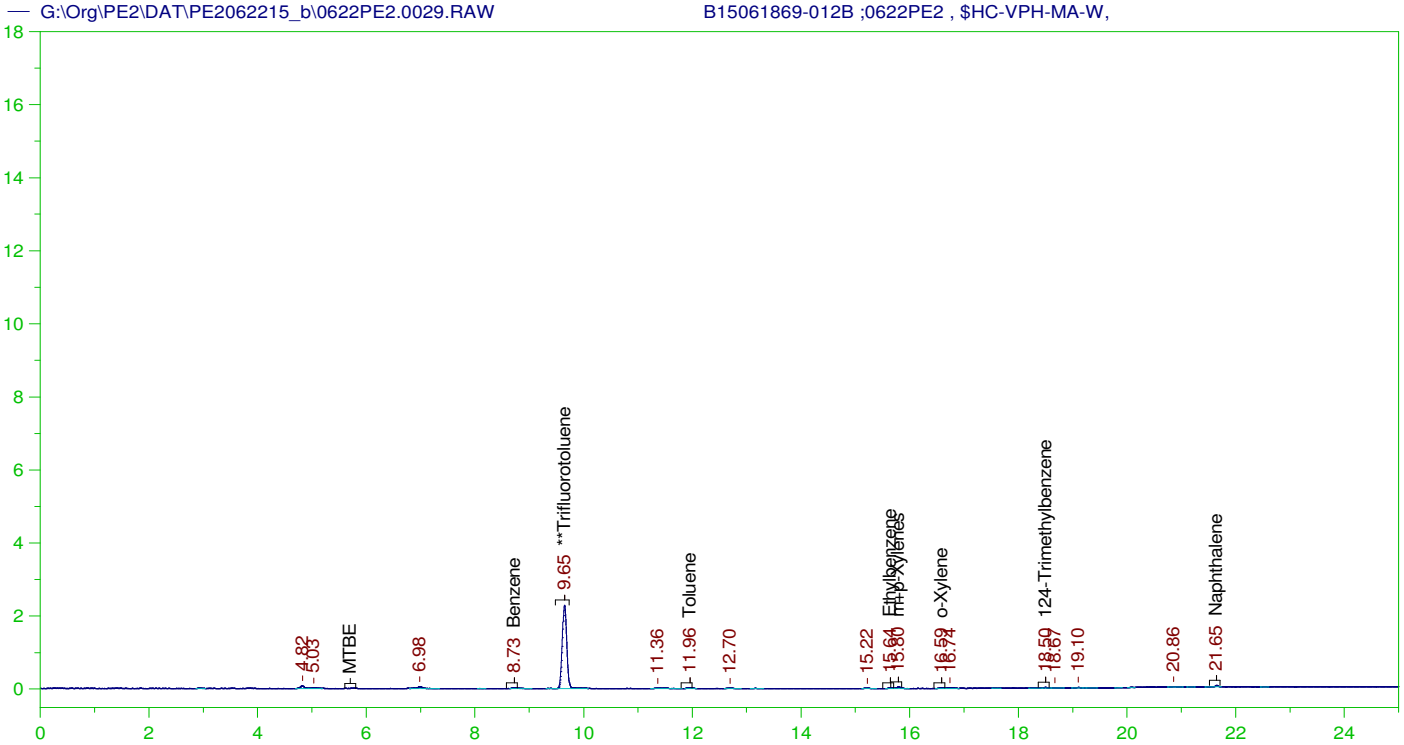

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-012B ;0622PE2 , $HC-VPH-MA-W,
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Date & Time Acquired: 6/23/2015 7:18:01 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:732.9596 C9-C10 Aromatics Amount: 0.4618732

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.728	8.728	8.728	215	.5	U
Toluene	11.957	11.957	11.957	156	.5	U
Ethylbenzene	15.645	15.645	15.645	95	.5	U
m+p-Xylenes	15.797	15.797	15.797	266	.5	U
o-Xylene	16.585	16.585	16.585	126	.5	U
124-Trimethylbenzene	18.498	18.498	18.498	114	.5	U
Naphthalene	21.648	21.648	21.648	151	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.648	25.	20.705	82.82	70-130

95-1_061815

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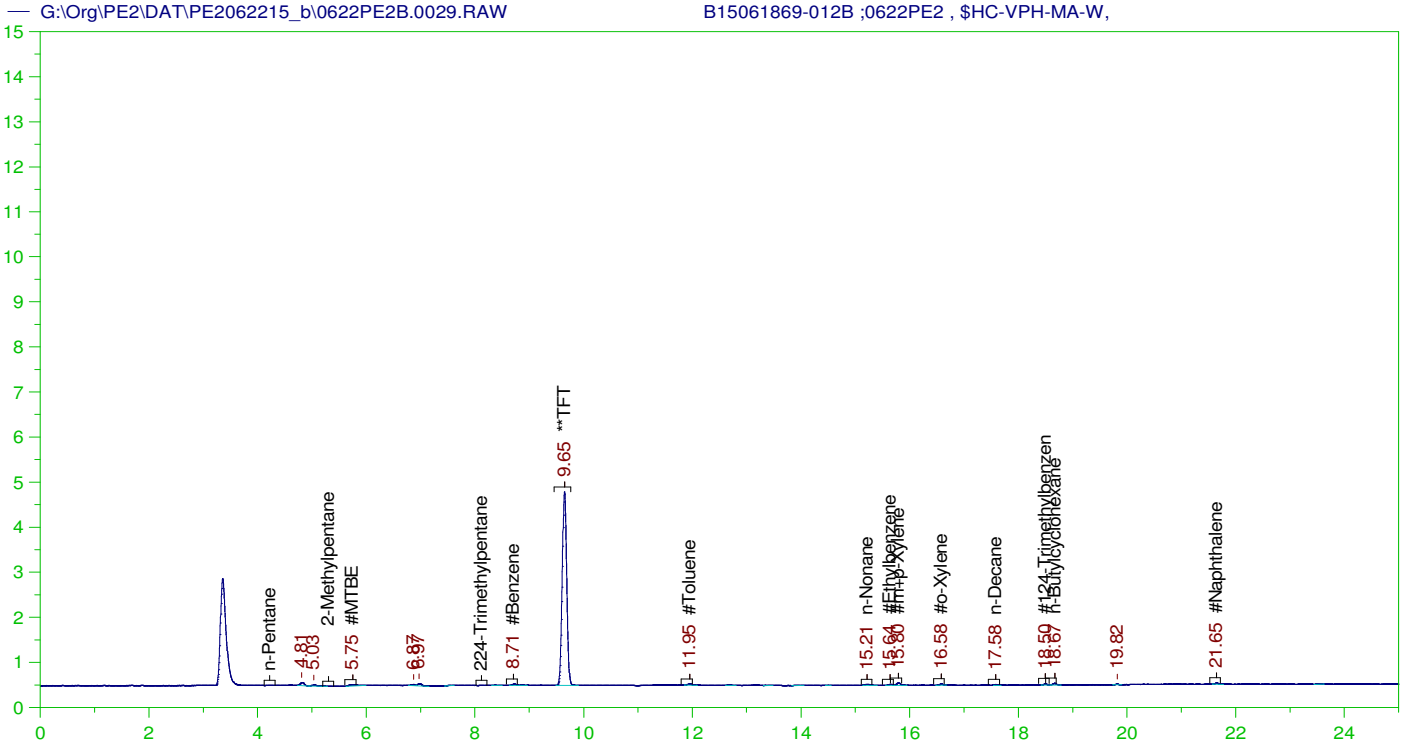


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-012B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0029.RAW
Date & Time Acquired: 6/23/2015 7:18:01 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

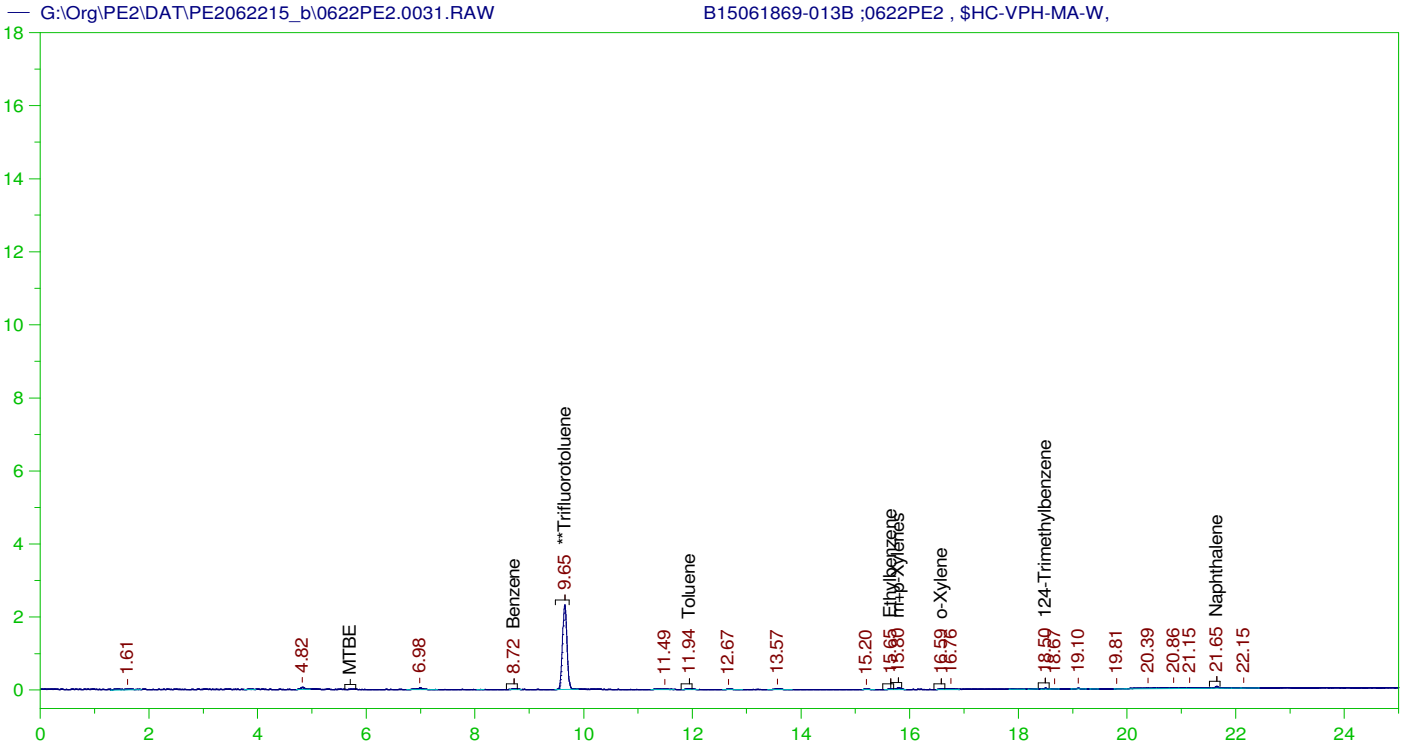
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.648	25.	20.994	83.98 -

GRO Area:1864.092 GRO Amount: 1.262071
TPH Area:2898.727 TPH Amount: 1.962563

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1737.115 C5-C8 Amount: 1.53282
C9-C12 Area:1019.568 C9-C12 Amount: 0.9372436

LB-6_061815



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

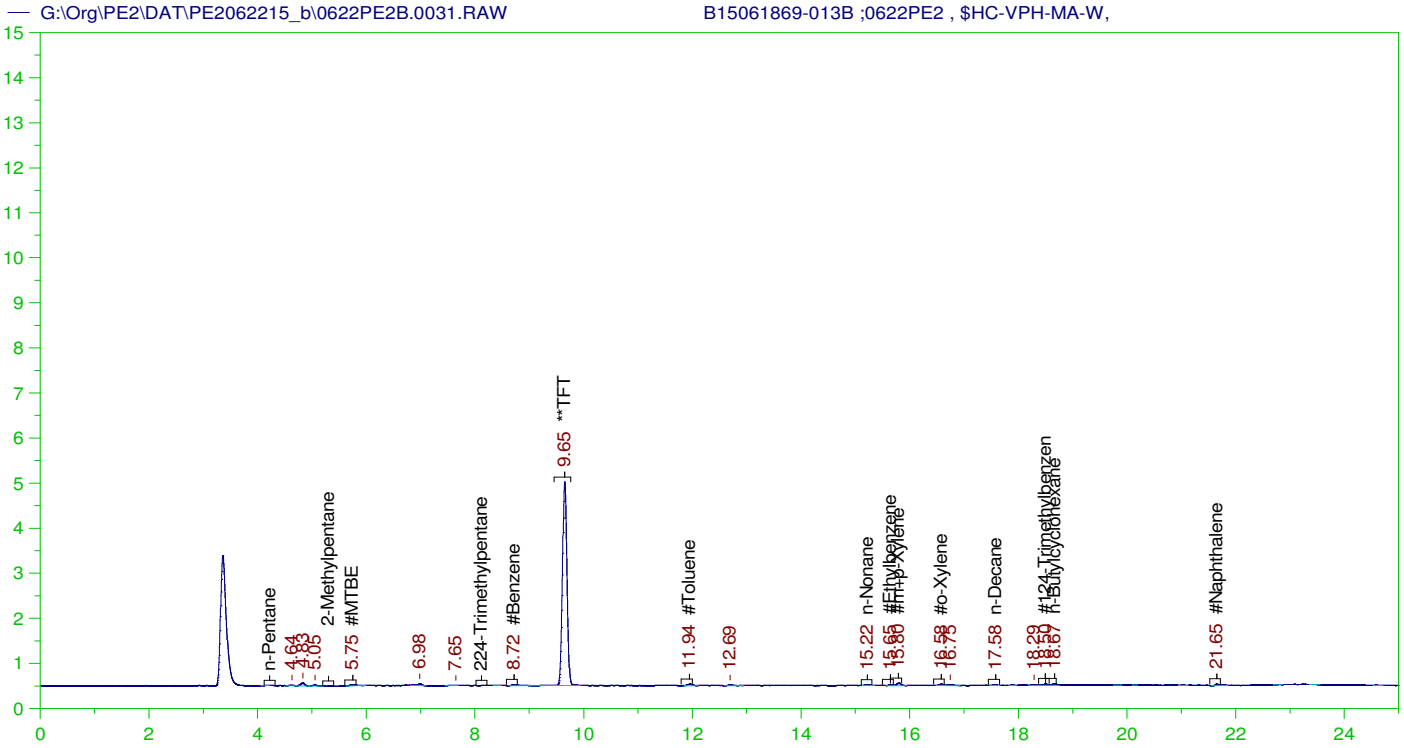
Sample Name: B15061869-013B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0031.RAW
Date & Time Acquired: 6/23/2015 8:38:17 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1613.424 C9-C10 Aromatics Amount: 1.016697

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.722	8.722	8.722	129	.5	U
Toluene	11.944	11.944	11.944	170	.5	U
Ethylbenzene	15.652	15.652	15.652	127	.5	U
m+p-Xylenes	15.797	15.797	15.797	274	.5	U
o-Xylene	16.585	16.585	16.585	131	.5	U
124-Trimethylbenzene	18.496	18.496	18.496	117	.5	U
Naphthalene	21.651	21.651	21.651	368	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.653	25.	20.836	83.34	70-130

LB-6_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-013B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0031.RAW
Date & Time Acquired: 6/23/2015 8:38:17 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

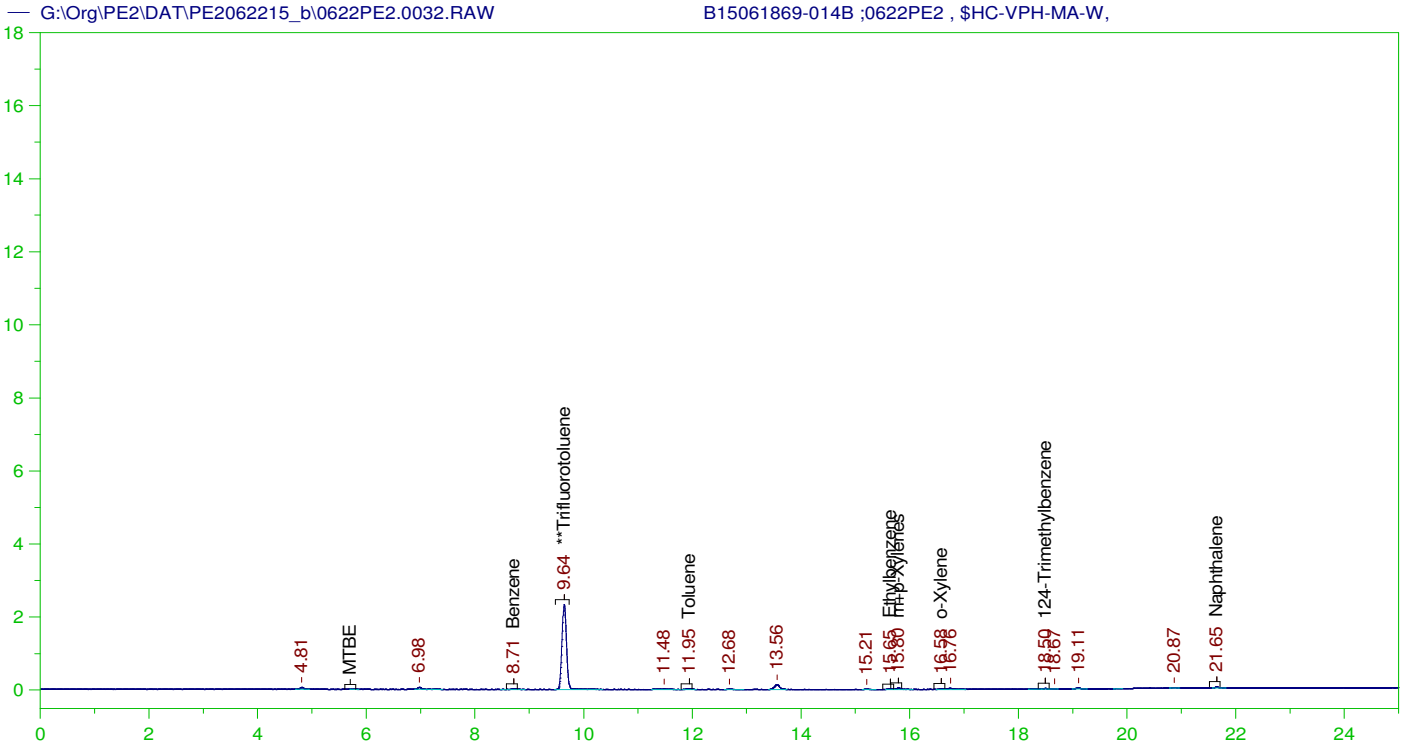
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.653	25.	22.132	88.53 -

GRO Area:1875.201 GRO Amount: 1.269592
TPH Area:3307.076 TPH Amount: 2.239033

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1637.41 C5-C8 Amount: 1.444841
C9-C12 Area:1381.712 C9-C12 Amount: 1.270146

EX-28_061715



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-014B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0032.RAW
Date & Time Acquired: 6/23/2015 9:16:29 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:828.1066 C9-C10 Aromatics Amount: 0.52183

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.714	8.714	8.714	162	.5	U
Toluene	11.948	11.948	11.948	150	.5	U
Ethylbenzene	15.648	15.648	15.648	87	.5	U
m+p-Xylenes	15.797	15.797	15.797	264	.5	U
o-Xylene	16.58	16.58	16.58	118	.5	U
124-Trimethylbenzene	18.497	18.497	18.497	107	.5	U
Naphthalene	.	.	.	139	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.643	25.	21.133	84.53	70-130

EX-28_061715

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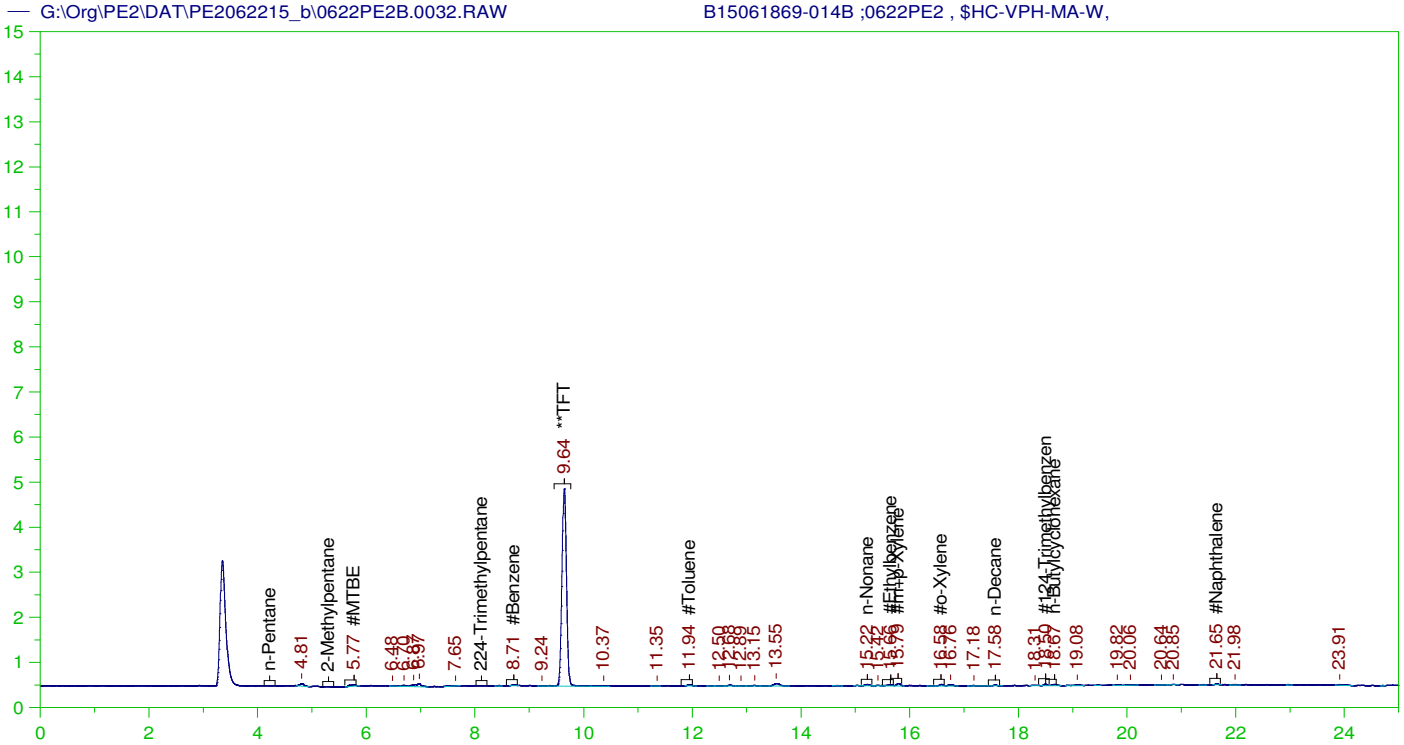

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-014B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0032.RAW
Date & Time Acquired: 6/23/2015 9:16:29 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.644	25.	21.471	85.88 -

GRO Area:3847.916 GRO Amount: 2.605205
TPH Area:5388.113 TPH Amount: 3.647985

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2794.152 C5-C8 Amount: 2.465543
C9-C12 Area:2241.252 C9-C12 Amount: 2.060283

EX-4_061715

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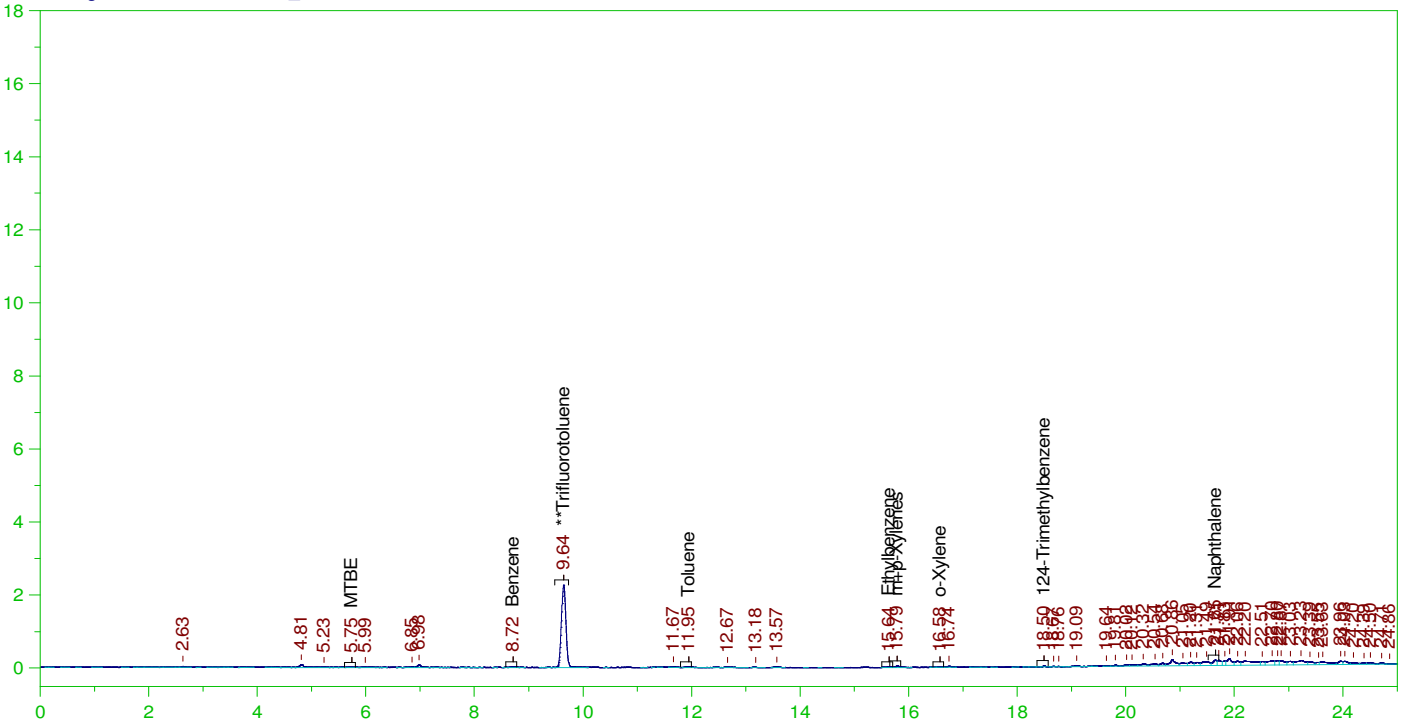

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-015B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0033.RAW
Date & Time Acquired: 6/23/2015 9:52:49 AM
Method File: G:\Org\PE2\Methods\150617V186915.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:6931.86 C9-C10 Aromatics Amount: 4.3681

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	5.745	5.745	5.745	54	1.	U
Benzene	8.718	8.718	8.718	146	.5	U
Toluene	11.949	11.949	11.949	172	.5	U
Ethylbenzene	15.641	15.641	15.641	115	.5	U
m+p-Xylenes	15.79	15.79	15.79	276	.5	U
o-Xylene	16.576	16.576	16.576	103	.5	U
124-Trimethylbenzene	18.498	18.498	18.498	141	.5	U
Naphthalene	21.65	21.65	21.65	730	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.645	25.	20.451	81.8	70-130

EX-4_061715

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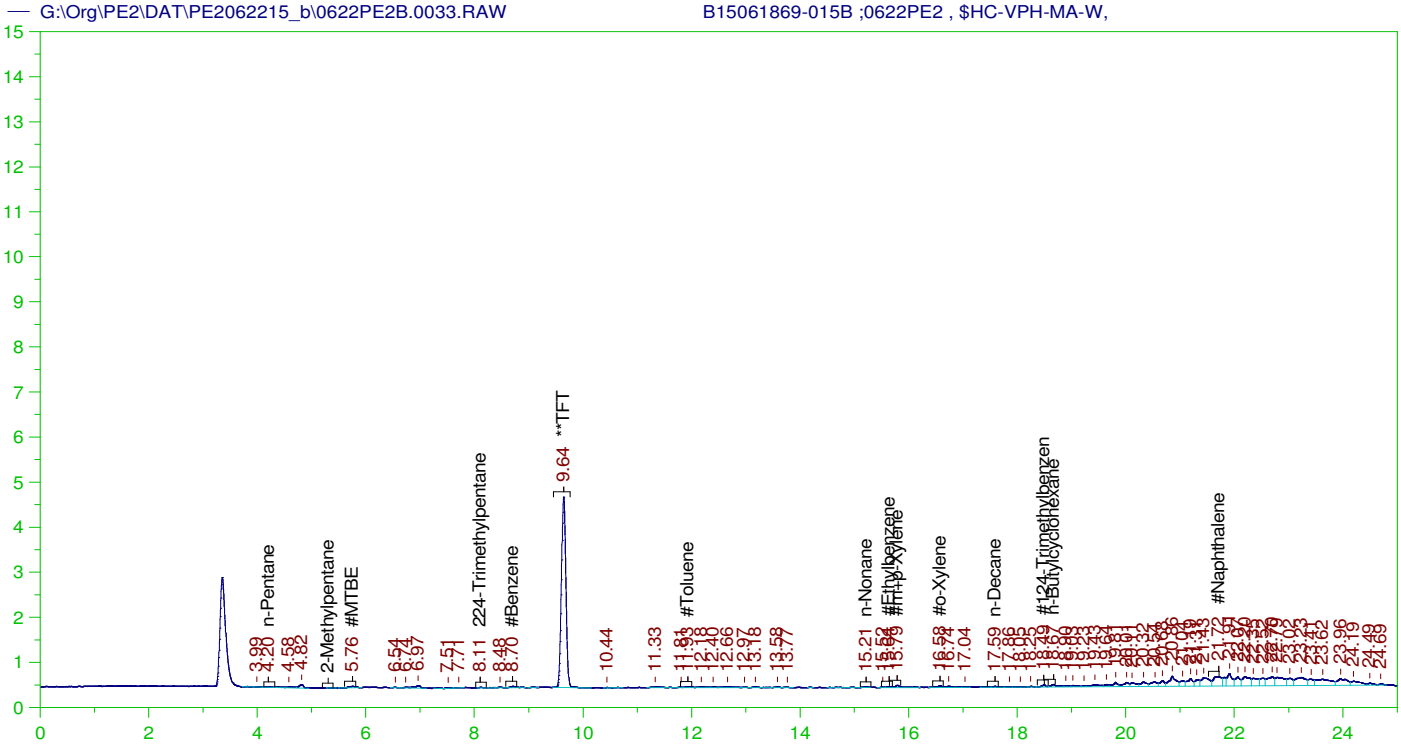


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-015B ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0033.RAW
Date & Time Acquired: 6/23/2015 9:52:49 AM
Method File: G:\Org\PE2\Methods\150617VPH186915B.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

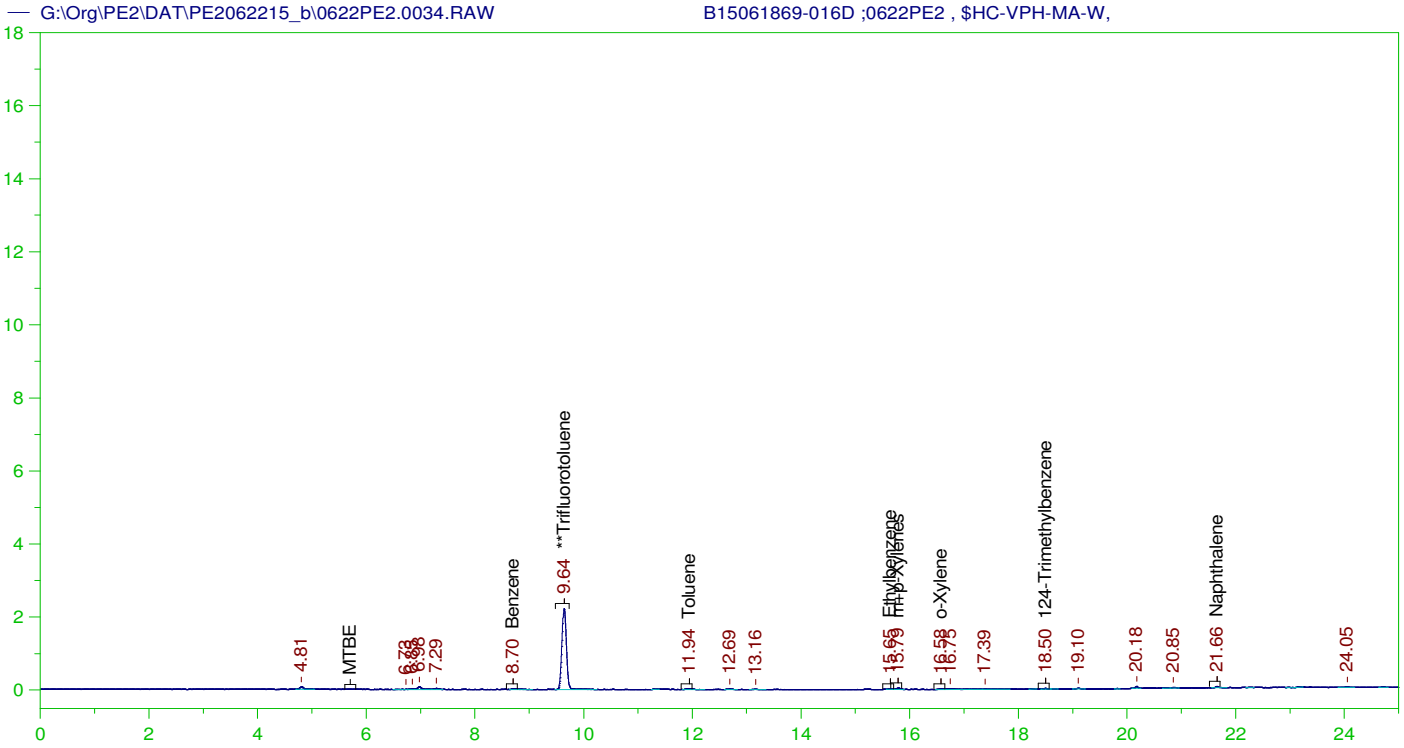
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.645	25.	20.772	83.09 -

GRO Area:4498.049 GRO Amount: 3.045373
TPH Area:42539.96 TPH Amount: 28.80139

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:4029.445 C5-C8 Amount: 3.555558
C9-C12 Area:14471.82 C9-C12 Amount: 13.30329

EX-29_061715



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

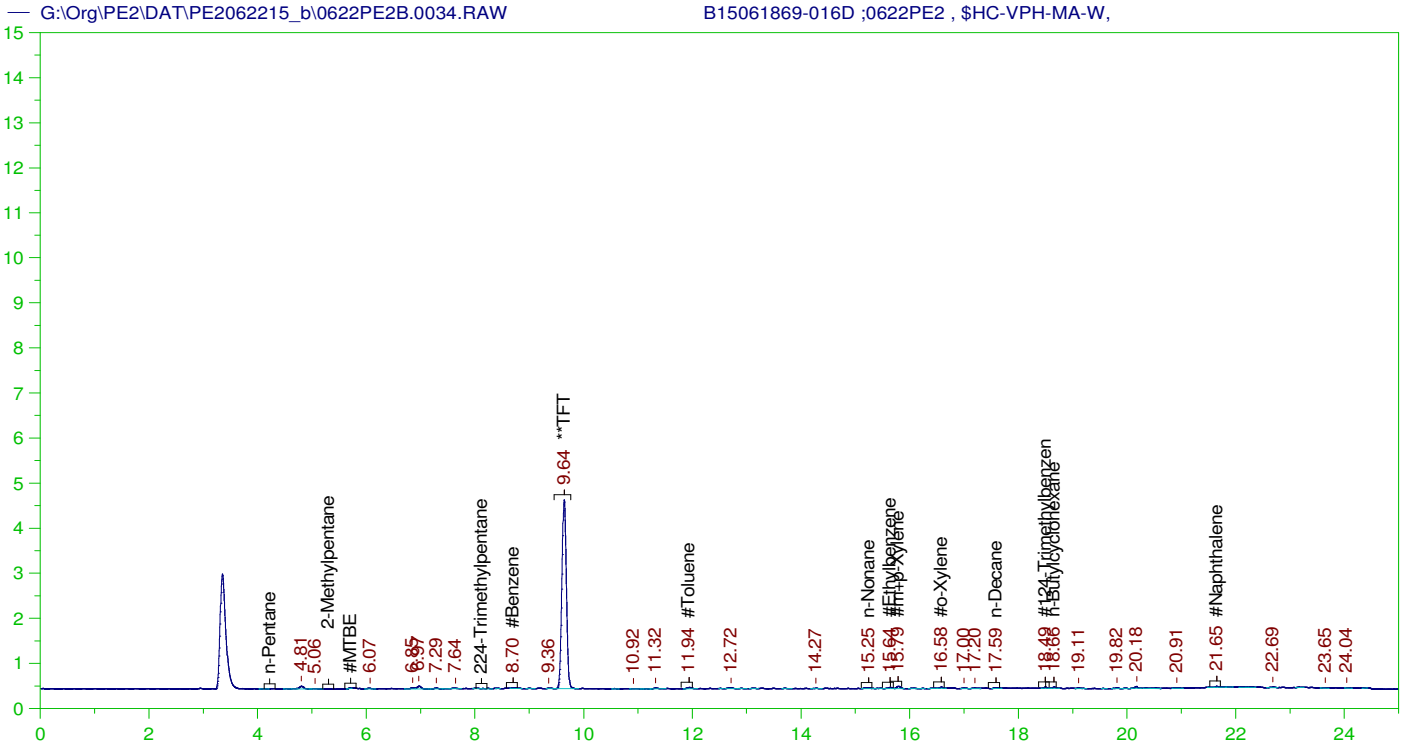
Sample Name: B15061869-016D ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0034.RAW
Date & Time Acquired: 6/23/2015 10:29:28 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:917.7962 C9-C10 Aromatics Amount: 0.5783477

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.704	8.704	8.704	174	.5	U
Toluene	11.945	11.945	11.945	154	.5	U
Ethylbenzene	15.646	15.646	15.646	78	.5	U
m+p-Xylenes	15.789	15.789	15.789	214	.5	U
o-Xylene	16.576	16.576	16.576	121	.5	U
124-Trimethylbenzene	18.499	18.499	18.499	109	.5	U
Naphthalene	21.655	21.655	21.655	128	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.642	25.	20.173	80.69	70-130

EX-29_061715



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-016D ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0034.RAW
Date & Time Acquired: 6/23/2015 10:29:28 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

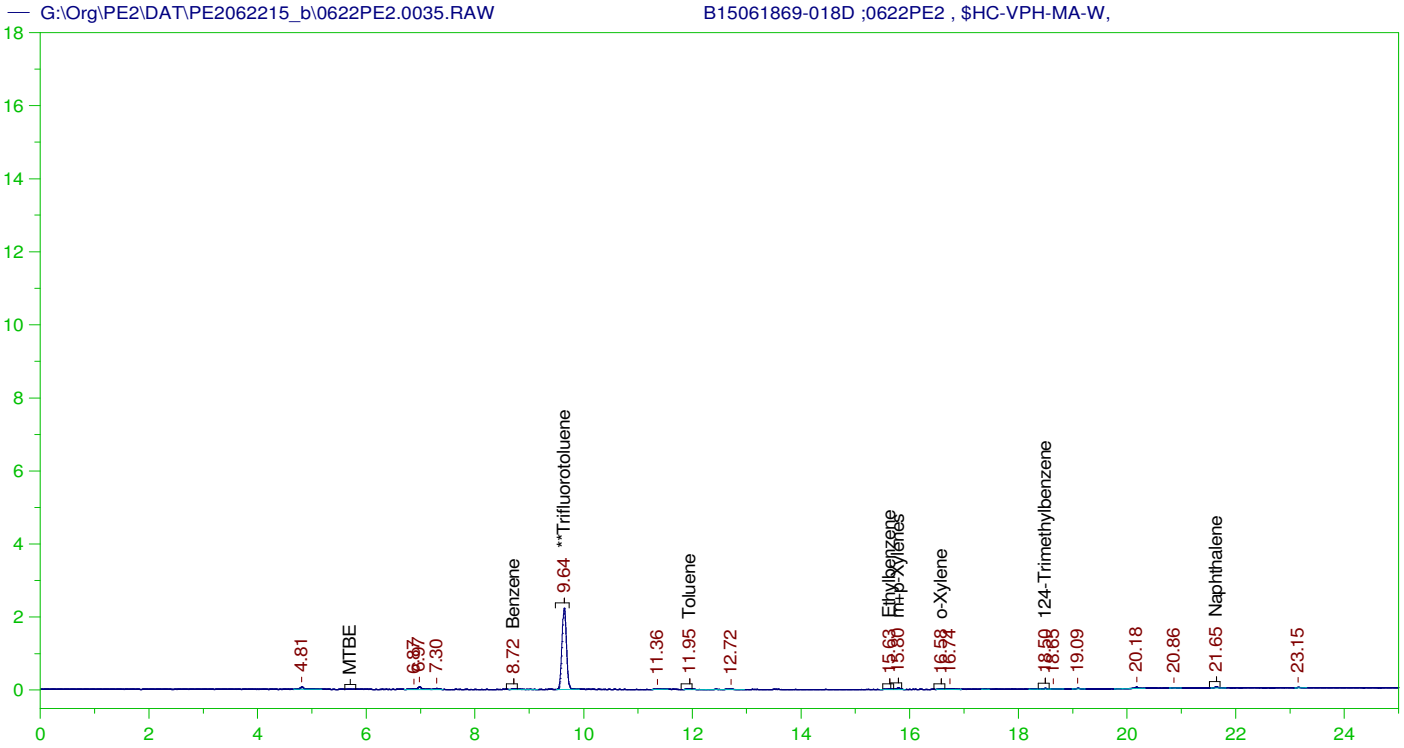
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.642	25.	20.508	82.03 -

GRO Area:2604.955 GRO Amount: 1.763667
TPH Area:4387.838 TPH Amount: 2.970756

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2247.969 C5-C8 Amount: 1.983594
C9-C12 Area:1649.48 C9-C12 Amount: 1.516293

D2_061715



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

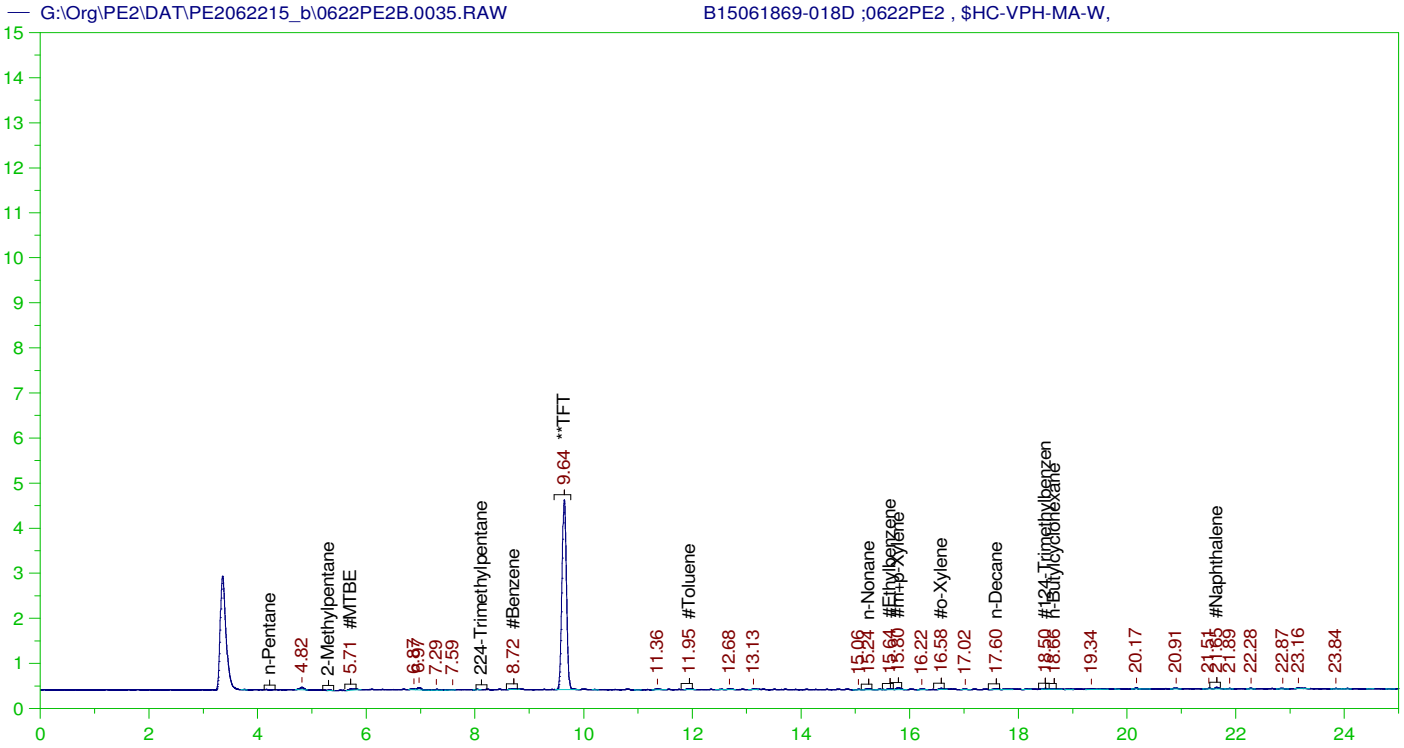
Sample Name: B15061869-018D ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2.0035.RAW
Date & Time Acquired: 6/23/2015 11:06:15 AM
Method File: G:\Org\PE2\Methods\150617VPH.MET
Calibration File: G:\Org\PE2\Cals\150617VPH.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 317.3856
Rt range for C9 to C10 Aromatics: 16.645 to 21.515
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:838.4114 C9-C10 Aromatics Amount: 0.5283235

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.715	8.715	8.715	183	.5	U
Toluene	11.95	11.95	11.95	165	.5	U
Ethylbenzene	15.634	15.634	15.634	134	.5	U
m+p-Xylenes	15.797	15.797	15.797	243	.5	U
o-Xylene	16.582	16.582	16.582	109	.5	U
124-Trimethylbenzene	18.496	18.496	18.496	117	.5	U
Naphthalene	21.648	21.648	21.648	150	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**Trifluorotoluene	9.644	25.	20.012	80.05	70-130

D2_061715



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15061869-018D ;0622PE2 , $HC-VPH-MA-W,
Raw File: G:\Org\PE2\DAT\PE2062215_b\0622PE2B.0035.RAW
Date & Time Acquired: 6/23/2015 11:06:15 AM
Method File: G:\Org\PE2\Methods\150617VPHB.MET
Calibration File: G:\Org\PE2\Cals\150617VPHB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 226.6561
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 217.5674
Mean RF for all calibrated compounds: 295.4021
Rt range for Gasoline Range Organics: 5.2 to 17.65
Rt range for C5 to C8 Aliphatic Hydrocarbons: 4.12 to 15.11
Rt range for C9 to C12 Aliphatic Hydrocarbons: 15.16 to 21.52

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.643	25.	20.629	82.51 -

GRO Area:2472.637 GRO Amount: 1.674082
TPH Area:4277.805 TPH Amount: 2.896259

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:1873.514 C5-C8 Amount: 1.653177
C9-C12 Area:1746.376 C9-C12 Amount: 1.605365

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Batch: 90849
Lab ID: LCS-90849	Laboratory Control Sample				Run: GCFID-HP3-B_150625B				06/26/15 13:15
Total Extractable Hydrocarbons	5590	ug/L	300	90	60	140			
Surr: o-Terphenyl				79	40	140			
Lab ID: MB-90849	Method Blank				Run: GCFID-HP3-B_150625B				06/26/15 13:59
Total Extractable Hydrocarbons	ND	ug/L	300						
Surr: o-Terphenyl				77	40	140			
Lab ID: B15061869-001CMS	Sample Matrix Spike				Run: GCFID-HP3-B_150625B				06/26/15 15:26
Total Extractable Hydrocarbons	10700	ug/L	570	92	60	140			
Surr: o-Terphenyl				85	40	140			
Lab ID: B15061869-001CMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP3-B_150625B				06/26/15 16:10
Total Extractable Hydrocarbons	10900	ug/L	570	93	60	140	1.4	20	
Surr: o-Terphenyl				82	40	140			
Method: SW8015M									Analytical Run: R245314
Lab ID: CCV_0625HP335r-W	Continuing Calibration Verification Standard								06/26/15 11:48
n-Nonane	187	ug/L		93	75	125			
n-Decane	182	ug/L		91	75	125			
n-Dodecane	192	ug/L		96	75	125			
n-Tetradecane	186	ug/L		93	75	125			
n-Hexadecane	190	ug/L		95	75	125			
n-Octadecane	190	ug/L		95	75	125			
n-Nonadecane	192	ug/L		96	75	125			
n-Eicosane	190	ug/L		95	75	125			
n-Docosane	190	ug/L		95	75	125			
n-Tetracosane	192	ug/L		96	75	125			
n-Hexacosane	190	ug/L		95	75	125			
n-Octacosane	190	ug/L		95	75	125			
n-Triacontane	193	ug/L		97	75	125			
n-Hexatriacontane	190	ug/L		95	75	125			
Surr: o-Terphenyl				94	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Analytical Run: R245315
Lab ID: CCV_0629HP302r-W	Continuing Calibration Verification Standard								06/29/15 10:32
n-Nonane	194	ug/L		97	75	125			
n-Decane	190	ug/L		95	75	125			
n-Dodecane	191	ug/L		95	75	125			
n-Tetradecane	186	ug/L		93	75	125			
n-Hexadecane	192	ug/L		96	75	125			
n-Octadecane	192	ug/L		96	75	125			
n-Nonadecane	195	ug/L		97	75	125			
n-Eicosane	192	ug/L		96	75	125			
n-Docosane	192	ug/L		96	75	125			
n-Tetracosane	193	ug/L		97	75	125			
n-Hexacosane	192	ug/L		96	75	125			
n-Octacosane	192	ug/L		96	75	125			
n-Triacontane	195	ug/L		98	75	125			
n-Hexatriacontane	189	ug/L		95	75	125			
Surr: o-Terphenyl				95	75	125			
Method: SW8015M									Analytical Run: R245318
Lab ID: CCV_0629HP313r-W	Continuing Calibration Verification Standard								06/29/15 18:41
n-Nonane	198	ug/L		99	75	125			
n-Decane	193	ug/L		97	75	125			
n-Dodecane	197	ug/L		98	75	125			
n-Tetradecane	192	ug/L		96	75	125			
n-Hexadecane	197	ug/L		99	75	125			
n-Octadecane	198	ug/L		99	75	125			
n-Nonadecane	200	ug/L		100	75	125			
n-Eicosane	198	ug/L		99	75	125			
n-Docosane	198	ug/L		99	75	125			
n-Tetracosane	199	ug/L		100	75	125			
n-Hexacosane	198	ug/L		99	75	125			
n-Octacosane	198	ug/L		99	75	125			
n-Triacontane	201	ug/L		101	75	125			
n-Hexatriacontane	195	ug/L		97	75	125			
Surr: o-Terphenyl				98	75	125			

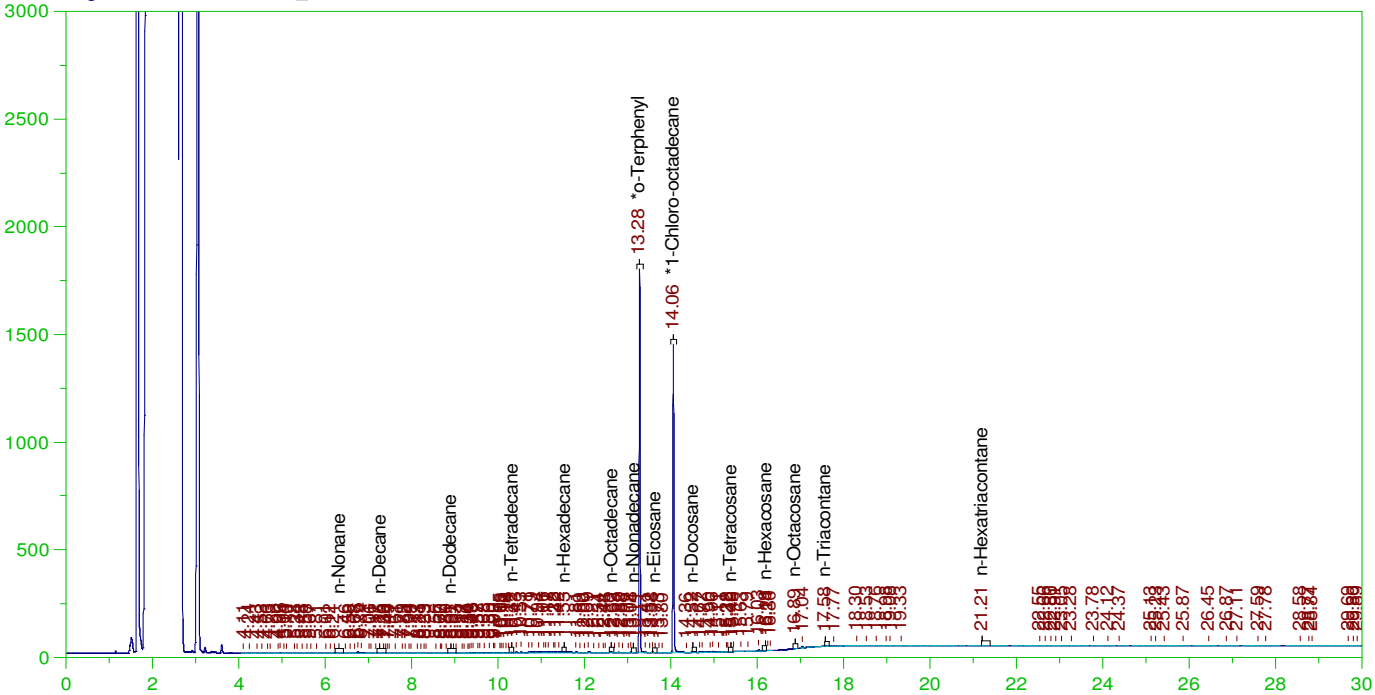
Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

L-87-1_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062515_b\0625HP3.0039.RAW B15061869-001C ;0625HP3 , $HC-EPH-SCRN-W, V39



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-001C ;0625HP3 , $HC-EPH-SCRN-W, V39
Raw File: G:\org\HP3\DAT\HP3062515_b\0625HP3.0039.RAW
Date & Time Acquired: 6/26/2015 2:43:02 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

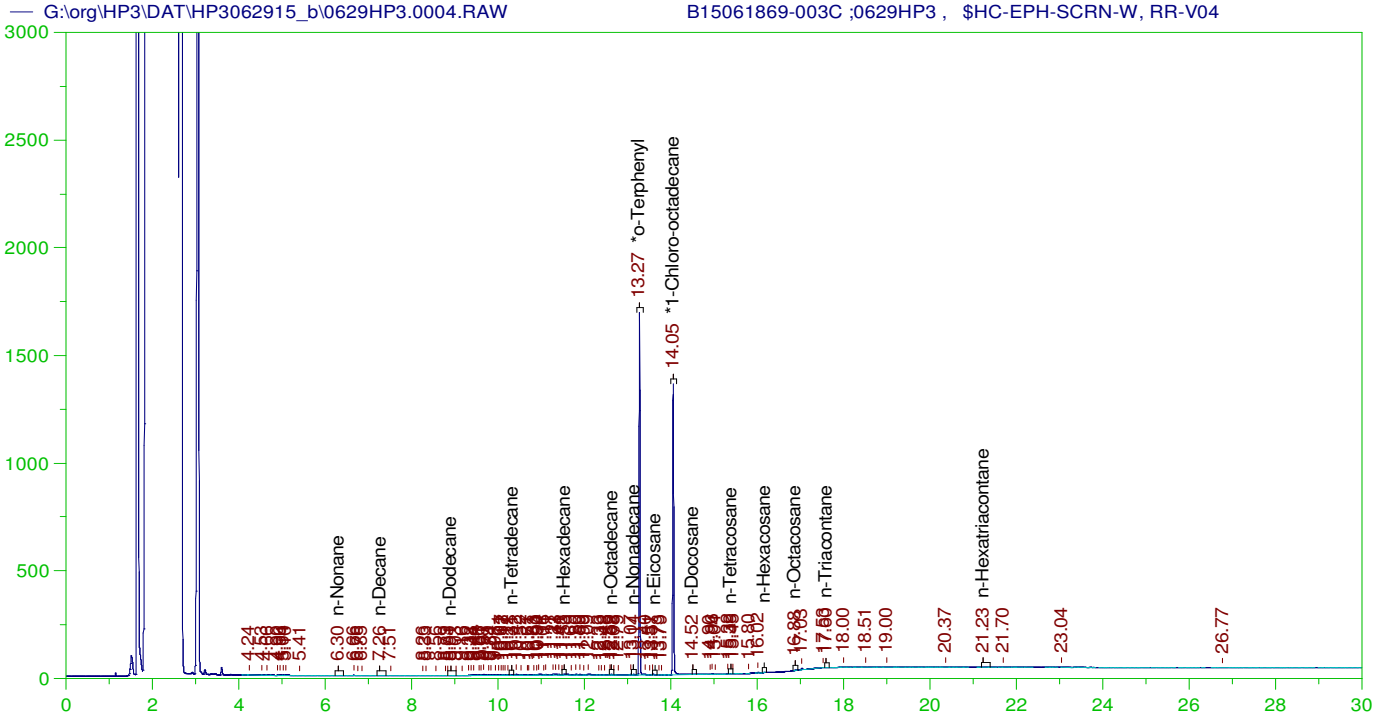
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.276	2899935	190.476	159.899	83.95	-
*1-Chloro-octadecane	14.059	2542999	190.476	183.09	96.12	-

DRO Area:599804.5 DRO Amount: 36.86962
TEH Area:776078.5 TEH Amount: 47.70508
C9-C18 Area:558265.6 C9-C18 Amount: 34.32465
C19-C36 Area:106974 C19-C36 Amount: 6.574018

EX-2_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0004.RAW B15061869-003C ;0629HP3 , $HC-EPH-SCRN-W, RR-V04



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-003C ;0629HP3 , $HC-EPH-SCRN-W, RR-V04
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0004.RAW
Date & Time Acquired: 6/29/2015 12:02:36 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.045 Dilution: 2 S.A.: 1

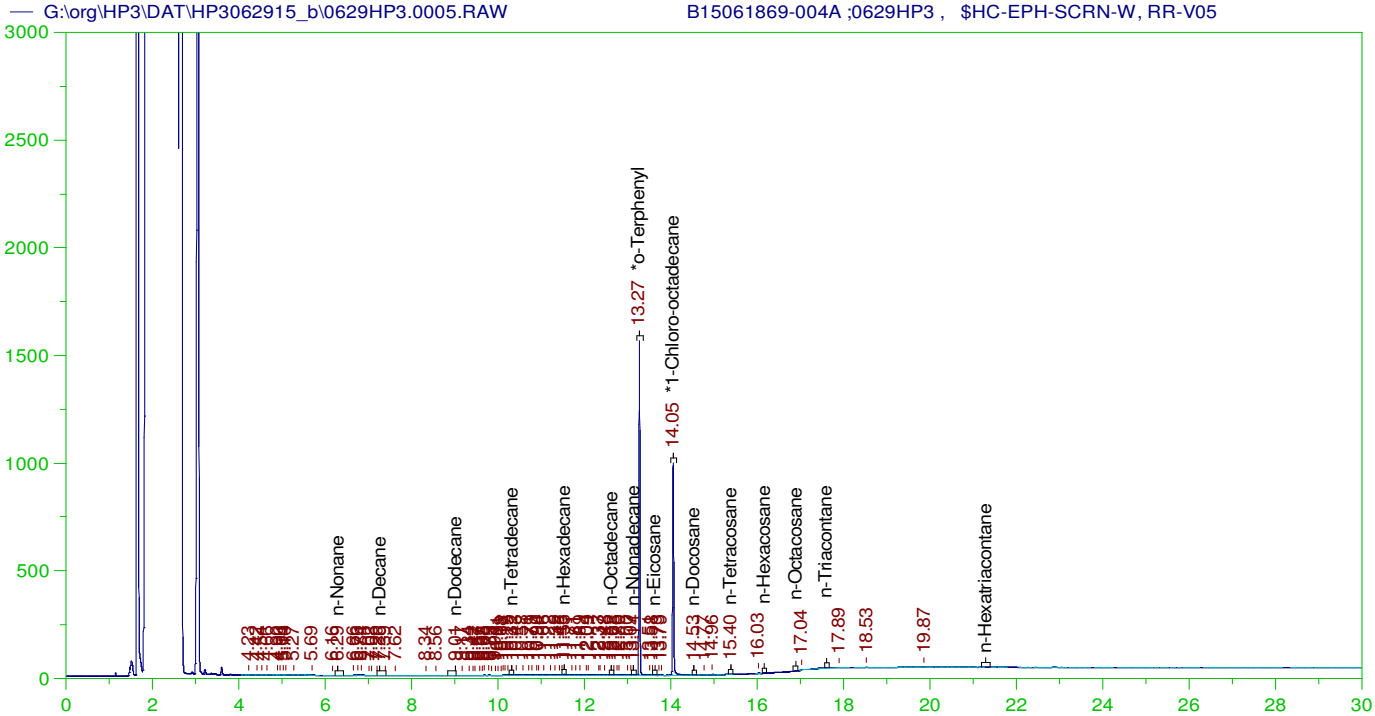
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.272	2721914	191.388	150.801	78.79	-
*1-Chloro-octadecane	14.055	2395518	191.388	173.297	90.55	-

DRO Area:385408.8 DRO Amount: 23.8042
TEH Area:435418.3 TEH Amount: 26.89296
C9-C18 Area:327466.3 C9-C18 Amount: 20.23042
C19-C36 Area:79055.75 C19-C36 Amount: 4.881565

RX_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0005.RAW B15061869-004A ;0629HP3 , $HC-EPH-SCRN-W, RR-V05



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-004A ;0629HP3 , $HC-EPH-SCRN-W, RR-V05
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0005.RAW
Date & Time Acquired: 6/29/2015 12:47:20 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

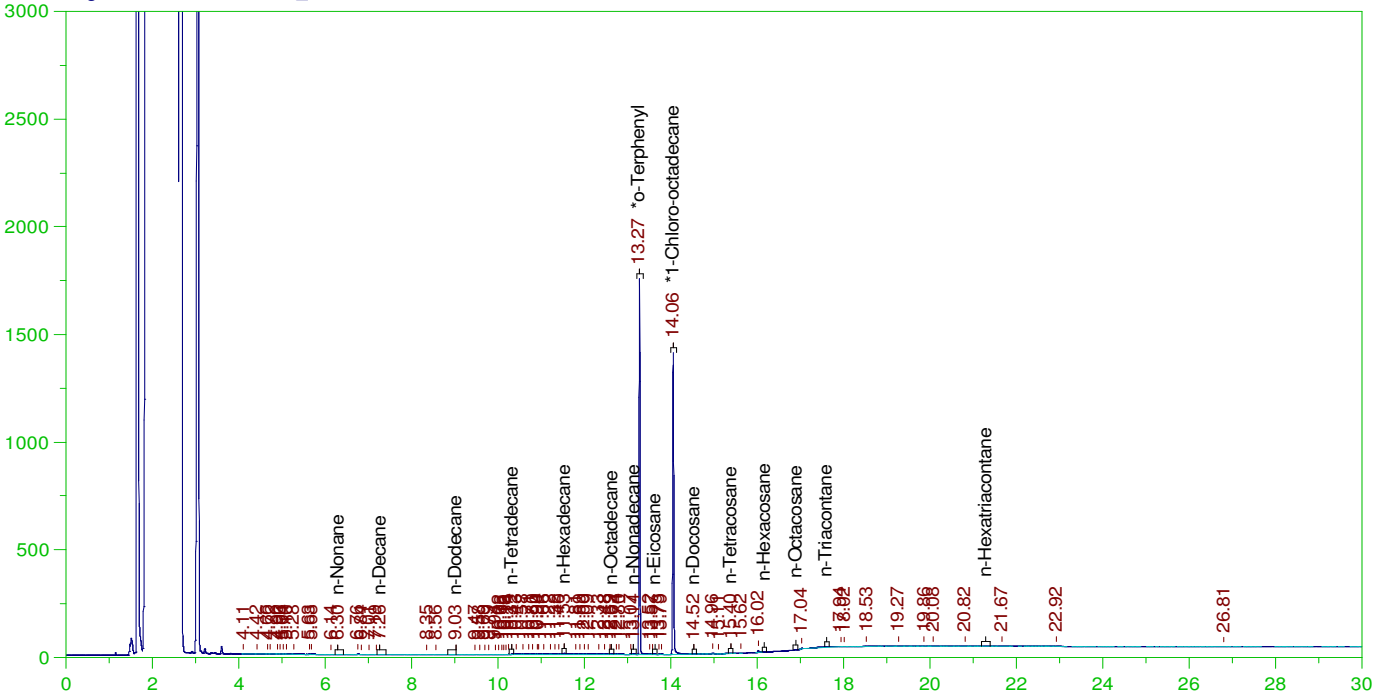
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.271	2556474	190.476	140.961	74.	-
*1-Chloro-octadecane	14.054	1822318	190.476	131.202	68.88	-

DRO Area:347010.9 DRO Amount: 21.33055
TEH Area:467840.4 TEH Amount: 28.75787
C9-C18 Area:327889.3 C9-C18 Amount: 20.1601
C19-C36 Area:107320.9 C19-C36 Amount: 6.595335

EX-10_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0006.RAW B15061869-005A ;0629HP3 , $HC-EPH-SCRN-W, RR-V06



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-005A ;0629HP3 , $HC-EPH-SCRN-W, RR-V06
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0006.RAW
Date & Time Acquired: 6/29/2015 1:32:06 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

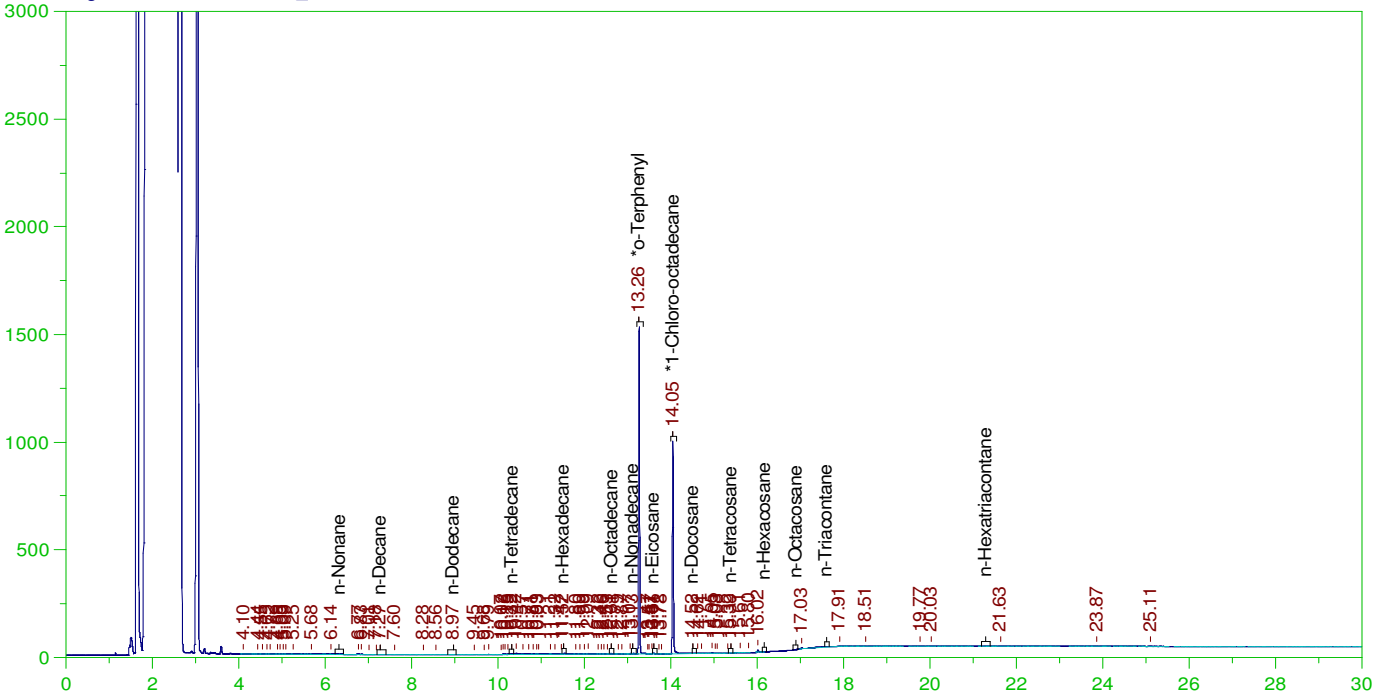
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.272	2868322	190.476	158.155	83.03	-
*1-Chloro-octadecane	14.055	2521004	190.476	181.506	95.29	-

DRO Area:332182.5 DRO Amount: 20.41906
TEH Area:464051 TEH Amount: 28.52494
C9-C18 Area:278946.3 C9-C18 Amount: 17.15086
C19-C36 Area:147196.5 C19-C36 Amount: 9.045865

EX-6_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0007.RAW B15061869-007A ;0629HP3 , $HC-EPH-SCRN-W, RR-V07



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-007A ;0629HP3 , $HC-EPH-SCRN-W, RR-V07
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0007.RAW
Date & Time Acquired: 6/29/2015 2:16:40 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.035 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.264	2461200	193.237	137.674	71.25	-
*1-Chloro-octadecane	14.047	1754638	193.237	128.16	66.32	-

DRO Area:245911.8 DRO Amount: 15.33512
TEH Area:372687.3 TEH Amount: 23.24087
C9-C18 Area:184199.3 C9-C18 Amount: 11.48953
C19-C36 Area:148305.3 C19-C36 Amount: 9.24609

EX-5_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0009.RAW B15061869-008A ;0629HP3 , $HC-EPH-SCRN-W, RR-V09

EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-008A ;0629HP3 , $HC-EPH-SCRN-W, RR-V09
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0009.RAW
Date & Time Acquired: 6/29/2015 3:45:00 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.045 Dilution: 2 S.A.: 1

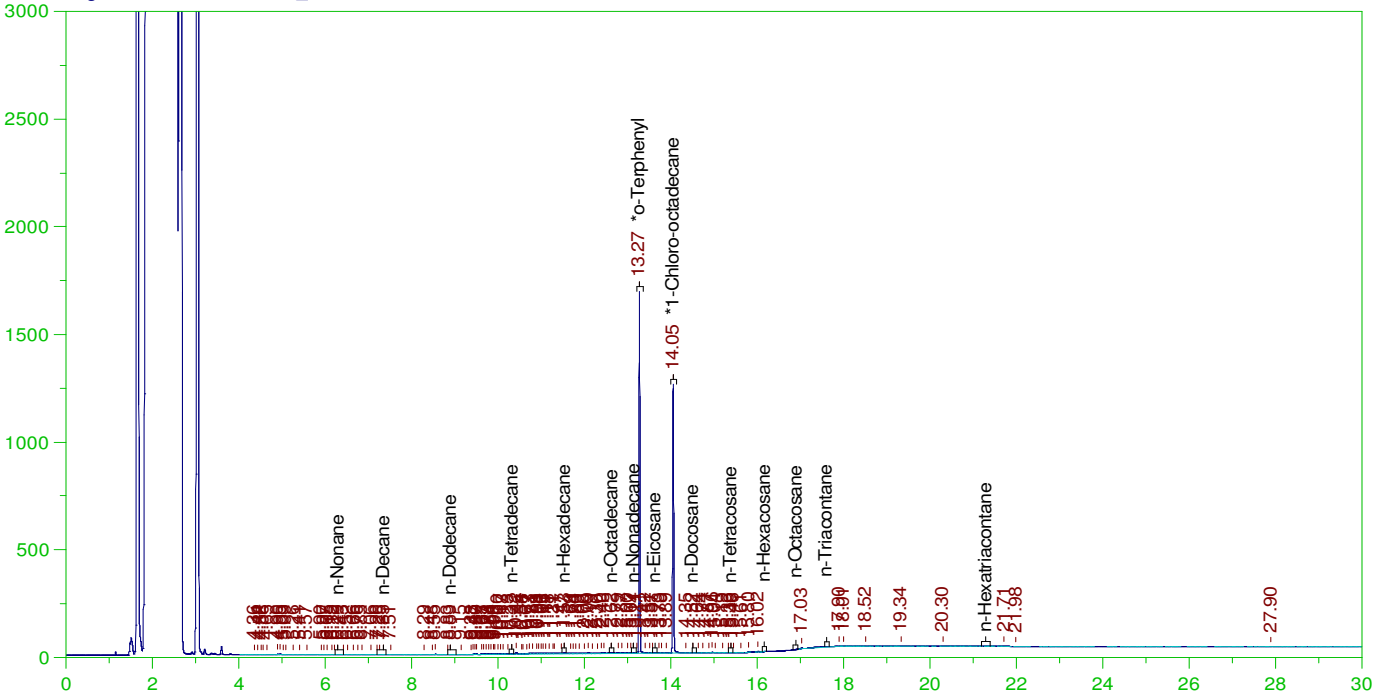
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.27	2778523	191.388	153.937	80.43	-
*1-Chloro-octadecane	14.054	2301731	191.388	166.512	87.	-

DRO Area:422158.8 DRO Amount: 26.07401
TEH Area:484669.3 TEH Amount: 29.93487
C9-C18 Area:205210.5 C9-C18 Amount: 12.67763
C19-C36 Area:234961.8 C19-C36 Amount: 14.50851

EX-43_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0010.RAW B15061869-009A ;0629HP3 , $HC-EPH-SCRN-W, RR-V10



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-009A ;0629HP3 , $HC-EPH-SCRN-W, RR-V10
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0010.RAW
Date & Time Acquired: 6/29/2015 4:29:12 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

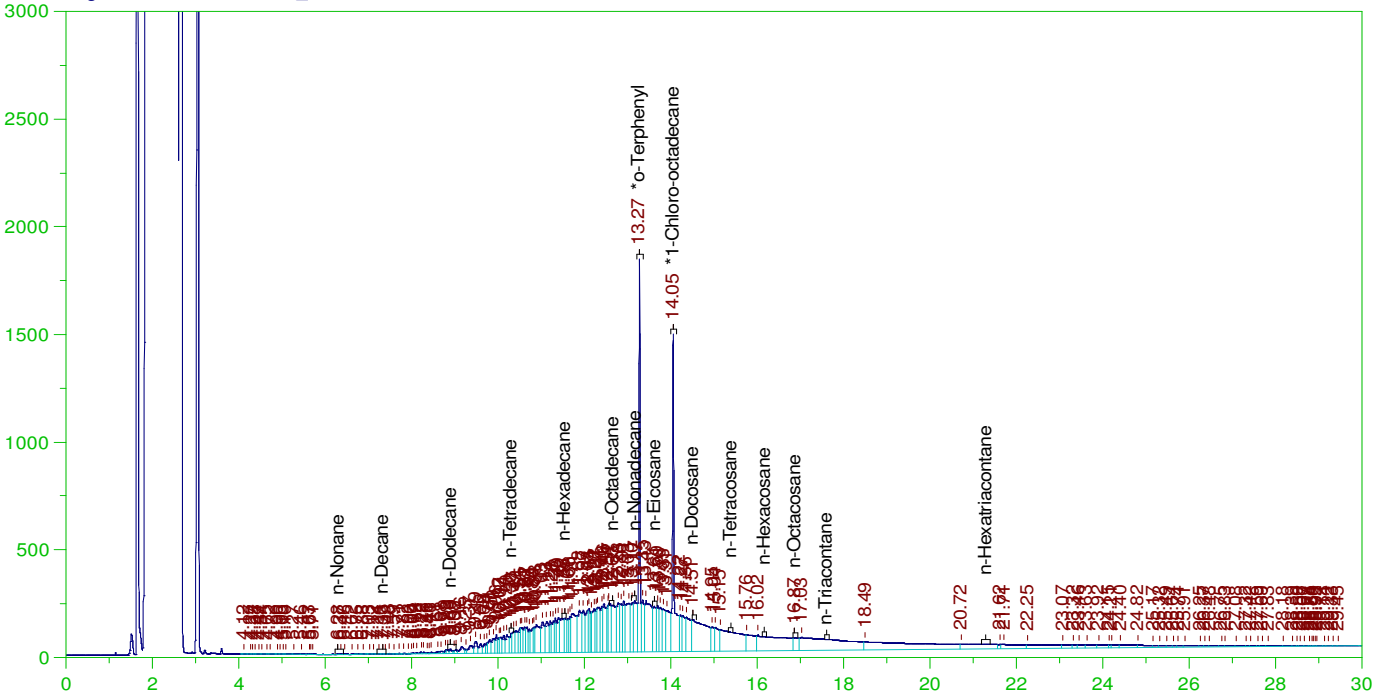
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.271	2731393	190.476	150.605	79.07	-
*1-Chloro-octadecane	14.054	2236547	190.476	161.026	84.54	-

DRO Area:659741.5 DRO Amount: 40.55391
TEH Area:805653.5 TEH Amount: 49.52304
C9-C18 Area:536421.9 C9-C18 Amount: 32.98161
C19-C36 Area:218685.5 C19-C36 Amount: 13.43918

D1_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0012.RAW B15061869-010A ;0629HP3 , $HC-EPH-SCRN-W, RR-V12



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-010A ;0629HP3 , $HC-EPH-SCRN-W, RR-V12
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0012.RAW
Date & Time Acquired: 6/29/2015 5:57:46 PM
Method File: g:\org\HP3\Methods\S3_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

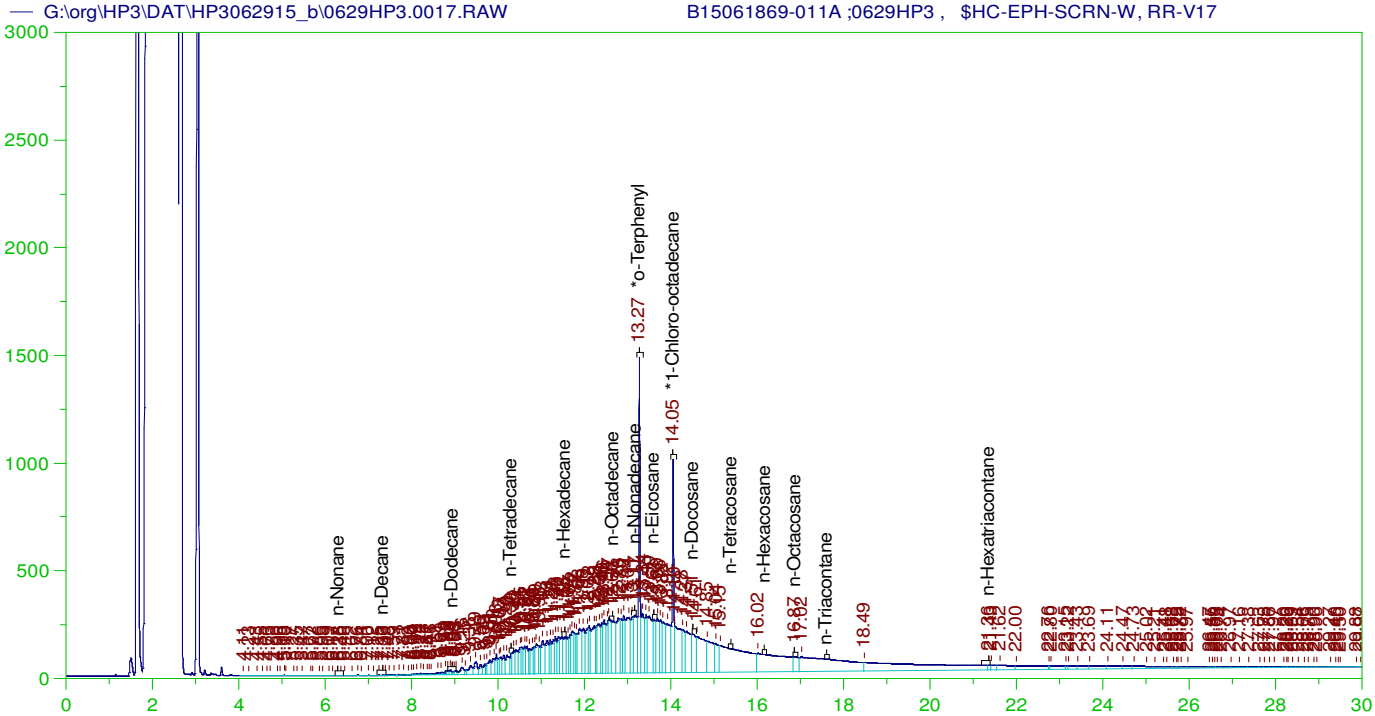
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.272	3711187	190.476	204.63	107.43	-
*1-Chloro-octadecane	14.054	4218171	190.476	303.698	159.44	-

DRO Area:6.161861E+07 DRO Amount: 3787.659
TEH Area:7.100947E+07 TEH Amount: 4364.91
C9-C18 Area:3.361507E+07 C9-C18 Amount: 2066.804
C19-C36 Area:3.282353E+07C19-C36 Amount: 2017.149

90-1C_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0017.RAW B15061869-011A ;0629HP3 , $HC-EPH-SCRN-W, RR-V17



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-011A ;0629HP3 , $HC-EPH-SCRN-W, RR-V17
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0017.RAW
Date & Time Acquired: 6/29/2015 9:37:54 PM
Method File: g:\org\HP3\Methods\SR_SCN-062917-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

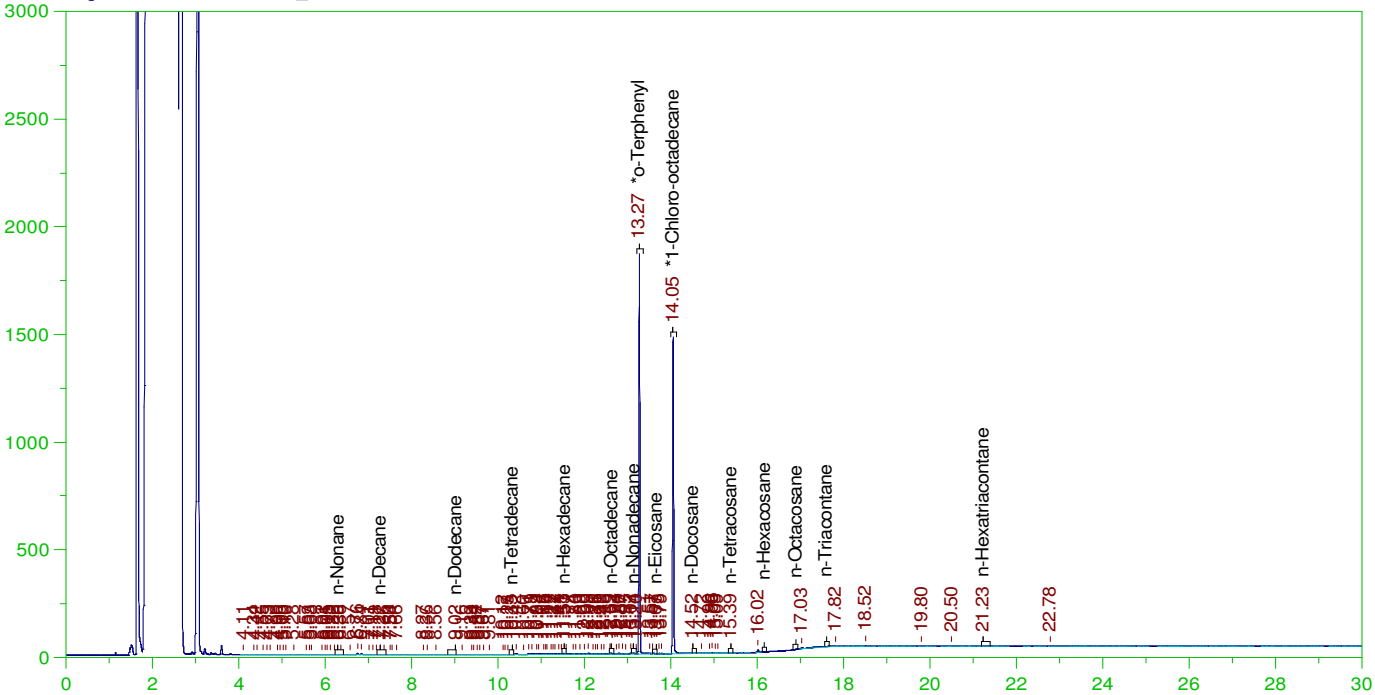
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.27	3186557	190.476	175.703	92.24	-
*1-Chloro-octadecane	14.052	2489766	190.476	179.257	94.11	-

DRO Area:7.190763E+07 DRO Amount: 4420.119
TEH Area:8.183894E+07 TEH Amount: 5030.59
C9-C18 Area:3.696824E+07 C9-C18 Amount: 2272.972
C19-C36 Area:3.989923E+07C19-C36 Amount: 2451.981

95-1_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0015.RAW B15061869-012A ;0629HP3 , $HC-EPH-SCRN-W, RR-V15



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-012A ;0629HP3 , $HC-EPH-SCRN-W, RR-V15
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0015.RAW
Date & Time Acquired: 6/29/2015 8:10:16 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.045 Dilution: 2 S.A.: 1

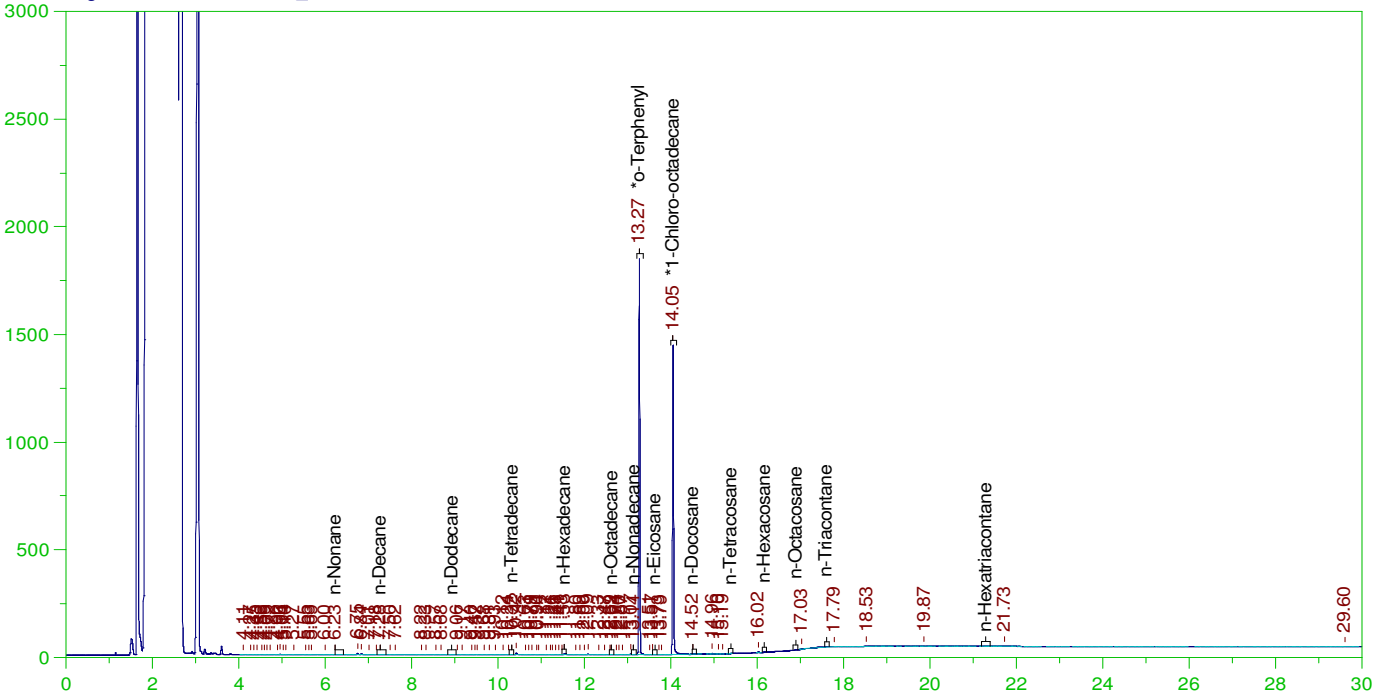
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.269	3021574	191.388	167.403	87.47	-
*1-Chloro-octadecane	14.053	2596701	191.388	187.851	98.15	-

DRO Area:325254.5 DRO Amount: 20.08886
TEH Area:491511 TEH Amount: 30.35744
C9-C18 Area:290644.5 C9-C18 Amount: 17.95562
C19-C36 Area:136424 C19-C36 Amount: 8.423963

LB-6_061815 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0016.RAW B15061869-013A ;0629HP3 , $HC-EPH-SCRN-W, RR-V16



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-013A ;0629HP3 , $HC-EPH-SCRN-W, RR-V16
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0016.RAW
Date & Time Acquired: 6/29/2015 8:54:11 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

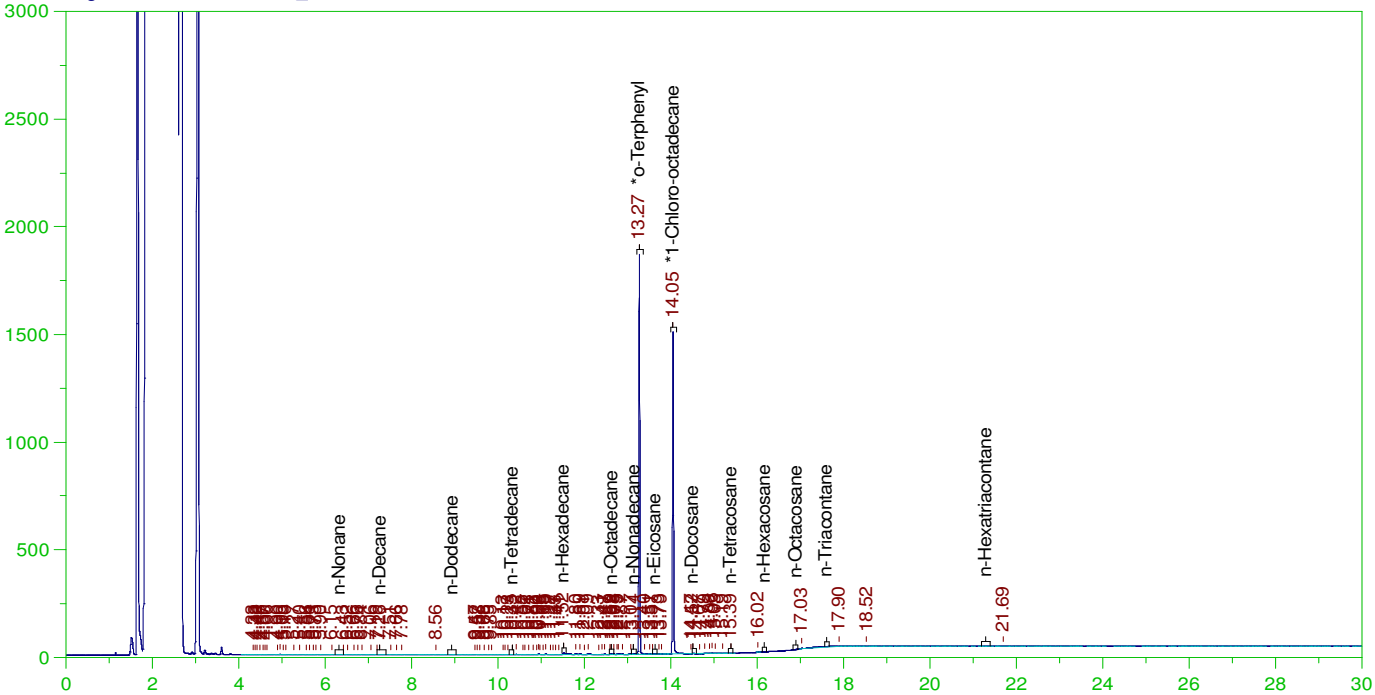
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.269	2991235	190.476	164.933	86.59	-
*1-Chloro-octadecane	14.052	2578319	190.476	185.633	97.46	-

DRO Area:250845.5 DRO Amount: 15.41932
TEH Area:379917 TEH Amount: 23.35327
C9-C18 Area:247478 C9-C18 Amount: 15.21605
C19-C36 Area:85858.5 C19-C36 Amount: 5.276378

EX-28_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0019.RAW B15061869-014A ;0629HP3 , $HC-EPH-SCRN-W, RR-V19



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-014A ;0629HP3 , $HC-EPH-SCRN-W, RR-V19
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0019.RAW
Date & Time Acquired: 6/29/2015 11:05:16 PM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

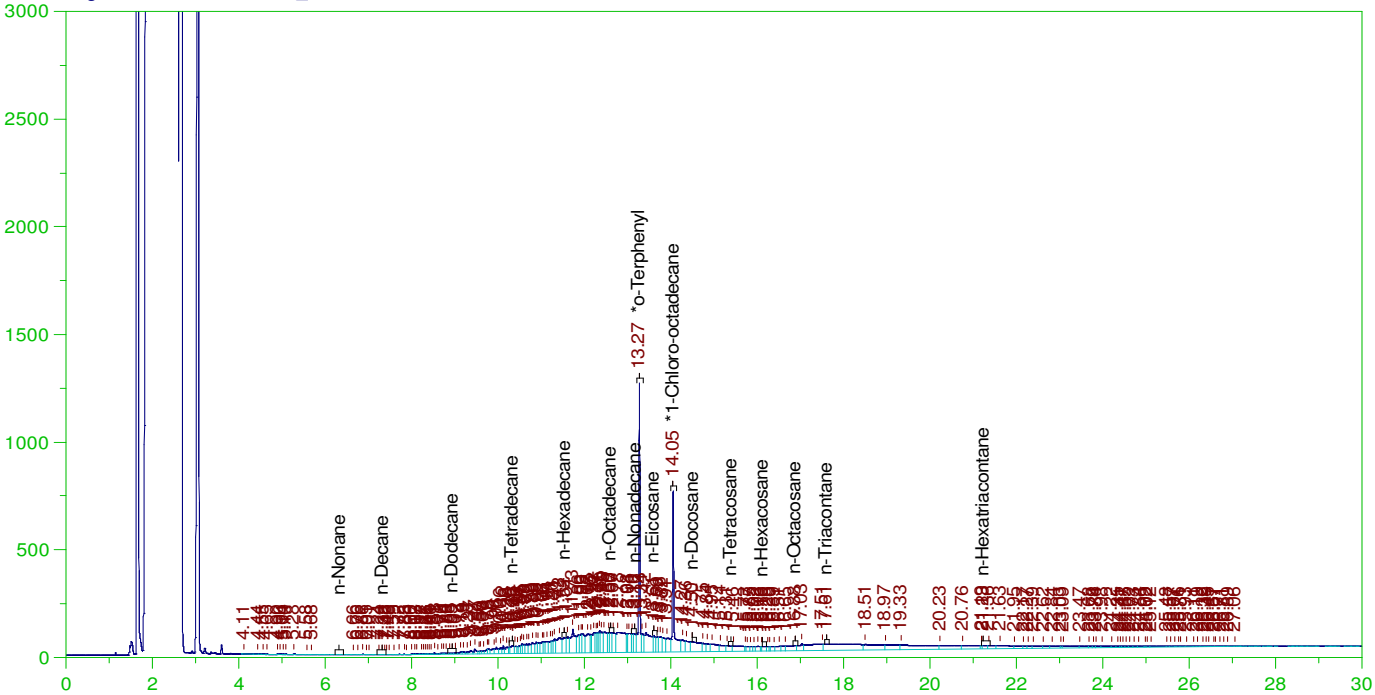
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.268	2995725	190.476	165.18	86.72	-
*1-Chloro-octadecane	14.051	2668865	190.476	192.152	100.88	-

DRO Area:194401 DRO Amount: 11.94971
TEH Area:340503 TEH Amount: 20.93052
C9-C18 Area:165520 C9-C18 Amount: 10.1769
C19-C36 Area:121135 C19-C36 Amount: 7.444273

EX-4_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0011.RAW B15061869-015A ;0629HP3 , $HC-EPH-SCRN-W, V11



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-015A ;0629HP3 , $HC-EPH-SCRN-W, V11
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0011.RAW
Date & Time Acquired: 6/29/2015 5:13:33 PM
Method File: g:\org\HP3\Methods\SR_SCN-062911-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

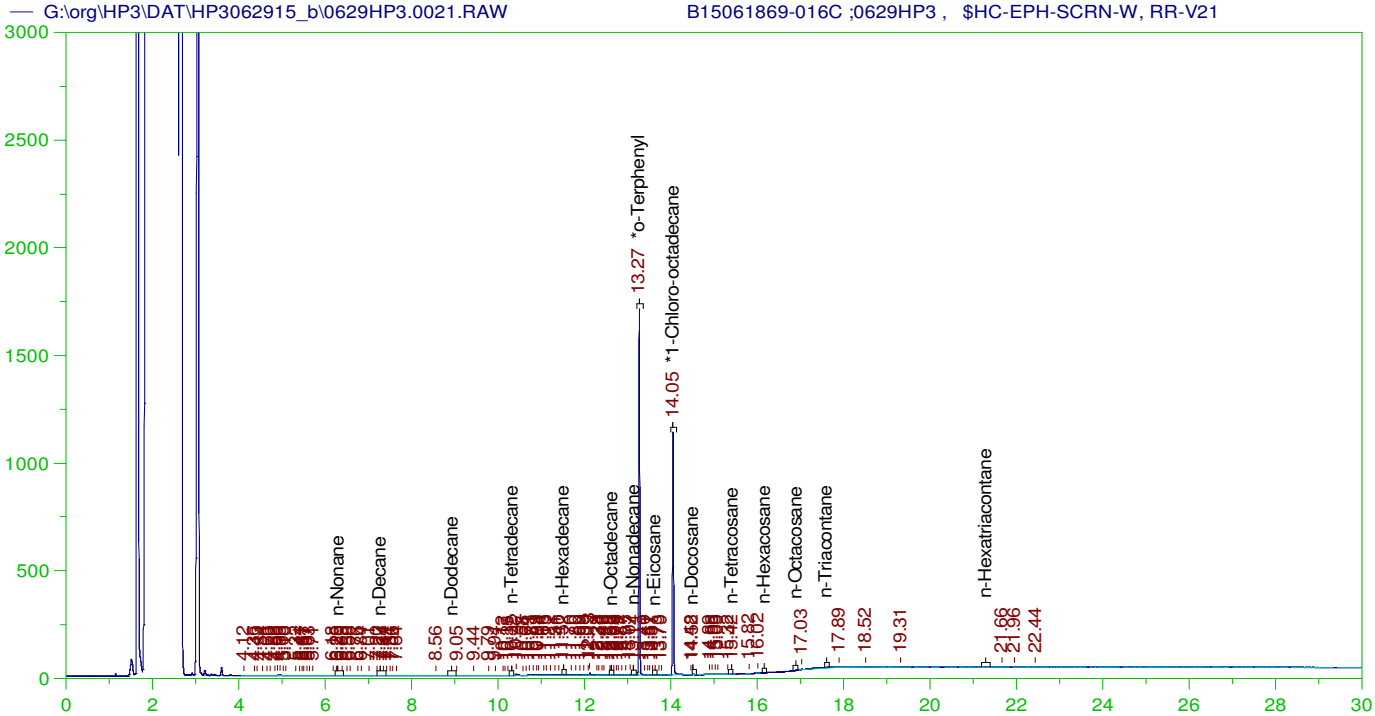
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.27	2432072	190.476	134.101	70.4	-
*1-Chloro-octadecane	14.053	1907805	190.476	137.357	72.11	-

DRO Area:2.324626E+07 DRO Amount: 1428.934
TEH Area:2.877413E+07 TEH Amount: 1768.729
C9-C18 Area:1.337643E+07 C9-C18 Amount: 822.4424
C19-C36 Area:1.323222E+07C19-C36 Amount: 813.1773

EX-29_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0021.RAW B15061869-016C ;0629HP3 , $HC-EPH-SCRN-W, RR-V21



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-016C ;0629HP3 , $HC-EPH-SCRN-W, RR-V21
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0021.RAW
Date & Time Acquired: 6/30/2015 12:32:27 AM
Method File: g:\org\HP3\Methods\SR_SCN-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

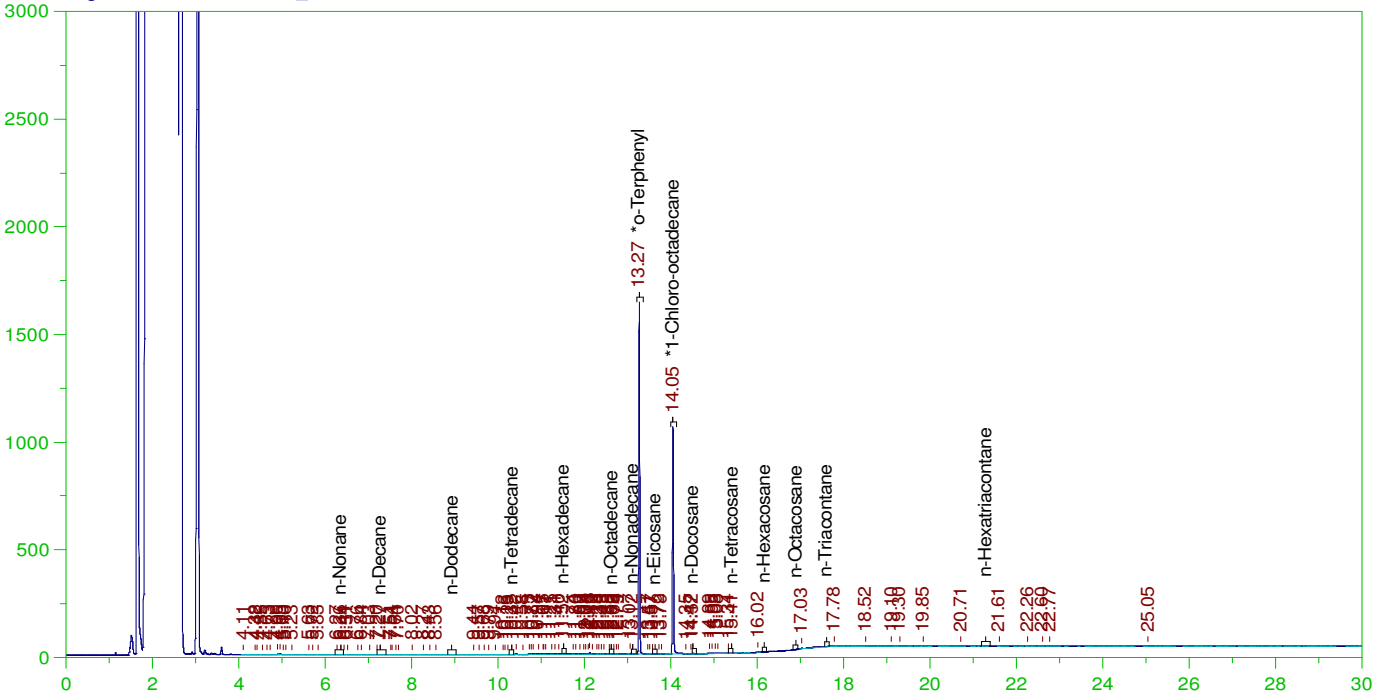
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.267	2769149	190.476	152.687	80.16	-
*1-Chloro-octadecane	14.051	2018229	190.476	145.307	76.29	-

DRO Area:276330.1 DRO Amount: 16.98585
TEH Area:467950.1 TEH Amount: 28.76461
C9-C18 Area:256210.7 C9-C18 Amount: 15.75297
C19-C36 Area:132467.6 C19-C36 Amount: 8.140712

D2_061715 Batch ID: 90849

G:\org\HP3\DAT\HP3062915_b\0629HP3.0020.RAW B15061869-018C ;0629HP3 , $HC-EPH-SCRN-W, RR-V20



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15061869-018C ;0629HP3 , $HC-EPH-SCRN-W, RR-V20
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0020.RAW
Date & Time Acquired: 6/29/2015 11:48:56 PM
Method File: g:\org\HP3\Methods\SR_SCN-062920-NB-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NB.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.204 to 17.661
Rt range for C9 to C18 Hydrocarbons: 6.221 to 13.218
Rt range for C19 to C36 Hydrocarbons: 13.253 to 21.393

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.267	2660297	190.476	146.685	77.01	-
*1-Chloro-octadecane	14.05	1908649	190.476	137.418	72.14	-

DRO Area:271188.9 DRO Amount: 16.66982
TEH Area:418677.9 TEH Amount: 25.73588
C9-C18 Area:244953.2 C9-C18 Amount: 15.06081
C19-C36 Area:99528.88 C19-C36 Amount: 6.116482

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91015
Lab ID: LCS-91015-90849	Laboratory Control Sample				Run: GCFID-HP4-B_150702B				07/03/15 18:29
C9 to C18 Aliphatics	935	ug/L	300	78	40	140			
C19 to C36 Aliphatics	1470	ug/L	300	92	40	140			
n-Nonane	97.2	ug/L	5.0	49	30	140			
n-Decane	115	ug/L	5.0	57	40	140			
n-Dodecane	130	ug/L	5.0	65	40	140			
n-Tetradecane	145	ug/L	5.0	73	40	140			
n-Hexadecane	167	ug/L	5.0	84	40	140			
n-Octadecane	177	ug/L	5.0	89	40	140			
n-Nonadecane	180	ug/L	5.0	90	40	140			
n-Eicosane	183	ug/L	5.0	91	40	140			
n-Docosane	184	ug/L	5.0	92	40	140			
n-Tetracosane	186	ug/L	5.0	93	40	140			
n-Hexacosane	186	ug/L	5.0	93	40	140			
n-Octacosane	183	ug/L	5.0	92	40	140			
n-Triacontane	176	ug/L	5.0	88	40	140			
n-Hexatriacontane	182	ug/L	5.0	91	40	140			
Surr: 1-Chloro-octadecane			5.0	77	40	140			
Lab ID: MB-91015-90849	Method Blank				Run: GCFID-HP4-B_150702B				07/03/15 19:54
C9 to C18 Aliphatics	ND	ug/L	300						
C19 to C36 Aliphatics	ND	ug/L	300						
Surr: 1-Chloro-octadecane			5.0	62	40	140			
Lab ID: B15061869-001CMS	Sample Matrix Spike				Run: GCFID-HP4-B_150702B				07/03/15 22:44
C9 to C18 Aliphatics	1800	ug/L	570	80	40	140			
C19 to C36 Aliphatics	2900	ug/L	570	96	40	140			
n-Nonane	183	ug/L	5.0	48	30	140			
n-Decane	224	ug/L	5.0	59	40	140			
n-Dodecane	256	ug/L	5.0	68	40	140			
n-Tetradecane	280	ug/L	5.0	74	40	140			
n-Hexadecane	316	ug/L	5.0	84	40	140			
n-Octadecane	337	ug/L	5.0	89	40	140			
n-Nonadecane	346	ug/L	5.0	92	40	140			
n-Eicosane	354	ug/L	5.0	94	40	140			
n-Docosane	360	ug/L	5.0	95	40	140			
n-Tetracosane	367	ug/L	5.0	97	40	140			
n-Hexacosane	367	ug/L	5.0	97	40	140			
n-Octacosane	362	ug/L	5.0	96	40	140			
n-Triacontane	348	ug/L	5.0	92	40	140			
n-Hexatriacontane	367	ug/L	5.0	97	40	140			
Surr: 1-Chloro-octadecane			9.4	96	40	140			
Lab ID: B15061869-001CMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150702B				07/04/15 00:08
C9 to C18 Aliphatics	1940	ug/L	570	86	40	140	7.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91015
Lab ID: B15061869-001CMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150702B			07/04/15 00:08	
C19 to C36 Aliphatics	3270	ug/L	570	108	40	140	12	20	
n-Nonane	192	ug/L	5.0	51	30	140	5.1	30	
n-Decane	239	ug/L	5.0	63	40	140	6.3	20	
n-Dodecane	276	ug/L	5.0	73	40	140	7.3	20	
n-Tetradecane	308	ug/L	5.0	82	40	140	9.7	20	
n-Hexadecane	357	ug/L	5.0	95	40	140	12	20	
n-Octadecane	381	ug/L	5.0	101	40	140	12	20	
n-Nonadecane	392	ug/L	5.0	104	40	140	13	20	
n-Eicosane	401	ug/L	5.0	106	40	140	13	20	
n-Docosane	406	ug/L	5.0	108	40	140	12	20	
n-Tetracosane	413	ug/L	5.0	109	40	140	12	20	
n-Hexacosane	414	ug/L	5.0	110	40	140	12	20	
n-Octacosane	407	ug/L	5.0	108	40	140	12	20	
n-Triacontane	392	ug/L	5.0	104	40	140	12	20	
n-Hexatriacontane	414	ug/L	5.0	110	40	140	12	20	
Surr: 1-Chloro-octadecane			9.4	103	40	140			
Lab ID: LCS-91015-90849	Laboratory Control Sample				Run: GCFID-HP4-B_150702B			07/03/15 19:12	
C11 to C22 Aromatics	3160	ug/L	300	93	40	140			
Total Extractable Hydrocarbons	5730	ug/L	300	92	40	140			
Naphthalene	122	ug/L	5.0	61	40	140			
2-MethylNaphthalene	125	ug/L	5.0	62	40	140			
Acenaphthylene	145	ug/L	5.0	73	40	140			
Acenaphthene	154	ug/L	5.0	77	40	140			
Fluorene	168	ug/L	5.0	84	40	140			
Phenanthrene	181	ug/L	5.0	91	40	140			
Anthracene	192	ug/L	5.0	96	40	140			
Fluoranthene	196	ug/L	5.0	98	40	140			
Pyrene	199	ug/L	5.0	100	40	140			
Benzo(a)Anthracene	199	ug/L	5.0	99	40	140			
Chrysene	206	ug/L	5.0	103	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	399	ug/L	5.0	100	40	140			
Benzo(a)Pyrene	219	ug/L	5.0	110	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	396	ug/L	5.0	99	40	140			
Benzo(g,h,I)perylene	190	ug/L	5.0	95	40	140			
Surr: 2-Bromonaphthalene			5.0	73	40	140			
Surr: 2-Fluorobiphenyl			5.0	79	40	140			
Surr: o-Terphenyl			5.0	79	40	140			
Lab ID: MB-91015-90849	Method Blank				Run: GCFID-HP4-B_150702B			07/03/15 20:36	
C11 to C22 Aromatics	ND	ug/L	300						
Total Extractable Hydrocarbons	ND	ug/L	300						
Naphthalene	ND	ug/L	5.0						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/08/15

Project: BNSF Livingston Shop Complex-Task G **Work Order:** B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91015
Lab ID: MB-91015-90849	Method Blank				Run: GCFID-HP4-B_150702B				07/03/15 20:36
2-MethylNaphthalene	ND	ug/L	5.0						
Acenaphthylene	ND	ug/L	5.0						
Acenaphthene	ND	ug/L	5.0						
Fluorene	ND	ug/L	5.0						
Phenanthrene	ND	ug/L	5.0						
Anthracene	ND	ug/L	5.0						
Fluoranthene	ND	ug/L	5.0						
Pyrene	ND	ug/L	5.0						
Benzo(a)Anthracene	ND	ug/L	5.0						
Chrysene	ND	ug/L	5.0						
Benzo(b)Fluoranthene/Benzo(k)Fluoran	ND	ug/L	5.0						
Benzo(a)Pyrene	ND	ug/L	5.0						
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	ND	ug/L	5.0						
Benzo(g,h,I)perylene	ND	ug/L	5.0						
Surr: 2-Bromonaphthalene			5.0	82	40	140			
Surr: 2-Fluorobiphenyl			5.0	87	40	140			
Surr: o-Terphenyl			5.0	72	40	140			
Lab ID: B15061869-001CMS	Sample Matrix Spike				Run: GCFID-HP4-B_150702B				07/03/15 23:26
C11 to C22 Aromatics	5960	ug/L	570	93	40	140			
Total Extractable Hydrocarbons	11000	ug/L	570	94	40	140			
Naphthalene	240	ug/L	9.4	64	40	140			
2-MethylNaphthalene	246	ug/L	9.4	65	40	140			
Acenaphthylene	247	ug/L	9.4	66	40	140			
Acenaphthene	292	ug/L	9.4	77	40	140			
Fluorene	310	ug/L	9.4	82	40	140			
Phenanthrene	328	ug/L	9.4	87	40	140			
Anthracene	354	ug/L	9.4	94	40	140			
Fluoranthene	370	ug/L	9.4	98	40	140			
Pyrene	367	ug/L	9.4	97	40	140			
Benzo(a)Anthracene	379	ug/L	9.4	101	40	140			
Chrysene	407	ug/L	9.4	108	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	766	ug/L	9.4	101	40	140			
Benzo(a)Pyrene	403	ug/L	9.4	107	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	752	ug/L	9.4	100	40	140			
Benzo(g,h,I)perylene	354	ug/L	9.4	94	40	140			
Surr: 2-Bromonaphthalene			9.4	77	40	140			
Surr: 2-Fluorobiphenyl			9.4	81	40	140			
Surr: o-Terphenyl			9.4	82	40	140			
Lab ID: B15061869-001CMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150702B				07/04/15 00:51
C11 to C22 Aromatics	6590	ug/L	570	103	40	140	10	20	
Total Extractable Hydrocarbons	12000	ug/L	570	102	40	140	8.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91015
Lab ID: B15061869-001CMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150702B			07/04/15 00:51	
Naphthalene	268	ug/L	9.4	71	40	140	11	20	
2-MethylNaphthalene	273	ug/L	9.4	72	40	140	11	20	
Acenaphthylene	308	ug/L	9.4	82	40	140	22	20	R
Acenaphthene	325	ug/L	9.4	86	40	140	11	20	
Fluorene	344	ug/L	9.4	91	40	140	10	20	
Phenanthrene	367	ug/L	9.4	97	40	140	11	20	
Anthracene	390	ug/L	9.4	103	40	140	9.8	20	
Fluoranthene	410	ug/L	9.4	109	40	140	10	20	
Pyrene	417	ug/L	9.4	111	40	140	13	20	
Benzo(a)Anthracene	427	ug/L	9.4	113	40	140	12	20	
Chrysene	446	ug/L	9.4	118	40	140	9.2	20	
Benzo(b)Fluoranthene/Benzo(k)Fluoran	860	ug/L	9.4	114	40	140	12	20	
Benzo(a)Pyrene	472	ug/L	9.4	125	40	140	16	20	
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	855	ug/L	9.4	113	40	140	13	20	
Benzo(g,h,I)perylene	411	ug/L	9.4	109	40	140	15	20	
Surr: 2-Bromonaphthalene			9.4	88	40	140			
Surr: 2-Fluorobiphenyl			9.4	93	40	140			
Surr: o-Terphenyl			9.4	87	40	140			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245611
Lab ID: CCV_0702HP453r-W	Continuing Calibration Verification Standard								07/04/15 03:32
n-Nonane	229	ug/L	5.0	115	75	125			
n-Decane	221	ug/L	5.0	111	75	125			
n-Dodecane	211	ug/L	5.0	106	75	125			
n-Tetradecane	205	ug/L	5.0	103	75	125			
n-Hexadecane	207	ug/L	5.0	104	75	125			
n-Octadecane	205	ug/L	5.0	102	75	125			
n-Nonadecane	206	ug/L	5.0	103	75	125			
n-Eicosane	206	ug/L	5.0	103	75	125			
n-Docosane	207	ug/L	5.0	103	75	125			
n-Tetracosane	207	ug/L	5.0	104	75	125			
n-Hexacosane	206	ug/L	5.0	103	75	125			
n-Octacosane	208	ug/L	5.0	104	75	125			
n-Triacontane	210	ug/L	5.0	105	75	125			
n-Hexatriacontane	211	ug/L	5.0	106	75	125			
Surr: 1-Chloro-octadecane			5.0	113	75	125			
Lab ID: CCV_0702HP452r-W	Continuing Calibration Verification Standard								07/04/15 02:51
Naphthalene	235	ug/L	5.0	117	75	125			
2-MethylNaphthalene	234	ug/L	5.0	117	75	125			
Acenaphthylene	233	ug/L	5.0	116	75	125			
Acenaphthene	232	ug/L	5.0	116	75	125			
Fluorene	229	ug/L	5.0	115	75	125			
Phenanthrene	229	ug/L	5.0	115	75	125			
Anthracene	230	ug/L	5.0	115	75	125			
Fluoranthene	228	ug/L	5.0	114	75	125			
Pyrene	229	ug/L	5.0	114	75	125			
Benzo(a)Anthracene	231	ug/L	5.0	116	75	125			
Chrysene	236	ug/L	5.0	118	75	125			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	454	ug/L	5.0	113	75	125			
Benzo(a)Pyrene	250	ug/L	5.0	125	75	125			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	461	ug/L	5.0	115	75	125			
Benzo(g,h,I)perylene	230	ug/L	5.0	115	75	125			
Surr: 2-Bromonaphthalene			5.0	107	75	125			
Surr: 2-Fluorobiphenyl			5.0	110	75	125			
Surr: o-Terphenyl			5.0	105	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

D1_061815 Batch ID: 91015

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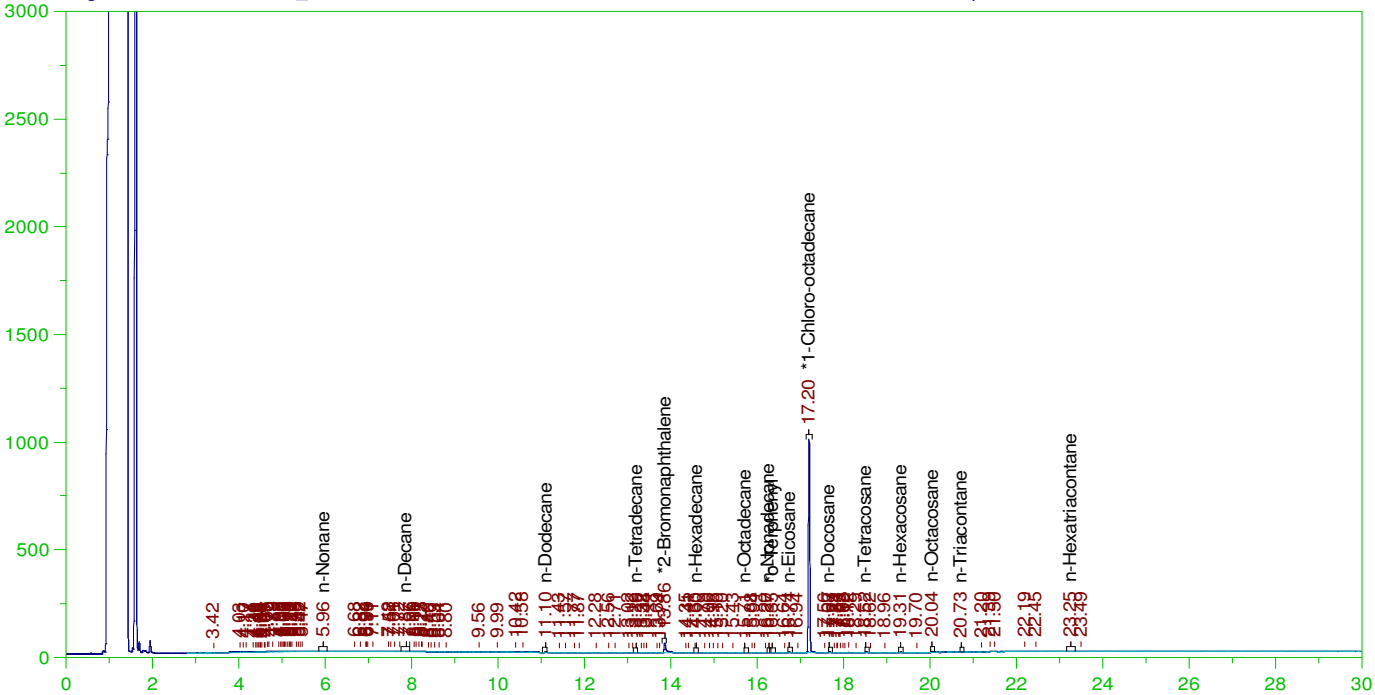


EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061869-010A ;0702HP4 , Aliph. $HC-ALI-GRP-W, V64
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0064.RAW
Date & Time Acquired: 7/4/2015 11:20:57 AM
Method File: g:\org\HP4\Methods\LR_EPH-070262AX-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.76 to 20.11
Rt range for C9 to C18 Aliphatic Hydrocarbons: 5.853 to 16.222
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.247 to 23.37

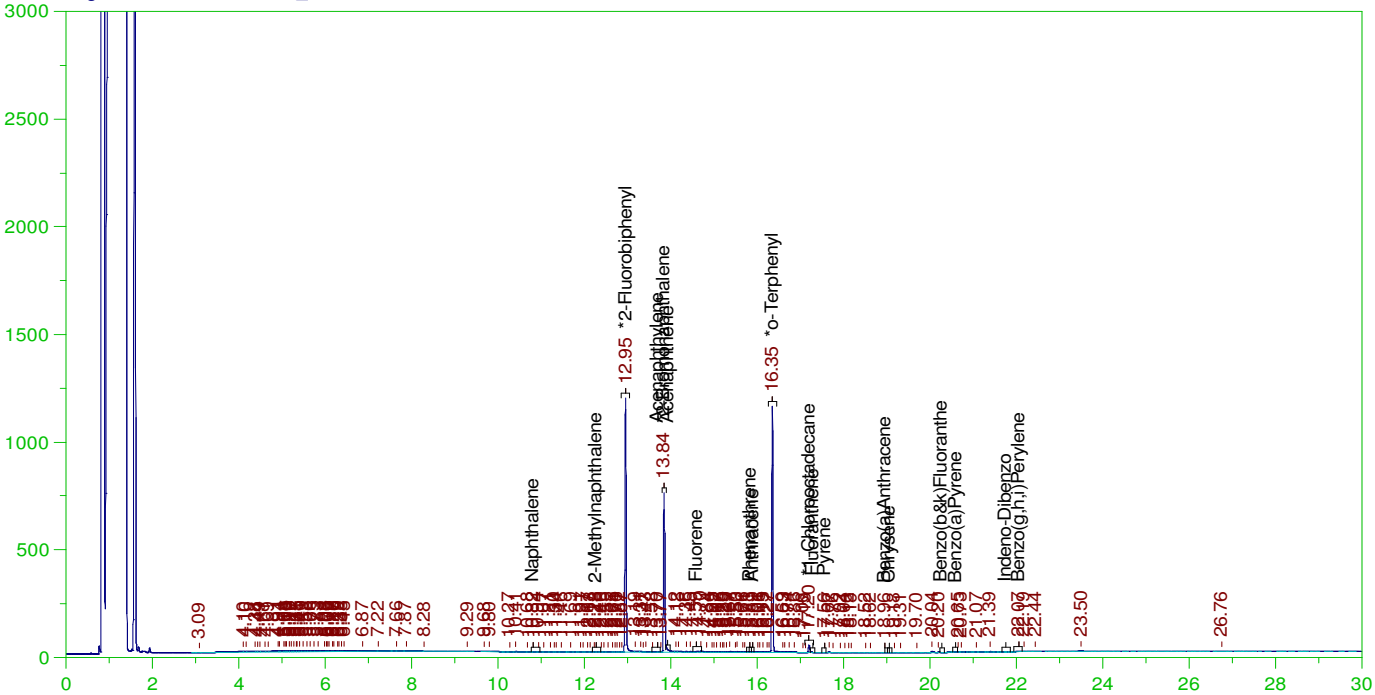
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane_____	17.2	190.476	168.098	88.25	-

DRO Area:190996.5 DRO Amount: 12.71241
TEH Area:518156.1 TEH Amount: 34.4876

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:277748.6 C9-C18 Amount: 18.78454
C19-C36 Area:111306 C19-C36 Amount: 7.321212

D1_061815 Batch ID: 91015

— G:\org\HP4\DAT\HP4070215_b\0702HP4.0065.RAW B15061869-010A ;0702HP4 , Arom. $HC-ARO-GRP-W, V65



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061869-010A ;0702HP4 , Arom. $HC-ARO-GRP-W, V65
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0065.RAW
Date & Time Acquired: 7/4/2015 12:03:23 PM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.95	190.476	176.874	92.86	-
*2-Bromonaphthalene	13.845	190.476	161.54	84.81	-
*o-Terphenyl	16.349	190.476	136.469	71.65	-
*1-Chlorooctadecane	17.199	190.476	7.42	3.9	-

C11-C22 Aromatics Area:565949.1 C11-C22 Aromatics Amount: 38.86555
EPH Aromatics total Area:1368778 EPH Aromatics Total Amount: 93.9984

D1_061815 Batch ID: 91015

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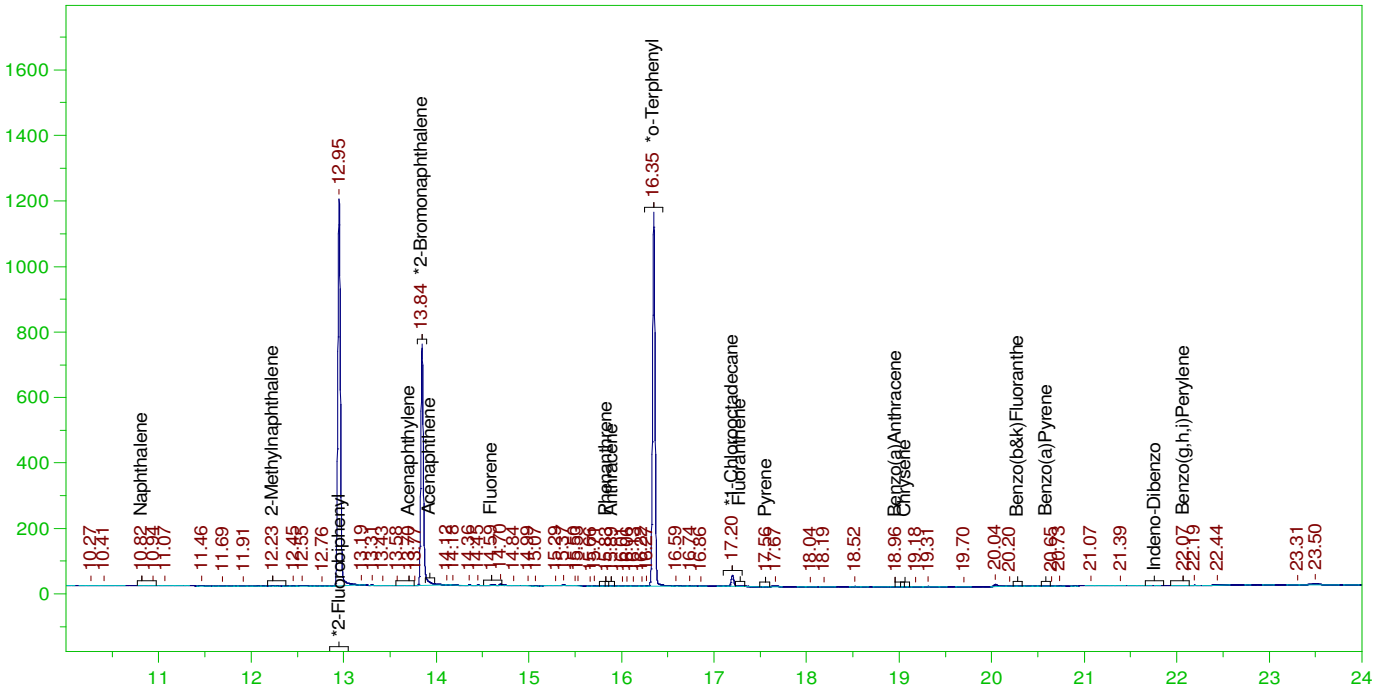

EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

Sample Name: B15061869-010A ;0702HP4 , Arom. $HC-ARO-GRP-W, V65
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0065.RAW
Date & Time Acquired: 7/4/2015 12:03:23 PM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.821	10.821	10.821	850	1.905	U
2-Methylnaphthalene	12.233	12.233	12.233	534	1.905	U
Acenaphthylene	13.704	13.704	13.704	1105	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.593	14.593	14.593	5372	1.905	U
Phenanthrene	15.831	15.831	15.831	1301	1.905	U
Anthracene	15.891	15.891	15.891	788	1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	17.559	17.559	17.559	688	1.905	U
Benzo(a)Anthracene	18.961	18.961	18.961	915	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.067	22.067	22.067	1409	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.95	190.476	174.302	91.51	40-140
*2-Bromonaphthalene	13.845	190.476	156.035	81.92	40-140
*o-Terphenyl	16.349	190.476	134.342	70.53	40-140
*1-Chlorooctadecane	17.199	190.476	6.168	3.24	40-140

90-1C_061815 Batch ID: 91015

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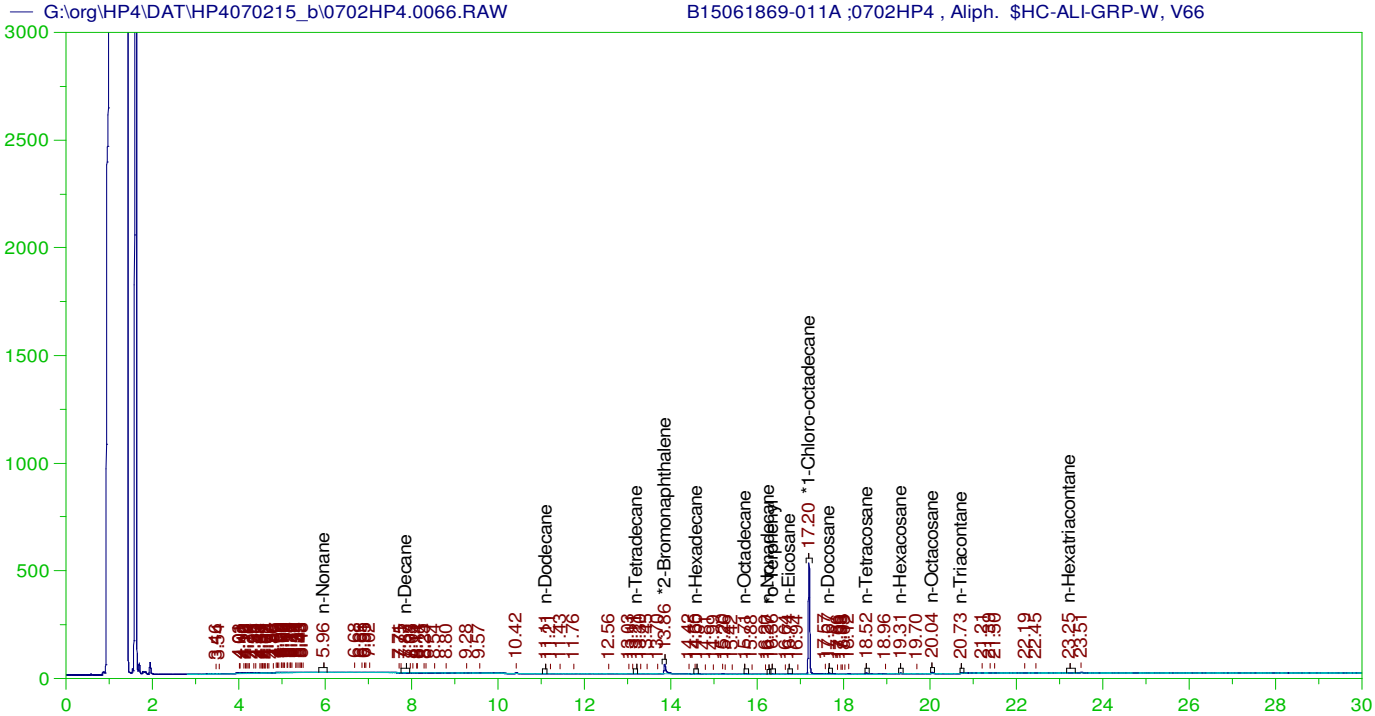


EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061869-011A ;0702HP4 , Aliph. $HC-ALI-GRP-W, V66
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0066.RAW
Date & Time Acquired: 7/4/2015 12:45:58 PM
Method File: g:\org\HP4\Methods\LR_EPH-070262AX-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.76 to 20.11
Rt range for C9 to C18 Aliphatic Hydrocarbons: 5.853 to 16.222
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.247 to 23.37

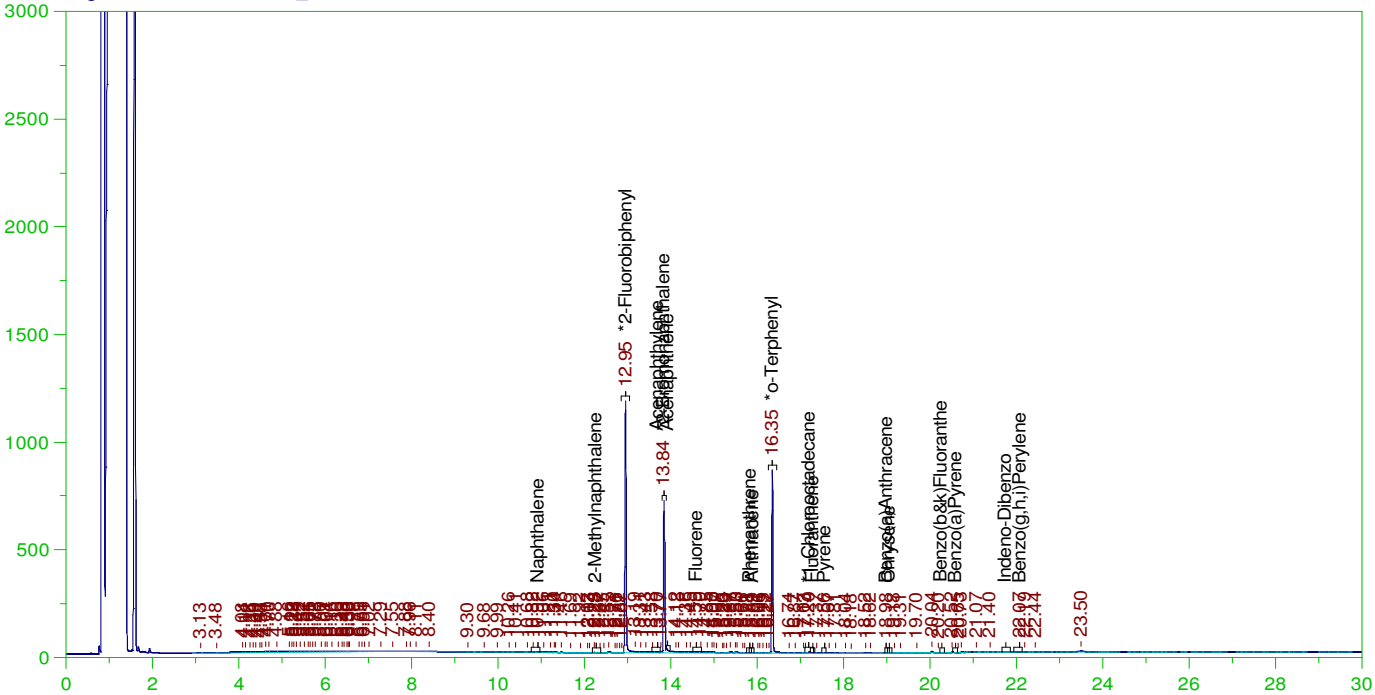
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane_____	17.198	190.476	87.904	46.15	-

DRO Area:151992.7 DRO Amount: 10.11638
TEH Area:475062.4 TEH Amount: 31.61935

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:262800.3 C9-C18 Amount: 17.77357
C19-C36 Area:92821.82 C19-C36 Amount: 6.105406

90-1C_061815 Batch ID: 91015

G:\org\HP4\DAT\HP4070215_b\0702HP4.0067.RAW B15061869-011A ;0702HP4 , Arom. $HC-ARO-GRP-W, V67



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061869-011A ;0702HP4 , Arom. $HC-ARO-GRP-W, V67
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0067.RAW
Date & Time Acquired: 7/4/2015 1:28:27 PM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.949	190.476	176.148	92.48	-
*2-Bromonaphthalene	13.844	190.476	157.255	82.56	-
*o-Terphenyl	16.348	190.476	103.19	54.17	-
*1-Chlorooctadecane	17.202	190.476	1.279	.67	-

C11-C22 Aromatics Area:440577.8 C11-C22 Aromatics Amount: 30.2559
EPH Aromatics total Area:1139097 EPH Aromatics Total Amount: 78.22549

90-1C_061815 Batch ID: 91015

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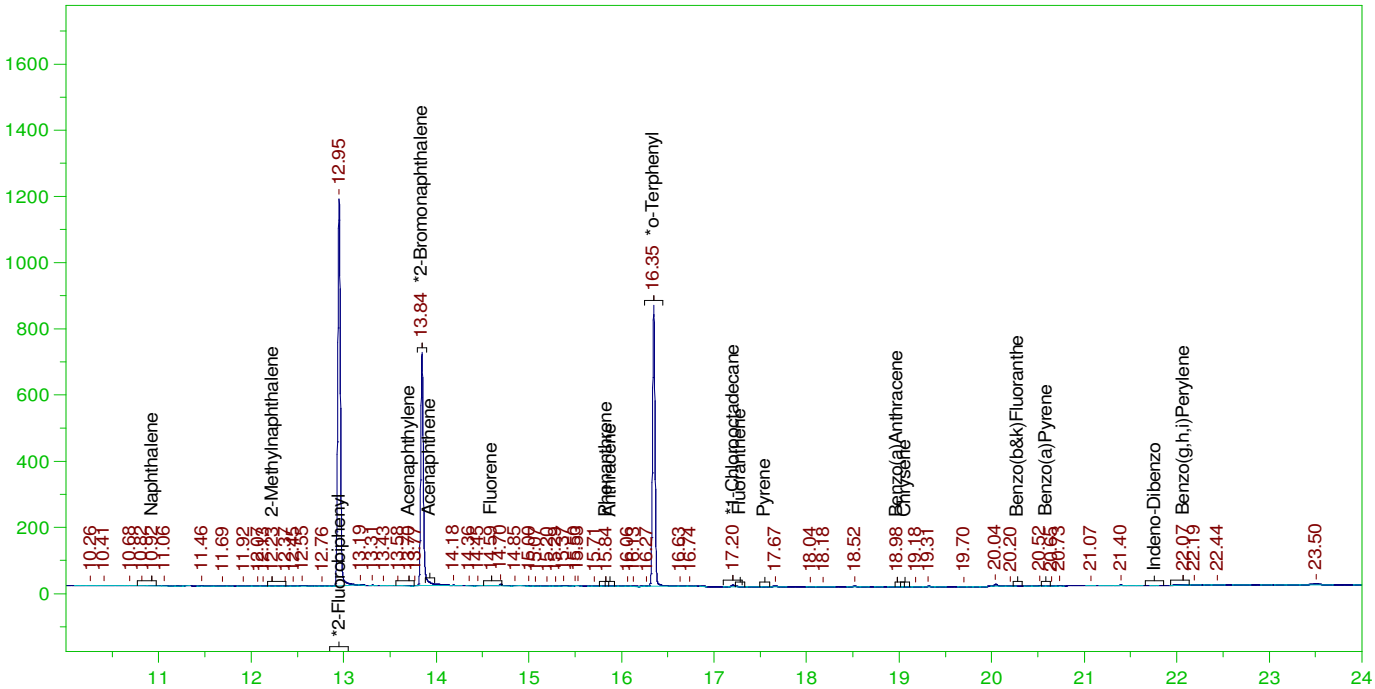


EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

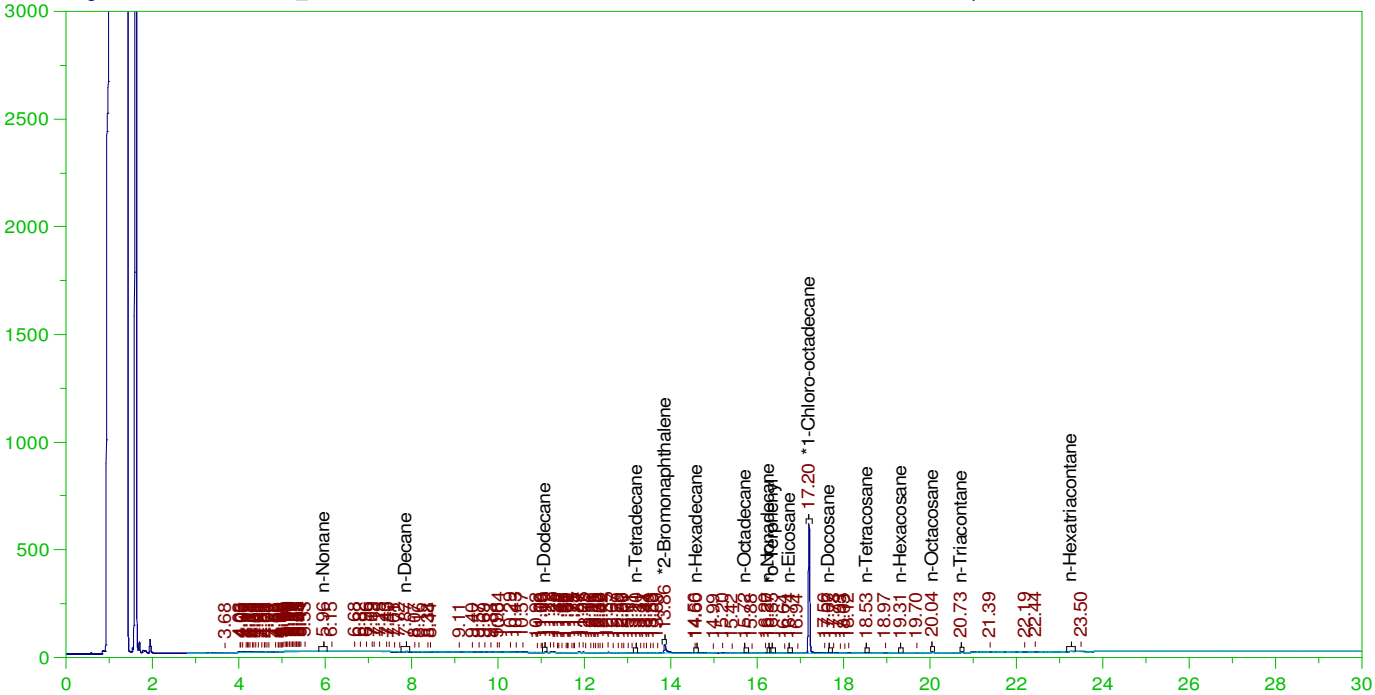
Sample Name: B15061869-011A ;0702HP4 , Arom. $HC-ARO-GRP-W, V67
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0067.RAW
Date & Time Acquired: 7/4/2015 1:28:27 PM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	10.924	10.924	10.924	1661	1.905	U
2-Methylnaphthalene	12.229	12.229	12.229	614	1.905	U
Acenaphthylene	13.704	13.704	13.704	1417	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.593	14.593	14.593	5292	1.905	U
Phenanthrene	15.837	15.837	15.837	3041	1.905	U
Anthracene	.	.	.		1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	18.979	18.979	18.979	1156	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.069	22.069	22.069	1247	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.949	190.476	173.81	91.25	40-140
*2-Bromonaphthalene	13.844	190.476	153.183	80.42	40-140
*o-Terphenyl	16.348	190.476	100.805	52.92	40-140
*1-Chlorooctadecane	17.202	190.476	.871	.46	40-140

EX-4_061715 Batch ID: 91015

G:\org\HP4\DAT\HP4070215_b\0702HP4.0062.RAW B15061869-015A ;0702HP4 , Aliph. $HC-ALI-GRP-W, V62



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15061869-015A ;0702HP4 , Aliph. $HC-ALI-GRP-W, V62
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0062.RAW
Date & Time Acquired: 7/4/2015 9:55:59 AM
Method File: g:\org\HP4\Methods\LR_EPH-070262AX-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.76 to 20.11
Rt range for C9 to C18 Aliphatic Hydrocarbons: 5.853 to 16.222
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.247 to 23.37

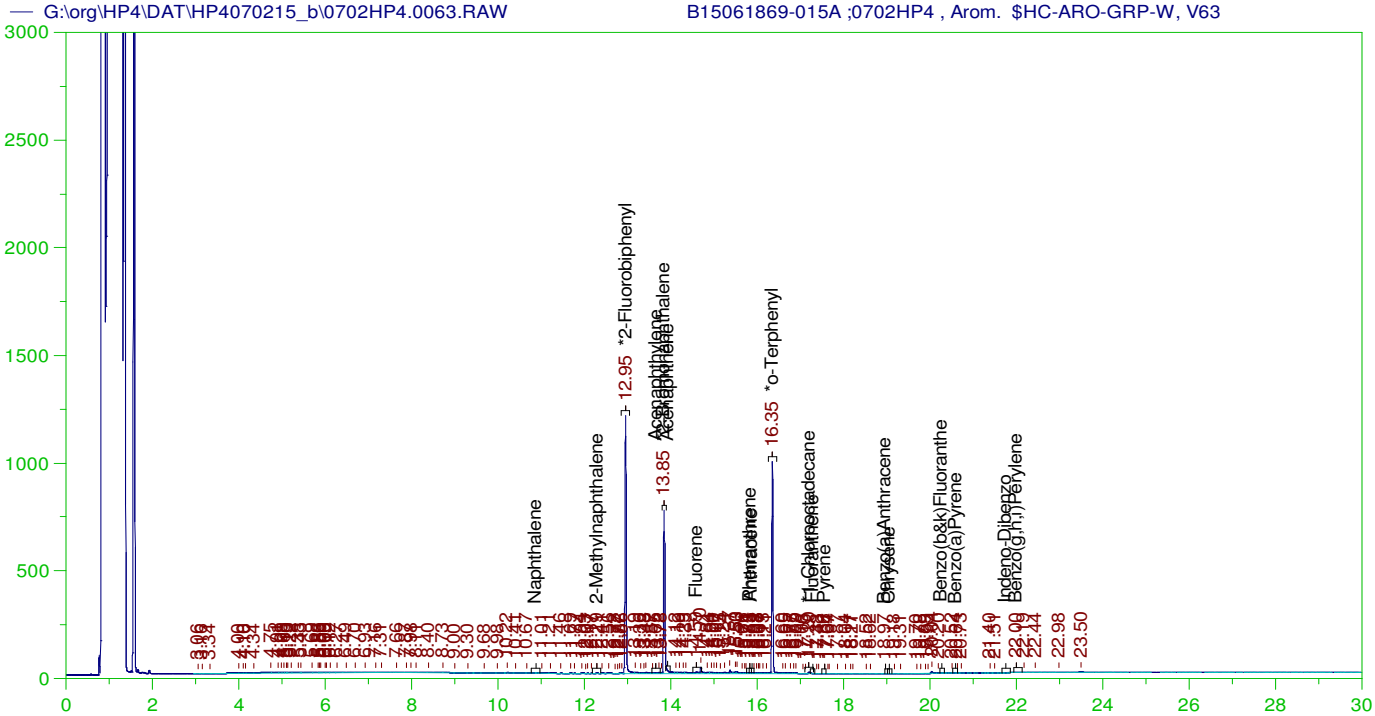
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.199	190.476	102.02	53.56	-

DRO Area:216784.9 DRO Amount: 14.42884
TEH Area:515357 TEH Amount: 34.30129

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:325691.9 C9-C18 Amount: 22.02702
C19-C36 Area:77080.94 C19-C36 Amount: 5.070041

EX-4_061715 Batch ID: 91015

G:\org\HP4\DAT\HP4070215_b\0702HP4.0063.RAW B15061869-015A ;0702HP4 , Arom. $HC-ARO-GRP-W, V63



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15061869-015A ;0702HP4 , Arom. $HC-ARO-GRP-W, V63
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0063.RAW
Date & Time Acquired: 7/4/2015 10:38:27 AM
Method File: g:\org\HP4\Methods\RR_EPH-070255AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

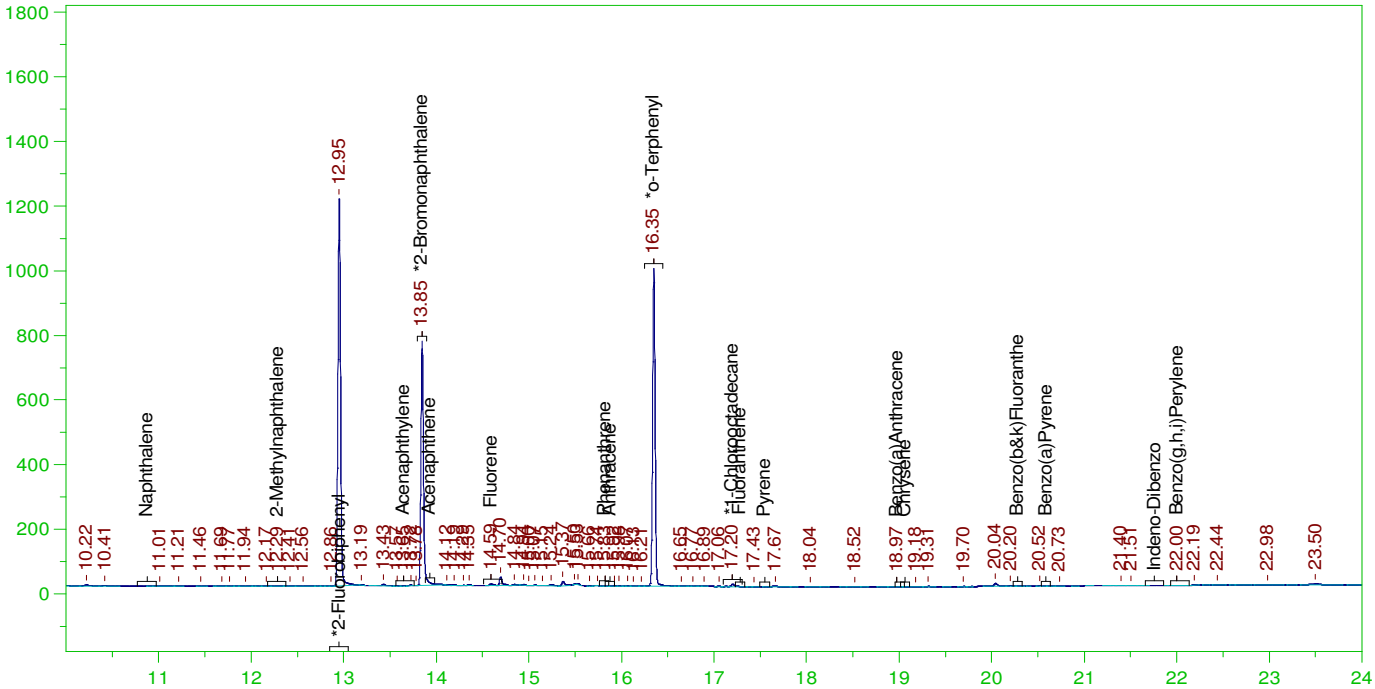
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.773 to 22.136

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	12.951	190.476	180.526	94.78	-
*2-Bromonaphthalene	13.846	190.476	167.715	88.05	-
*o-Terphenyl	16.349	190.476	119.979	62.99	-
*1-Chlorooctadecane	17.201	190.476	2.227	1.17	-

C11-C22 Aromatics Area:855712.1 C11-C22 Aromatics Amount: 58.76451
EPH Aromatics total Area:1523499 EPH Aromatics Total Amount: 104.6236

EX-4_061715 Batch ID: 91015

G:\org\HP4\DAT\HP4070215_b\0702HP4.0063.RAW B15061869-015A ;0702HP4 , Arom. $HC-ARO-GRP-W, V63



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

Sample Name: B15061869-015A ;0702HP4 , Arom. $HC-ARO-GRP-W, V63
Raw File: G:\org\HP4\DAT\HP4070215_b\0702HP4.0063.RAW
Date & Time Acquired: 7/4/2015 10:38:27 AM
Method File: g:\org\HP4\Methods\RS_EPH-AX-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AX.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	.	.	.		1.905	U
2-Methylnaphthalene	12.285	12.285	12.285	1552	1.905	U
Acenaphthylene	13.646	13.646	13.646	712	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.588	14.588	14.588	14704	1.905	U
Phenanthrene	15.828	15.828	15.828	1299	1.905	U
Anthracene	.	.	.		1.905	U
Fluoranthene	.	.	.		1.905	U
Pyrene	.	.	.		1.905	U
Benzo(a)Anthracene	18.973	18.973	18.973	1283	1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	.	.	.		1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.	22.	22.	1464	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	12.951	190.476	177.754	93.32	40-140
*2-Bromonaphthalene	13.846	190.476	160.274	84.14	40-140
*o-Terphenyl	16.349	190.476	117.454	61.66	40-140
*1-Chlorooctadecane	17.201	190.476	1.399	.73	40-140

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R245041
Lab ID: CCV-062415	Continuing Calibration Verification Standard								06/24/15 14:07
Benzene	4.88	ug/L	1.0	98	70	130			
Bromobenzene	5.68	ug/L	1.0	114	70	130			
Bromochloromethane	5.72	ug/L	1.0	114	70	130			
Bromodichloromethane	4.92	ug/L	1.0	98	70	130			
Bromoform	5.08	ug/L	1.0	102	70	130			
Bromomethane	5.92	ug/L	1.0	118	70	130			
Carbon tetrachloride	4.96	ug/L	1.0	99	70	130			
Chlorobenzene	5.32	ug/L	1.0	106	70	130			
Chlorodibromomethane	5.20	ug/L	1.0	104	70	130			
Chloroethane	5.00	ug/L	1.0	100	70	130			
Chloroform	4.88	ug/L	1.0	98	80	120			
Chloromethane	4.48	ug/L	1.0	90	70	130			
1,2-Dibromoethane	5.08	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.72	ug/L	1.0	114	70	130			
Dibromomethane	5.56	ug/L	1.0	111	70	130			
1,2-Dichlorobenzene	5.76	ug/L	1.0	115	70	130			
4-Chlorotoluene	5.20	ug/L	1.0	104	70	130			
1,3-Dichlorobenzene	5.60	ug/L	1.0	112	70	130			
1,4-Dichlorobenzene	5.48	ug/L	1.0	110	70	130			
Dichlorodifluoromethane	6.48	ug/L	1.0	130	70	130			
1,1-Dichloroethane	5.20	ug/L	1.0	104	70	130			
1,2-Dichloroethane	4.68	ug/L	1.0	94	70	130			
1,1-Dichloroethene	4.84	ug/L	1.0	97	80	120			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	70	130			
trans-1,2-Dichloroethene	5.52	ug/L	1.0	110	70	130			
1,2-Dichloropropane	5.04	ug/L	1.0	101	80	120			
1,3-Dichloropropane	5.24	ug/L	1.0	105	70	130			
2,2-Dichloropropane	5.44	ug/L	1.0	109	70	130			
1,1-Dichloropropene	5.00	ug/L	1.0	100	70	130			
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	70	130			
trans-1,3-Dichloropropene	4.56	ug/L	1.0	91	70	130			
Ethylbenzene	5.28	ug/L	1.0	106	80	120			
Methyl tert-butyl ether (MTBE)	4.60	ug/L	1.0	92	70	130			
Methylene chloride	4.24	ug/L	1.0	85	70	130			
Naphthalene	3.49	ug/L	1.0	70	70	130			
Styrene	5.24	ug/L	1.0	105	70	130			
1,1,1,2-Tetrachloroethane	5.32	ug/L	1.0	106	70	130			
1,1,2,2-Tetrachloroethane	5.12	ug/L	1.0	102	70	130			
Tetrachloroethene	5.76	ug/L	1.0	115	70	130			
Toluene	5.28	ug/L	1.0	106	80	120			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	70	130			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	70	130			
Trichloroethene	5.28	ug/L	1.0	106	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R245041
Lab ID: CCV-062415	Continuing Calibration Verification Standard								06/24/15 14:07
Trichlorofluoromethane	5.52	ug/L	1.0	110	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.56	ug/L	1.0	111	70	130			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	70	130			
Vinyl chloride	5.28	ug/L	1.0	106	80	120			
m+p-Xylenes	10.7	ug/L	1.0	107	70	130			
o-Xylene	5.32	ug/L	1.0	106	70	130			
Xylenes, Total	16.0	ug/L	1.0	107	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	102	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	108	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Method: SW8260B									Batch: R245041
Lab ID: LCS-062415	Laboratory Control Sample				Run: SV5972.I_150624A				06/24/15 14:36
Benzene	4.72	ug/L	1.0	94	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	5.64	ug/L	1.0	113	68	131			
Bromodichloromethane	5.28	ug/L	1.0	106	67	138			
Bromoform	4.84	ug/L	1.0	97	64	136			
Bromomethane	5.12	ug/L	1.0	102	60	138			
Carbon tetrachloride	4.84	ug/L	1.0	97	61	144			
Chlorobenzene	5.44	ug/L	1.0	109	78	136			
Chlorodibromomethane	5.40	ug/L	1.0	108	72	136			
Chloroethane	4.24	ug/L	1.0	85	64	136			
Chloroform	4.76	ug/L	1.0	95	69	133			
Chloromethane	3.62	ug/L	1.0	72	63	149			
1,2-Dibromoethane	5.40	ug/L	1.0	108	75	131			
2-Chlorotoluene	5.48	ug/L	1.0	110	74	135			
Dibromomethane	5.60	ug/L	1.0	112	72	133			
1,2-Dichlorobenzene	5.48	ug/L	1.0	110	78	129			
4-Chlorotoluene	5.00	ug/L	1.0	100	79	135			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131			
Dichlorodifluoromethane	5.04	ug/L	1.0	101	55	141			
1,1-Dichloroethane	5.20	ug/L	1.0	104	72	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	57	146			
1,1-Dichloroethene	4.76	ug/L	1.0	95	66	142			
cis-1,2-Dichloroethene	5.12	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138			
1,2-Dichloropropane	5.16	ug/L	1.0	103	72	135			
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134			
2,2-Dichloropropane	4.96	ug/L	1.0	99	42	167			
1,1-Dichloropropene	5.04	ug/L	1.0	101	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: LCS-062415	Laboratory Control Sample				Run: SV5972.I_150624A				06/24/15 14:36
cis-1,3-Dichloropropene	5.16	ug/L	1.0	103	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.32	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.16	ug/L	1.0	83	58	151			
Methylene chloride	4.08	ug/L	1.0	82	73	126			
Naphthalene	3.61	ug/L	1.0	72	55	139			
Styrene	5.36	ug/L	1.0	107	76	134			
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	72	132			
Tetrachloroethene	5.84	ug/L	1.0	117	78	137			
Toluene	5.32	ug/L	1.0	106	78	134			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	64	141			
1,1,2-Trichloroethane	5.32	ug/L	1.0	106	72	133			
Trichloroethene	5.40	ug/L	1.0	108	75	138			
Trichlorofluoromethane	5.00	ug/L	1.0	100	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.60	ug/L	1.0	132	60	140			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133			
Vinyl chloride	4.68	ug/L	1.0	94	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.28	ug/L	1.0	106	79	136			
Xylenes, Total	16.1	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	117	79	122			
Lab ID: MB-062415	Method Blank				Run: SV5972.I_150624A				06/24/15 15:33
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: MB-062415	Method Blank				Run: SV5972.I_150624A				06/24/15 15:33
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	116	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
Benzene	5.32	ug/L	1.0	106	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	6.16	ug/L	1.0	123	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
Bromodichloromethane	5.72	ug/L	1.0	114	67	138			
Bromoform	5.12	ug/L	1.0	102	64	136			
Bromomethane	4.68	ug/L	1.0	94	60	138			
Carbon tetrachloride	5.56	ug/L	1.0	111	61	144			
Chlorobenzene	5.76	ug/L	1.0	115	78	136			
Chlorodibromomethane	5.96	ug/L	1.0	119	72	136			
Chloroethane	4.36	ug/L	1.0	87	64	136			
Chloroform	5.36	ug/L	1.0	107	69	133			
Chloromethane	3.75	ug/L	1.0	75	63	149			
1,2-Dibromoethane	5.80	ug/L	1.0	116	75	131			
2-Chlorotoluene	5.56	ug/L	1.0	111	74	135			
Dibromomethane	5.96	ug/L	1.0	119	72	133			
1,2-Dichlorobenzene	5.32	ug/L	1.0	106	78	129			
4-Chlorotoluene	4.80	ug/L	1.0	96	79	135			
1,3-Dichlorobenzene	5.16	ug/L	1.0	103	79	132			
1,4-Dichlorobenzene	5.12	ug/L	1.0	102	78	131			
Dichlorodifluoromethane	5.36	ug/L	1.0	107	55	141			
1,1-Dichloroethane	5.76	ug/L	1.0	115	72	130			
1,2-Dichloroethane	5.36	ug/L	1.0	107	57	146			
1,1-Dichloroethene	5.28	ug/L	1.0	106	66	142			
cis-1,2-Dichloroethene	5.72	ug/L	1.0	114	74	133			
trans-1,2-Dichloroethene	6.08	ug/L	1.0	122	76	138			
1,2-Dichloropropane	5.60	ug/L	1.0	112	72	135			
1,3-Dichloropropane	5.44	ug/L	1.0	109	75	134			
2,2-Dichloropropane	5.12	ug/L	1.0	102	42	167			
1,1-Dichloropropene	5.60	ug/L	1.0	112	72	140			
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	75	132			
trans-1,3-Dichloropropene	5.60	ug/L	1.0	112	77	145			
Ethylbenzene	5.80	ug/L	1.0	116	78	131			
Methyl tert-butyl ether (MTBE)	4.48	ug/L	1.0	90	58	151			
Methylene chloride	4.64	ug/L	1.0	93	73	126			
Naphthalene	3.09	ug/L	1.0	62	55	139			
Styrene	5.64	ug/L	1.0	113	76	134			
1,1,1,2-Tetrachloroethane	6.08	ug/L	1.0	122	75	135			
1,1,2,2-Tetrachloroethane	5.24	ug/L	1.0	105	72	132			
Tetrachloroethene	6.32	ug/L	1.0	126	78	137			
Toluene	5.76	ug/L	1.0	115	78	134			
1,1,1-Trichloroethane	5.52	ug/L	1.0	110	64	141			
1,1,2-Trichloroethane	5.92	ug/L	1.0	118	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	5.16	ug/L	1.0	103	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.88	ug/L	1.0	138	60	140			
1,2,3-Trichloropropane	5.52	ug/L	1.0	110	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A			06/24/15 20:23	
Vinyl chloride	4.84	ug/L	1.0	97	66	140			
m+p-Xylenes	11.7	ug/L	1.0	117	78	133			
o-Xylene	5.76	ug/L	1.0	115	79	136			
Xylenes, Total	17.5	ug/L	1.0	117	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	105	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	96	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A			06/24/15 20:52	
Benzene	4.96	ug/L	1.0	99	71	133	7.0	20	
Bromobenzene	5.48	ug/L	1.0	110	78	133	3.7	20	
Bromochloromethane	5.80	ug/L	1.0	116	68	131	6.0	20	
Bromodichloromethane	5.36	ug/L	1.0	107	67	138	6.5	20	
Bromoform	5.04	ug/L	1.0	101	64	136	1.6	20	
Bromomethane	4.84	ug/L	1.0	97	60	138	3.4	20	
Carbon tetrachloride	5.16	ug/L	1.0	103	61	144	7.5	20	
Chlorobenzene	5.56	ug/L	1.0	111	78	136	3.5	20	
Chlorodibromomethane	5.72	ug/L	1.0	114	72	136	4.1	20	
Chloroethane	4.72	ug/L	1.0	94	64	136	7.9	20	
Chloroform	5.08	ug/L	1.0	102	69	133	5.4	20	
Chloromethane	3.82	ug/L	1.0	76	63	149	1.9	20	
1,2-Dibromoethane	5.72	ug/L	1.0	114	75	131	1.4	20	
2-Chlorotoluene	5.48	ug/L	1.0	110	74	135	1.4	20	
Dibromomethane	5.84	ug/L	1.0	117	72	133	2.0	20	
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129	3.7	20	
4-Chlorotoluene	4.88	ug/L	1.0	98	79	135	1.7	20	
1,3-Dichlorobenzene	5.40	ug/L	1.0	108	79	132	4.5	20	
1,4-Dichlorobenzene	5.24	ug/L	1.0	105	78	131	2.3	20	
Dichlorodifluoromethane	5.28	ug/L	1.0	106	55	141	1.5	20	
1,1-Dichloroethane	5.44	ug/L	1.0	109	72	130	5.7	20	
1,2-Dichloroethane	5.00	ug/L	1.0	100	57	146	6.9	20	
1,1-Dichloroethene	4.92	ug/L	1.0	98	66	142	7.1	20	
cis-1,2-Dichloroethene	5.44	ug/L	1.0	109	74	133	5.0	20	
trans-1,2-Dichloroethene	5.56	ug/L	1.0	111	76	138	8.9	20	
1,2-Dichloropropane	5.32	ug/L	1.0	106	72	135	5.1	20	
1,3-Dichloropropane	5.12	ug/L	1.0	102	75	134	6.1	20	
2,2-Dichloropropane	4.64	ug/L	1.0	93	42	167	9.8	20	
1,1-Dichloropropene	5.20	ug/L	1.0	104	72	140	7.4	20	
cis-1,3-Dichloropropene	5.08	ug/L	1.0	102	75	132	0.8	20	
trans-1,3-Dichloropropene	5.28	ug/L	1.0	106	77	145	5.9	20	
Ethylbenzene	5.56	ug/L	1.0	111	78	131	4.2	20	
Methyl tert-butyl ether (MTBE)	4.40	ug/L	1.0	88	58	151	1.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A			06/24/15 20:52	
Methylene chloride	4.28	ug/L	1.0	86	73	126	8.1	20	
Naphthalene	3.53	ug/L	1.0	71	55	139	13	20	
Styrene	5.56	ug/L	1.0	111	76	134	1.4	20	
1,1,1,2-Tetrachloroethane	5.80	ug/L	1.0	116	75	135	4.7	20	
1,1,2,2-Tetrachloroethane	5.24	ug/L	1.0	105	72	132	0.0	20	
Tetrachloroethene	6.04	ug/L	1.0	121	78	137	4.5	20	
Toluene	5.48	ug/L	1.0	110	78	134	5.0	20	
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	64	141	7.5	20	
1,1,2-Trichloroethane	5.52	ug/L	1.0	110	72	133	7.0	20	
Trichloroethene	5.52	ug/L	1.0	110	75	138	3.6	20	
Trichlorofluoromethane	4.96	ug/L	1.0	99	58	139	4.0	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.52	ug/L	1.0	130	60	140	5.4	20	
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133	1.5	20	
Vinyl chloride	4.68	ug/L	1.0	94	66	140	3.4	20	
m+p-Xylenes	11.2	ug/L	1.0	112	78	133	4.9	20	
o-Xylene	5.48	ug/L	1.0	110	79	136	5.0	20	
Xylenes, Total	16.6	ug/L	1.0	111	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	99	76	127			
Surr: Toluene-d8			1.0	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 91037
Lab ID: MB-91037-91015-90849	Method Blank				Run: SV5973N2.I_150702A				07/03/15 02:26
2-Methylnaphthalene	ND	ug/L	0.20						
Acenaphthene	ND	ug/L	0.20						
Acenaphthylene	ND	ug/L	0.20						
Anthracene	ND	ug/L	0.20						
Benzo(a)anthracene	ND	ug/L	0.20						
Benzo(a)pyrene	ND	ug/L	0.20						
Benzo(b)fluoranthene	ND	ug/L	0.20						
Benzo(g,h,i)perylene	ND	ug/L	0.20						
Benzo(k)fluoranthene	ND	ug/L	0.20						
Chrysene	ND	ug/L	0.20						
Dibenzo(a,h)anthracene	ND	ug/L	0.20						
Fluoranthene	ND	ug/L	0.20						
Fluorene	ND	ug/L	0.20						
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.20						
Naphthalene	0.234	ug/L	0.20						
Phenanthrene	0.218	ug/L	0.20						
Pyrene	ND	ug/L	0.20						
Lab ID: MB-91037-91015-90849	Method Blank				Run: SV5973N2.I_150702A				07/03/15 02:56
Surr: 2-Fluorobiphenyl			4.0	83	40	140			
Surr: o-Terphenyl			4.0	65	40	140			
Lab ID: B15061869-001AMS	Sample Matrix Spike				Run: SV5973N2.I_150702A				07/03/15 06:59
2-Methylnaphthalene	217	ug/L	7.5	58	40	140			
Acenaphthene	226	ug/L	7.5	60	40	140			
Acenaphthylene	171	ug/L	7.5	45	40	140			
Anthracene	281	ug/L	7.5	74	40	140			
Benzo(a)anthracene	282	ug/L	7.5	75	40	140			
Benzo(a)pyrene	288	ug/L	7.5	76	40	140			
Benzo(b)fluoranthene	276	ug/L	7.5	73	40	140			
Benzo(g,h,i)perylene	314	ug/L	7.5	83	40	140			
Benzo(k)fluoranthene	294	ug/L	7.5	78	40	140			
Chrysene	296	ug/L	7.5	78	40	140			
Dibenzo(a,h)anthracene	261	ug/L	7.5	69	40	140			
Fluoranthene	281	ug/L	7.5	74	40	140			
Fluorene	263	ug/L	7.5	70	40	140			
Indeno(1,2,3-cd)pyrene	226	ug/L	7.5	60	40	140			
Naphthalene	185	ug/L	7.5	49	40	140			
Phenanthrene	214	ug/L	7.5	57	40	140			
Pyrene	297	ug/L	7.5	79	40	140			
Surr: 2-Fluorobiphenyl			7.5	72	40	140			
Surr: o-Terphenyl			7.5	64	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 91037
Lab ID: B15061869-001AMSD	Sample Matrix Spike				Run: SV5973N2.I_150702A			07/03/15 07:29	
2-Methylnaphthalene	258	ug/L	7.5	68	40	140	17	40	
Acenaphthene	278	ug/L	7.5	74	40	140	21	40	
Acenaphthylene	235	ug/L	7.5	62	40	140	32	40	
Anthracene	341	ug/L	7.5	90	40	140	19	40	
Benzo(a)anthracene	346	ug/L	7.5	92	40	140	21	40	
Benzo(a)pyrene	382	ug/L	7.5	101	40	140	28	40	
Benzo(b)fluoranthene	355	ug/L	7.5	94	40	140	25	40	
Benzo(g,h,i)perylene	391	ug/L	7.5	104	40	140	22	40	
Benzo(k)fluoranthene	368	ug/L	7.5	97	40	140	22	40	
Chrysene	361	ug/L	7.5	96	40	140	20	40	
Dibenzo(a,h)anthracene	326	ug/L	7.5	86	40	140	22	40	
Fluoranthene	346	ug/L	7.5	92	40	140	21	40	
Fluorene	316	ug/L	7.5	84	40	140	19	40	
Indeno(1,2,3-cd)pyrene	297	ug/L	7.5	79	40	140	27	40	
Naphthalene	223	ug/L	7.5	59	40	140	19	40	
Phenanthrene	261	ug/L	7.5	69	40	140	20	40	
Pyrene	345	ug/L	7.5	91	40	140	15	40	
Surr: 2-Fluorobiphenyl			7.5	81	40	140			
Surr: o-Terphenyl			7.5	70	40	140			
Lab ID: LCS-91037	Laboratory Control Sample				Run: SV5973N2.I_150702A			07/03/15 07:59	
2-Methylnaphthalene	125	ug/L	4.0	62	40	140			
Acenaphthene	139	ug/L	4.0	69	40	140			
Acenaphthylene	118	ug/L	4.0	59	40	140			
Anthracene	174	ug/L	4.0	87	40	140			
Benzo(a)anthracene	169	ug/L	4.0	84	40	140			
Benzo(a)pyrene	189	ug/L	4.0	94	40	140			
Benzo(b)fluoranthene	174	ug/L	4.0	87	40	140			
Benzo(g,h,i)perylene	197	ug/L	4.0	99	40	140			
Benzo(k)fluoranthene	180	ug/L	4.0	90	40	140			
Chrysene	178	ug/L	4.0	89	40	140			
Dibenzo(a,h)anthracene	168	ug/L	4.0	84	40	140			
Fluoranthene	170	ug/L	4.0	85	40	140			
Fluorene	162	ug/L	4.0	81	40	140			
Indeno(1,2,3-cd)pyrene	148	ug/L	4.0	74	40	140			
Naphthalene	108	ug/L	4.0	54	40	140			
Phenanthrene	136	ug/L	4.0	68	40	140			
Pyrene	174	ug/L	4.0	87	40	140			
Surr: 2-Fluorobiphenyl			4.0	72	40	140			
Surr: o-Terphenyl			4.0	65	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/08/15
Project: BNSF Livingston Shop Complex-Task G
Work Order: B15061869

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Analytical Run: R245571
Lab ID: 02-Jul-15_CCV_26	Continuing Calibration Verification Standard								07/03/15 01:25
2-Methylnaphthalene	1.79	ug/L	0.10	90	80	120			
Acenaphthene	1.89	ug/L	0.10	94	80	120			
Acenaphthylene	1.87	ug/L	0.10	94	80	120			
Anthracene	1.96	ug/L	0.10	98	80	120			
Benzo(a)anthracene	2.07	ug/L	0.10	103	80	120			
Benzo(a)pyrene	2.08	ug/L	0.10	104	80	120			
Benzo(b)fluoranthene	2.08	ug/L	0.10	104	80	120			
Benzo(g,h,i)perylene	2.08	ug/L	0.10	104	80	120			
Benzo(k)fluoranthene	1.94	ug/L	0.10	97	80	120			
Chrysene	1.84	ug/L	0.10	92	80	120			
Dibenzo(a,h)anthracene	1.78	ug/L	0.10	89	80	120			
Fluoranthene	1.86	ug/L	0.10	93	80	120			
Fluorene	2.12	ug/L	0.10	106	80	120			
Indeno(1,2,3-cd)pyrene	1.82	ug/L	0.10	91	80	120			
Naphthalene	1.91	ug/L	0.10	96	80	120			
Phenanthrene	1.67	ug/L	0.10	84	80	120			
Pyrene	2.04	ug/L	0.10	102	80	120			
Surr: 2-Fluorobiphenyl			0.10	98	80	120			
Surr: Nitrobenzene-d5			0.10	107	80	120			
Surr: Terphenyl-d14			0.10	115	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061869

Login completed by:	Tamara C. Logan	Date Received:	6/19/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/22/2015	Carrier name:	Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temperature Blank temperature for Cooler 1 was 1.0°C, Cooler 2 was 1.0°C, Cooler 3 was 0.0°C and Cooler 4 was 0.2°C.

Sample RX_061815 is indicated for EPH analysis on the Chain of Custody but no containers were received and two sample containers were received not labeled. Per phone call with Amanda Aldersley, analyze unlabeled sample containers as sample RX_061815.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: WPS GRD RTN

Cooler ID(s): 1: 1.0°C 2: 1.0°C 3: 0.0°C 4: 0.2°C

Receipt Temp: SEE ABOVE °C

On Ice: TB (Yes) No

Custody Seal (Y) N C

Intact (Y) N

Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	L-87-1_061815	6/18/15	0945	7-W		X	X	X		X	X	X			X			B1506186 9-001
(1) 2	TB2_061815	6/18/15	0800	1-W		X	X								X			-002
1 3	EX-2_061815	6/18/15	~~1120~~ 1125	7-W		X	X	X		X	X	X			X			-003
1 4	RX_061815	6/18/15	1035	5-W		X	X	X							X			-004
1 5	EX-10_061815	6/18/15	1225	5-W		X	X	X							X			-005
6																		
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/18/15 13:30		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KYLE LARSEN Date/Time: 19 JUN 2015 9:15 am Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 1.0°C 2: 1.0°C 3: 0.0°C 4: 0.2°C
Receipt Temp TB SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
(2) 1	TB5_061715	6/17	0800	1-W		X	X								X			61506186 9-006
2 2	EX-6_061715	↓	1710	5-W		X	X	X							X			-007
2 3	EX-5_061715		1810	↓		X	X	X							X			-008
2 4	EX-43_061715		1925			X	X	X							X			-009
5																		
6																		
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/18/15 1330		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KYLE LARSEN Date/Time: 19 JUN 2015 9:15 am Signature: [signature]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly noted on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 1.0°C 2: 1.0°C 3: 0.0°C 4: 0.2°C
Receipt Temp: SEE ABOVE °C
On Ice: TB (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	"	6/18/15	"															
2	DI_061815		0800	S-W		X	X	X							X			8150618849-010
2	3 90-K_061815		0950			X	X	X							X			-011
2	4 95-1_061815		1100			X	X	X							X			-012
2	5 LB-6_061815		1210			X	X	X							X			-013
	6																	
	7																	
	8																	
	9																	
	10																	

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LaROSE	" 6/18/15	1330	SEALED for SHIPMENT	"	
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KYLE LARSEN Date/Time: 19 JUN 2015 9:15 am Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ GSA ☐ POTW/WWTP ☐ State: _____ ☐ Other: _____

☐ A2LA ☐ EDD/EDT (Electronic Data) Format: _____ ☐ LEVEL IV ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: UPS GRD RTN

Cooler ID(s): 1: 1.0°C 2: 1.0°C 3: 0.0°C 4: 0.2°C

Receipt Temp: SEE ABOVE °C TB

On Ice: (Y) No

Custody Seal (Y) N C

Intact (Y) N

Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN, Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
2	1 EX-28_061715	6/17/15	1650	S-W	X	X		X							X			~~B506189-014~~
2	2 EX-4_061715		1750	S-W		X	X	X							X			-015
2	3 EX-29_061715		1915	7-W		X	X	X		X	X	X			X			-016
2	4 TBA_061715		1500	1-W	X	X	~~X~~ CL								X			-017
2	5 D2_061915		0800	7-W		X	X	X	~~X~~ CL	X	X	X			X			-018
	6																	
	7																	
	8																	
	9																	
	10																	

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LaROSE	6/18/15 1330		SEALED FOR SHIPMENT CL		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: KYLE LARSEN	Date/Time: 19 JUN 2015 9:15 am	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

July 10, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15062098 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - Task-G

Energy Laboratories Inc Billings MT received the following 10 samples for Kennedy Jenks Consultants on 6/23/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15062098-001	TB5_061815	06/18/15 8:00	06/23/15	Aqueous	Volatile Petroleum Hydrocarbons
B15062098-002	2_061815	06/18/15 19:00	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15062098-003	EX-36_061815	06/18/15 19:50	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction EPH Fractionation Hydrocarbons, Aliphatic Extractable Petroleum Hydrocarbons, Aromatic Extractable Petroleum Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons Separatory Funnel Liquid-Liquid Ext. Low Level PAH
B15062098-004	EX-27_061815	06/18/15 20:40	06/23/15	Aqueous	Same As Above
B15062098-005	1_061815	06/18/15 15:05	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15062098-006	TB3_061815	06/18/15 8:00	06/23/15	Aqueous	Volatile Petroleum Hydrocarbons
B15062098-007	EX-14_061815	06/18/15 16:00	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15062098-008	TB4_061815	06/18/15 8:00	06/23/15	Aqueous	8260-Volatile Organic Compounds-Short List
B15062098-009	EX-58_061815	06/18/15 16:55	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons 8260-Volatile Organic Compounds-Short List
B15062098-010	3_061815	06/18/15 17:45	06/23/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Report Date: 07/10/15

CASE NARRATIVE

Fractionations with PAHs were added to samples per email from Amanda Aldersley on 7/2/2015 :

B15062098-003B EX-36_061815

B15062098-004B EX-27_061815

DATES REPORT

Work Order: B15062098
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -

Report Date: 07/10/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15062098-001A	TB5_061815	6/18/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-002A	2_061815	6/18/2015 7:00:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-002B	2_061815	6/18/2015 7:00:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062098-003A	EX-36_061815	6/18/2015 7:50:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-003B	EX-36_061815	6/18/2015 7:50:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		07/08/2015 MA-EPH [91050]	7/9/2015
B15062098-003B	EX-36_061815	6/18/2015 7:50:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		07/08/2015 MA-EPH [91050]	7/9/2015
B15062098-003B	EX-36_061815	6/18/2015 7:50:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062098-003B	EX-36_061815	6/18/2015 7:50:00 PM	Aqueous	Low Level PAH		06/29/2015 SW8270C [91128]	7/9/2015
B15062098-003B	EX-36_061815	6/18/2015 7:50:00 PM	Aqueous	Low Level PAH		06/29/2015 SW8270C [91128]	7/9/2015
B15062098-004A	EX-27_061815	6/18/2015 8:40:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-004B	EX-27_061815	6/18/2015 8:40:00 PM	Aqueous	Hydrocarbons, Aliphatic Extractable Petroleum		07/08/2015 MA-EPH [91050]	7/9/2015
B15062098-004B	EX-27_061815	6/18/2015 8:40:00 PM	Aqueous	Hydrocarbons, Aromatic Extractable Petroleum		07/08/2015 MA-EPH [91050]	7/9/2015
B15062098-004B	EX-27_061815	6/18/2015 8:40:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062098-004B	EX-27_061815	6/18/2015 8:40:00 PM	Aqueous	Low Level PAH		06/29/2015 SW8270C [91128]	7/9/2015
B15062098-004B	EX-27_061815	6/18/2015 8:40:00 PM	Aqueous	Low Level PAH		06/29/2015 SW8270C [91128]	7/9/2015
B15062098-005A	1_061815	6/18/2015 3:05:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-005B	1_061815	6/18/2015 3:05:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062098-006A	TB3_061815	6/18/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-007A	EX-14_061815	6/18/2015 4:00:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-007B	EX-14_061815	6/18/2015 4:00:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062098-008A	TB4_061815	6/18/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/24/2015
B15062098-009A	EX-58_061815	6/18/2015 4:55:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/24/2015
B15062098-009B	EX-58_061815	6/18/2015 4:55:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-009C	EX-58_061815	6/18/2015 4:55:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062098-010A	3_061815	6/18/2015 5:45:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/24/2015

DATES REPORT

Work Order: B15062098

Client: Kennedy Jenks Consultants

Project: BNSF Livingston Shop Complex -

Report Date: 07/10/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15062098-010B	3_061815	6/18/2015 5:45:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062098-010C	3_061815	6/18/2015 5:45:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-001
Client Sample ID: TB5_061815

Report Date: 07/10/15
Collection Date: 06/18/15 08:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 12:12 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 12:12 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 12:12 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 12:12 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 12:12 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 12:12 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 12:12 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 12:12 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 12:12 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 12:12 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 12:12 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 12:12 / pbf
Surr: VPH Aromatics Surrogate	86.0	%REC		70-130		MA-VPH	06/24/15 12:12 / pbf
Surr: VPH Aliphatics Surrogate	87.0	%REC		70-130		MA-VPH	06/24/15 12:12 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-002
Client Sample ID: 2_061815

Report Date: 07/10/15
Collection Date: 06/18/15 19:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 16:40 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 16:40 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 16:40 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 16:40 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 16:40 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 16:40 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 16:40 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 16:40 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 16:40 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 16:40 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 16:40 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 16:40 / pbf
Surr: VPH Aromatics Surrogate	89.0	%REC		70-130		MA-VPH	06/24/15 16:40 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/24/15 16:40 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/01/15 09:53 / tmc
Surr: o-Terphenyl	85.0	%REC		40-140		SW8015M	07/01/15 09:53 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-003
Client Sample ID: EX-36_061815

Report Date: 07/10/15
Collection Date: 06/18/15 19:50
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 20:00 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 20:00 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 20:00 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 20:00 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 20:00 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 20:00 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 20:00 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 20:00 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 20:00 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 20:00 / pbf
C9 to C12 Aliphatics	26	ug/L		20	1000	MA-VPH	06/24/15 20:00 / pbf
Total Purgeable Hydrocarbons	46	ug/L		20	1000	MA-VPH	06/24/15 20:00 / pbf
Surr: VPH Aromatics Surrogate	86.0	%REC		70-130		MA-VPH	06/24/15 20:00 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/24/15 20:00 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	7920	ug/L	*	300	1000	SW8015M	07/01/15 14:16 / tmc
Surr: o-Terphenyl	83.0	%REC		40-140		SW8015M	07/01/15 14:16 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/09/15 06:33 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/09/15 06:33 / cmb
Surr: 1-Chloro-octadecane	98.0	%REC		40-140		MA-EPH	07/09/15 06:33 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/09/15 07:18 / cmb
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/09/15 07:18 / cmb
Surr: 2-Bromonaphthalene	81.0	%REC		40-140		MA-EPH	07/09/15 07:18 / cmb
Surr: 2-Fluorobiphenyl	89.0	%REC		40-140		MA-EPH	07/09/15 07:18 / cmb
Surr: o-Terphenyl	88.0	%REC		40-140		MA-EPH	07/09/15 07:18 / cmb

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.

SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/09/15 17:39 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/09/15 17:39 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/09/15 17:39 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/09/15 17:39 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/09/15 17:39 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/09/15 17:39 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/09/15 17:39 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/09/15 17:39 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-003
Client Sample ID: EX-36_061815

Report Date: 07/10/15
Collection Date: 06/18/15 19:50
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/09/15 17:39 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/09/15 17:39 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/09/15 17:39 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/09/15 17:39 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/09/15 17:39 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/09/15 17:39 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/09/15 17:39 / jjb
Phenanthrene	0.22	ug/L	B	0.19		SW8270C	07/09/15 17:39 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/09/15 17:39 / jjb
Surr: 2-Fluorobiphenyl	79.0	%REC		40-140		SW8270C	07/09/15 17:09 / jjb
Surr: o-Terphenyl	74.0	%REC		40-140		SW8270C	07/09/15 17:09 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-004
Client Sample ID: EX-27_061815

Report Date: 07/10/15
Collection Date: 06/18/15 20:40
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 17:13 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 17:13 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 17:13 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 17:13 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 17:13 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 17:13 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 17:13 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 17:13 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 17:13 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 17:13 / pbf
C9 to C12 Aliphatics	20	ug/L		20	1000	MA-VPH	06/24/15 17:13 / pbf
Total Purgeable Hydrocarbons	42	ug/L		20	1000	MA-VPH	06/24/15 17:13 / pbf
Surr: VPH Aromatics Surrogate	97.0	%REC		70-130		MA-VPH	06/24/15 17:13 / pbf
Surr: VPH Aliphatics Surrogate	96.0	%REC		70-130		MA-VPH	06/24/15 17:13 / pbf
- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.							
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.							
EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	1800	ug/L	*	300	1000	SW8015M	07/01/15 15:01 / tmc
Surr: o-Terphenyl	72.0	%REC		40-140		SW8015M	07/01/15 15:01 / tmc
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
EXTRACTABLE PETROLEUM HYDROCARBONS							
C9 to C18 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/09/15 05:01 / cmb
C19 to C36 Aliphatics	ND	ug/L		300	1000	MA-EPH	07/09/15 05:01 / cmb
Surr: 1-Chloro-octadecane	56.0	%REC		40-140		MA-EPH	07/09/15 05:01 / cmb
C11 to C22 Aromatics	ND	ug/L		300	1000	MA-EPH	07/09/15 05:47 / cmb
Total Extractable Hydrocarbons	ND	ug/L		300	1000	MA-EPH	07/09/15 05:47 / cmb
Surr: 2-Bromonaphthalene	90.0	%REC		40-140		MA-EPH	07/09/15 05:47 / cmb
Surr: 2-Fluorobiphenyl	97.0	%REC		40-140		MA-EPH	07/09/15 05:47 / cmb
Surr: o-Terphenyl	76.0	%REC		40-140		MA-EPH	07/09/15 05:47 / cmb
- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.							
- A significant portion of the hydrocarbons measured in the EPH Screening analysis were not recovered from the silica gel fractionation cartridge. Silica gel can act as a cleanup media for non-petroleum hydrocarbons.							
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
2-Methylnaphthalene	ND	ug/L		0.19		SW8270C	07/09/15 18:40 / jjb
Acenaphthene	ND	ug/L		0.19	670	SW8270C	07/09/15 18:40 / jjb
Acenaphthylene	ND	ug/L		0.19		SW8270C	07/09/15 18:40 / jjb
Anthracene	ND	ug/L		0.19	2110	SW8270C	07/09/15 18:40 / jjb
Benzo(a)anthracene	ND	ug/L		0.19	0.5	SW8270C	07/09/15 18:40 / jjb
Benzo(a)pyrene	ND	ug/L		0.19	0.05	SW8270C	07/09/15 18:40 / jjb
Benzo(b)fluoranthene	ND	ug/L		0.19	0.5	SW8270C	07/09/15 18:40 / jjb
Benzo(g,h,i)perylene	ND	ug/L		0.19		SW8270C	07/09/15 18:40 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
* - The result exceeds the MCL.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-004
Client Sample ID: EX-27_061815

Report Date: 07/10/15
Collection Date: 06/18/15 20:40
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
SEMI-VOLATILE ORGANIC COMPOUNDS (LOW LEVEL)							
Benzo(k)fluoranthene	ND	ug/L		0.19	5	SW8270C	07/09/15 18:40 / jjb
Chrysene	ND	ug/L		0.19	50	SW8270C	07/09/15 18:40 / jjb
Dibenzo(a,h)anthracene	ND	ug/L		0.19	0.05	SW8270C	07/09/15 18:40 / jjb
Fluoranthene	ND	ug/L		0.19	130	SW8270C	07/09/15 18:40 / jjb
Fluorene	ND	ug/L		0.19	1100	SW8270C	07/09/15 18:40 / jjb
Indeno(1,2,3-cd)pyrene	ND	ug/L		0.19	0.5	SW8270C	07/09/15 18:40 / jjb
Naphthalene	ND	ug/L		0.19	100	SW8270C	07/09/15 18:40 / jjb
Phenanthrene	0.22	ug/L	B	0.19		SW8270C	07/09/15 18:40 / jjb
Pyrene	ND	ug/L		0.19	830	SW8270C	07/09/15 18:40 / jjb
Surr: 2-Fluorobiphenyl	84.0	%REC		40-140		SW8270C	07/09/15 18:10 / jjb
Surr: o-Terphenyl	66.0	%REC		40-140		SW8270C	07/09/15 18:10 / jjb

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
B - The analyte was detected in the method blank.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-005
Client Sample ID: 1_061815

Report Date: 07/10/15
Collection Date: 06/18/15 15:05
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 17:47 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 17:47 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 17:47 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 17:47 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 17:47 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 17:47 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 17:47 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 17:47 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 17:47 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 17:47 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 17:47 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 17:47 / pbf
Surr: VPH Aromatics Surrogate	87.0	%REC		70-130		MA-VPH	06/24/15 17:47 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/24/15 17:47 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/01/15 15:45 / tmc
Surr: o-Terphenyl	87.0	%REC		40-140		SW8015M	07/01/15 15:45 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-006
Client Sample ID: TB3_061815

Report Date: 07/10/15
Collection Date: 06/18/15 08:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 12:45 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 12:45 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 12:45 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 12:45 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 12:45 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 12:45 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 12:45 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 12:45 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 12:45 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 12:45 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 12:45 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 12:45 / pbf
Surr: VPH Aromatics Surrogate	88.0	%REC		70-130		MA-VPH	06/24/15 12:45 / pbf
Surr: VPH Aliphatics Surrogate	91.0	%REC		70-130		MA-VPH	06/24/15 12:45 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-007
Client Sample ID: EX-14_061815

Report Date: 07/10/15
Collection Date: 06/18/15 16:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 18:20 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 18:20 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 18:20 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 18:20 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 18:20 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 18:20 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 18:20 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 18:20 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 18:20 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 18:20 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 18:20 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 18:20 / pbf
Surr: VPH Aromatics Surrogate	88.0	%REC		70-130		MA-VPH	06/24/15 18:20 / pbf
Surr: VPH Aliphatics Surrogate	93.0	%REC		70-130		MA-VPH	06/24/15 18:20 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/01/15 16:29 / tmc
Surr: o-Terphenyl	90.0	%REC		40-140		SW8015M	07/01/15 16:29 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-008
Client Sample ID: TB4_061815

Report Date: 07/10/15
Collection Date: 06/18/15 08:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 17:58 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 17:58 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-008
Client Sample ID: TB4_061815

Report Date: 07/10/15
Collection Date: 06/18/15 08:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 17:58 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 17:58 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/24/15 17:58 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/24/15 17:58 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/24/15 17:58 / nl
Surr: p-Bromofluorobenzene	120	%REC		76-127		SW8260B	06/24/15 17:58 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-009
Client Sample ID: EX-58_061815

Report Date: 07/10/15
Collection Date: 06/18/15 16:55
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 18:27 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 18:27 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-009
Client Sample ID: EX-58_061815

Report Date: 07/10/15
Collection Date: 06/18/15 16:55
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 18:27 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 18:27 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/24/15 18:27 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/24/15 18:27 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/24/15 18:27 / nl
Surr: p-Bromofluorobenzene	122	%REC		76-127		SW8260B	06/24/15 18:27 / nl
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 18:54 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 18:54 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 18:54 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 18:54 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 18:54 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 18:54 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 18:54 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 18:54 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 18:54 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 18:54 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 18:54 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 18:54 / pbf
Surr: VPH Aromatics Surrogate	87.0	%REC		70-130		MA-VPH	06/24/15 18:54 / pbf
Surr: VPH Aliphatics Surrogate	88.0	%REC		70-130		MA-VPH	06/24/15 18:54 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/01/15 17:56 / tmc
Surr: o-Terphenyl	86.0	%REC		40-140		SW8015M	07/01/15 17:56 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-010
Client Sample ID: 3_061815

Report Date: 07/10/15
Collection Date: 06/18/15 17:45
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 18:56 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 18:56 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062098-010
Client Sample ID: 3_061815

Report Date: 07/10/15
Collection Date: 06/18/15 17:45
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 18:56 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 18:56 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/24/15 18:56 / nl
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130		SW8260B	06/24/15 18:56 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/24/15 18:56 / nl
Surr: p-Bromofluorobenzene	120	%REC		76-127		SW8260B	06/24/15 18:56 / nl
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 19:27 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 19:27 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 19:27 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 19:27 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 19:27 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 19:27 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 19:27 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 19:27 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 19:27 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 19:27 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 19:27 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 19:27 / pbf
Surr: VPH Aromatics Surrogate	85.0	%REC		70-130		MA-VPH	06/24/15 19:27 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/24/15 19:27 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/01/15 18:40 / tmc
Surr: o-Terphenyl	79.0	%REC		40-140		SW8015M	07/01/15 18:40 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R245041
Lab ID: CCV-062415	Continuing Calibration Verification Standard								06/24/15 14:07
Benzene	4.88	ug/L	1.0	98	70	130			
Bromobenzene	5.68	ug/L	1.0	114	70	130			
Bromochloromethane	5.72	ug/L	1.0	114	70	130			
Bromodichloromethane	4.92	ug/L	1.0	98	70	130			
Bromoform	5.08	ug/L	1.0	102	70	130			
Bromomethane	5.92	ug/L	1.0	118	70	130			
Carbon tetrachloride	4.96	ug/L	1.0	99	70	130			
Chlorobenzene	5.32	ug/L	1.0	106	70	130			
Chlorodibromomethane	5.20	ug/L	1.0	104	70	130			
Chloroethane	5.00	ug/L	1.0	100	70	130			
Chloroform	4.88	ug/L	1.0	98	80	120			
Chloromethane	4.48	ug/L	1.0	90	70	130			
1,2-Dibromoethane	5.08	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.72	ug/L	1.0	114	70	130			
Dibromomethane	5.56	ug/L	1.0	111	70	130			
1,2-Dichlorobenzene	5.76	ug/L	1.0	115	70	130			
4-Chlorotoluene	5.20	ug/L	1.0	104	70	130			
1,3-Dichlorobenzene	5.60	ug/L	1.0	112	70	130			
1,4-Dichlorobenzene	5.48	ug/L	1.0	110	70	130			
Dichlorodifluoromethane	6.48	ug/L	1.0	130	70	130			
1,1-Dichloroethane	5.20	ug/L	1.0	104	70	130			
1,2-Dichloroethane	4.68	ug/L	1.0	94	70	130			
1,1-Dichloroethene	4.84	ug/L	1.0	97	80	120			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	70	130			
trans-1,2-Dichloroethene	5.52	ug/L	1.0	110	70	130			
1,2-Dichloropropane	5.04	ug/L	1.0	101	80	120			
1,3-Dichloropropane	5.24	ug/L	1.0	105	70	130			
2,2-Dichloropropane	5.44	ug/L	1.0	109	70	130			
1,1-Dichloropropene	5.00	ug/L	1.0	100	70	130			
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	70	130			
trans-1,3-Dichloropropene	4.56	ug/L	1.0	91	70	130			
Ethylbenzene	5.28	ug/L	1.0	106	80	120			
Methyl tert-butyl ether (MTBE)	4.60	ug/L	1.0	92	70	130			
Methylene chloride	4.24	ug/L	1.0	85	70	130			
Naphthalene	3.49	ug/L	1.0	70	70	130			
Styrene	5.24	ug/L	1.0	105	70	130			
1,1,1,2-Tetrachloroethane	5.32	ug/L	1.0	106	70	130			
1,1,2,2-Tetrachloroethane	5.12	ug/L	1.0	102	70	130			
Tetrachloroethene	5.76	ug/L	1.0	115	70	130			
Toluene	5.28	ug/L	1.0	106	80	120			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	70	130			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	70	130			
Trichloroethene	5.28	ug/L	1.0	106	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R245041
Lab ID: CCV-062415	Continuing Calibration Verification Standard								06/24/15 14:07
Trichlorofluoromethane	5.52	ug/L	1.0	110	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.56	ug/L	1.0	111	70	130			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	70	130			
Vinyl chloride	5.28	ug/L	1.0	106	80	120			
m+p-Xylenes	10.7	ug/L	1.0	107	70	130			
o-Xylene	5.32	ug/L	1.0	106	70	130			
Xylenes, Total	16.0	ug/L	1.0	107	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	102	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	108	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Method: SW8260B									Batch: R245041
Lab ID: LCS-062415	Laboratory Control Sample				Run: SV5972.I_150624A				06/24/15 14:36
Benzene	4.72	ug/L	1.0	94	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	5.64	ug/L	1.0	113	68	131			
Bromodichloromethane	5.28	ug/L	1.0	106	67	138			
Bromoform	4.84	ug/L	1.0	97	64	136			
Bromomethane	5.12	ug/L	1.0	102	60	138			
Carbon tetrachloride	4.84	ug/L	1.0	97	61	144			
Chlorobenzene	5.44	ug/L	1.0	109	78	136			
Chlorodibromomethane	5.40	ug/L	1.0	108	72	136			
Chloroethane	4.24	ug/L	1.0	85	64	136			
Chloroform	4.76	ug/L	1.0	95	69	133			
Chloromethane	3.62	ug/L	1.0	72	63	149			
1,2-Dibromoethane	5.40	ug/L	1.0	108	75	131			
2-Chlorotoluene	5.48	ug/L	1.0	110	74	135			
Dibromomethane	5.60	ug/L	1.0	112	72	133			
1,2-Dichlorobenzene	5.48	ug/L	1.0	110	78	129			
4-Chlorotoluene	5.00	ug/L	1.0	100	79	135			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131			
Dichlorodifluoromethane	5.04	ug/L	1.0	101	55	141			
1,1-Dichloroethane	5.20	ug/L	1.0	104	72	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	57	146			
1,1-Dichloroethene	4.76	ug/L	1.0	95	66	142			
cis-1,2-Dichloroethene	5.12	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138			
1,2-Dichloropropane	5.16	ug/L	1.0	103	72	135			
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134			
2,2-Dichloropropane	4.96	ug/L	1.0	99	42	167			
1,1-Dichloropropene	5.04	ug/L	1.0	101	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: LCS-062415	Laboratory Control Sample				Run: SV5972.I_150624A				06/24/15 14:36
cis-1,3-Dichloropropene	5.16	ug/L	1.0	103	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.32	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.16	ug/L	1.0	83	58	151			
Methylene chloride	4.08	ug/L	1.0	82	73	126			
Naphthalene	3.61	ug/L	1.0	72	55	139			
Styrene	5.36	ug/L	1.0	107	76	134			
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	72	132			
Tetrachloroethene	5.84	ug/L	1.0	117	78	137			
Toluene	5.32	ug/L	1.0	106	78	134			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	64	141			
1,1,2-Trichloroethane	5.32	ug/L	1.0	106	72	133			
Trichloroethene	5.40	ug/L	1.0	108	75	138			
Trichlorofluoromethane	5.00	ug/L	1.0	100	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.60	ug/L	1.0	132	60	140			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133			
Vinyl chloride	4.68	ug/L	1.0	94	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.28	ug/L	1.0	106	79	136			
Xylenes, Total	16.1	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	117	79	122			
Lab ID: MB-062415	Method Blank				Run: SV5972.I_150624A				06/24/15 15:33
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/10/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: MB-062415	Method Blank				Run: SV5972.I_150624A				06/24/15 15:33
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	116	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
Benzene	5.32	ug/L	1.0	106	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	6.16	ug/L	1.0	123	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
Bromodichloromethane	5.72	ug/L	1.0	114	67	138			
Bromoform	5.12	ug/L	1.0	102	64	136			
Bromomethane	4.68	ug/L	1.0	94	60	138			
Carbon tetrachloride	5.56	ug/L	1.0	111	61	144			
Chlorobenzene	5.76	ug/L	1.0	115	78	136			
Chlorodibromomethane	5.96	ug/L	1.0	119	72	136			
Chloroethane	4.36	ug/L	1.0	87	64	136			
Chloroform	5.36	ug/L	1.0	107	69	133			
Chloromethane	3.75	ug/L	1.0	75	63	149			
1,2-Dibromoethane	5.80	ug/L	1.0	116	75	131			
2-Chlorotoluene	5.56	ug/L	1.0	111	74	135			
Dibromomethane	5.96	ug/L	1.0	119	72	133			
1,2-Dichlorobenzene	5.32	ug/L	1.0	106	78	129			
4-Chlorotoluene	4.80	ug/L	1.0	96	79	135			
1,3-Dichlorobenzene	5.16	ug/L	1.0	103	79	132			
1,4-Dichlorobenzene	5.12	ug/L	1.0	102	78	131			
Dichlorodifluoromethane	5.36	ug/L	1.0	107	55	141			
1,1-Dichloroethane	5.76	ug/L	1.0	115	72	130			
1,2-Dichloroethane	5.36	ug/L	1.0	107	57	146			
1,1-Dichloroethene	5.28	ug/L	1.0	106	66	142			
cis-1,2-Dichloroethene	5.72	ug/L	1.0	114	74	133			
trans-1,2-Dichloroethene	6.08	ug/L	1.0	122	76	138			
1,2-Dichloropropane	5.60	ug/L	1.0	112	72	135			
1,3-Dichloropropane	5.44	ug/L	1.0	109	75	134			
2,2-Dichloropropane	5.12	ug/L	1.0	102	42	167			
1,1-Dichloropropene	5.60	ug/L	1.0	112	72	140			
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	75	132			
trans-1,3-Dichloropropene	5.60	ug/L	1.0	112	77	145			
Ethylbenzene	5.80	ug/L	1.0	116	78	131			
Methyl tert-butyl ether (MTBE)	4.48	ug/L	1.0	90	58	151			
Methylene chloride	4.64	ug/L	1.0	93	73	126			
Naphthalene	3.09	ug/L	1.0	62	55	139			
Styrene	5.64	ug/L	1.0	113	76	134			
1,1,1,2-Tetrachloroethane	6.08	ug/L	1.0	122	75	135			
1,1,2,2-Tetrachloroethane	5.24	ug/L	1.0	105	72	132			
Tetrachloroethene	6.32	ug/L	1.0	126	78	137			
Toluene	5.76	ug/L	1.0	115	78	134			
1,1,1-Trichloroethane	5.52	ug/L	1.0	110	64	141			
1,1,2-Trichloroethane	5.92	ug/L	1.0	118	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	5.16	ug/L	1.0	103	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.88	ug/L	1.0	138	60	140			
1,2,3-Trichloropropane	5.52	ug/L	1.0	110	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
Vinyl chloride	4.84	ug/L	1.0	97	66	140			
m+p-Xylenes	11.7	ug/L	1.0	117	78	133			
o-Xylene	5.76	ug/L	1.0	115	79	136			
Xylenes, Total	17.5	ug/L	1.0	117	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	105	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	96	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A				06/24/15 20:52
Benzene	4.96	ug/L	1.0	99	71	133	7.0	20	
Bromobenzene	5.48	ug/L	1.0	110	78	133	3.7	20	
Bromochloromethane	5.80	ug/L	1.0	116	68	131	6.0	20	
Bromodichloromethane	5.36	ug/L	1.0	107	67	138	6.5	20	
Bromoform	5.04	ug/L	1.0	101	64	136	1.6	20	
Bromomethane	4.84	ug/L	1.0	97	60	138	3.4	20	
Carbon tetrachloride	5.16	ug/L	1.0	103	61	144	7.5	20	
Chlorobenzene	5.56	ug/L	1.0	111	78	136	3.5	20	
Chlorodibromomethane	5.72	ug/L	1.0	114	72	136	4.1	20	
Chloroethane	4.72	ug/L	1.0	94	64	136	7.9	20	
Chloroform	5.08	ug/L	1.0	102	69	133	5.4	20	
Chloromethane	3.82	ug/L	1.0	76	63	149	1.9	20	
1,2-Dibromoethane	5.72	ug/L	1.0	114	75	131	1.4	20	
2-Chlorotoluene	5.48	ug/L	1.0	110	74	135	1.4	20	
Dibromomethane	5.84	ug/L	1.0	117	72	133	2.0	20	
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129	3.7	20	
4-Chlorotoluene	4.88	ug/L	1.0	98	79	135	1.7	20	
1,3-Dichlorobenzene	5.40	ug/L	1.0	108	79	132	4.5	20	
1,4-Dichlorobenzene	5.24	ug/L	1.0	105	78	131	2.3	20	
Dichlorodifluoromethane	5.28	ug/L	1.0	106	55	141	1.5	20	
1,1-Dichloroethane	5.44	ug/L	1.0	109	72	130	5.7	20	
1,2-Dichloroethane	5.00	ug/L	1.0	100	57	146	6.9	20	
1,1-Dichloroethene	4.92	ug/L	1.0	98	66	142	7.1	20	
cis-1,2-Dichloroethene	5.44	ug/L	1.0	109	74	133	5.0	20	
trans-1,2-Dichloroethene	5.56	ug/L	1.0	111	76	138	8.9	20	
1,2-Dichloropropane	5.32	ug/L	1.0	106	72	135	5.1	20	
1,3-Dichloropropane	5.12	ug/L	1.0	102	75	134	6.1	20	
2,2-Dichloropropane	4.64	ug/L	1.0	93	42	167	9.8	20	
1,1-Dichloropropene	5.20	ug/L	1.0	104	72	140	7.4	20	
cis-1,3-Dichloropropene	5.08	ug/L	1.0	102	75	132	0.8	20	
trans-1,3-Dichloropropene	5.28	ug/L	1.0	106	77	145	5.9	20	
Ethylbenzene	5.56	ug/L	1.0	111	78	131	4.2	20	
Methyl tert-butyl ether (MTBE)	4.40	ug/L	1.0	88	58	151	1.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A			06/24/15 20:52	
Methylene chloride	4.28	ug/L	1.0	86	73	126	8.1	20	
Naphthalene	3.53	ug/L	1.0	71	55	139	13	20	
Styrene	5.56	ug/L	1.0	111	76	134	1.4	20	
1,1,1,2-Tetrachloroethane	5.80	ug/L	1.0	116	75	135	4.7	20	
1,1,2,2-Tetrachloroethane	5.24	ug/L	1.0	105	72	132	0.0	20	
Tetrachloroethene	6.04	ug/L	1.0	121	78	137	4.5	20	
Toluene	5.48	ug/L	1.0	110	78	134	5.0	20	
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	64	141	7.5	20	
1,1,2-Trichloroethane	5.52	ug/L	1.0	110	72	133	7.0	20	
Trichloroethene	5.52	ug/L	1.0	110	75	138	3.6	20	
Trichlorofluoromethane	4.96	ug/L	1.0	99	58	139	4.0	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.52	ug/L	1.0	130	60	140	5.4	20	
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133	1.5	20	
Vinyl chloride	4.68	ug/L	1.0	94	66	140	3.4	20	
m+p-Xylenes	11.2	ug/L	1.0	112	78	133	4.9	20	
o-Xylene	5.48	ug/L	1.0	110	79	136	5.0	20	
Xylenes, Total	16.6	ug/L	1.0	111	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	99	76	127			
Surr: Toluene-d8			1.0	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Analytical Run: R245190
Lab ID: CCV_0624VAR02r-W	Continuing Calibration Verification Standard								06/24/15 09:25
1,2,4-Trimethylbenzene	20.8	ug/L	1.0	83	75	125			
2,2,4-Trimethylpentane	21.6	ug/L	1.0	86	75	125			
2-Methylpentane	22.2	ug/L	1.0	89	75	125			
n-Butylcyclohexane	20.6	ug/L	1.0	82	75	125			
n-Decane	19.5	ug/L	1.0	78	75	125			
Methyl tert-butyl ether (MTBE)	20.9	ug/L	1.0	84	75	125			
Benzene	21.1	ug/L	0.50	84	75	125			
Toluene	20.6	ug/L	0.50	83	75	125			
Ethylbenzene	20.9	ug/L	0.50	84	75	125			
m+p-Xylenes	42.2	ug/L	0.50	84	75	125			
o-Xylene	21.0	ug/L	0.50	84	75	125			
Naphthalene	20.0	ug/L	1.0	80	75	125			
n-Pentane	21.9	ug/L	1.0	88	75	125			
Surr: VPH Aromatics Surrogate			1.0	102	75	125			
Surr: VPH Aliphatics Surrogate			1.0	103	75	125			
Method: MA-VPH									Batch: R245190
Lab ID: LCS_0624VAR03r	Laboratory Control Sample				Run: VARIAN1_150624A				06/24/15 09:59
1,2,4-Trimethylbenzene	23.6	ug/L	1.0	94	70	130			
2,2,4-Trimethylpentane	23.7	ug/L	1.0	95	70	130			
2-Methylpentane	23.7	ug/L	1.0	95	70	130			
n-Butylcyclohexane	23.5	ug/L	1.0	94	70	130			
n-Decane	23.9	ug/L	1.0	96	70	130			
Methyl tert-butyl ether (MTBE)	23.2	ug/L	1.0	93	70	130			
Benzene	23.5	ug/L	0.50	94	70	130			
Toluene	22.9	ug/L	0.50	91	70	130			
Ethylbenzene	23.2	ug/L	0.50	93	70	130			
m+p-Xylenes	47.5	ug/L	0.50	95	70	130			
o-Xylene	23.5	ug/L	0.50	94	70	130			
Naphthalene	22.9	ug/L	1.0	92	70	130			
Total Purgeable Hydrocarbons	351	ug/L	20	94	70	130			
n-Pentane	23.9	ug/L	1.0	96	70	130			
Surr: VPH Aromatics Surrogate			1.0	90	70	130			
Surr: VPH Aliphatics Surrogate			1.0	94	70	130			
Lab ID: MBLK_0624VAR06r	Method Blank				Run: VARIAN1_150624A				06/24/15 11:39
Methyl tert-butyl ether (MTBE)	ND	ug/L	1.0						
Benzene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Batch: R245190
Lab ID: MBLK_0624VAR06r	Method Blank				Run: VARIAN1_150624A				06/24/15 11:39
Naphthalene	ND	ug/L	1.0						
C9 to C10 Aromatics	ND	ug/L	20						
C5 to C8 Aliphatics	ND	ug/L	20						
C9 to C12 Aliphatics	ND	ug/L	20						
Total Purgeable Hydrocarbons	ND	ug/L	20						
Surr: VPH Aromatics Surrogate			1.0	89	70	130			
Surr: VPH Aliphatics Surrogate			1.0	88	70	130			
Lab ID: B15062001-001EMS	Sample Matrix Spike				Run: VARIAN1_150624A				06/24/15 14:26
Methyl tert-butyl ether (MTBE)	23.9	ug/L	1.0	96	70	130			
Benzene	24.5	ug/L	0.50	98	70	130			
Toluene	23.9	ug/L	0.50	96	70	130			
Ethylbenzene	24.3	ug/L	0.50	97	70	130			
m+p-Xylenes	49.6	ug/L	0.50	99	70	130			
o-Xylene	24.3	ug/L	0.50	97	70	130			
Naphthalene	23.7	ug/L	1.0	95	70	130			
Total Purgeable Hydrocarbons	364	ug/L	20	97	70	130			
Surr: VPH Aromatics Surrogate			1.0	95	70	130			
Surr: VPH Aliphatics Surrogate			1.0	92	70	130			
Lab ID: B15062001-001EMSD	Sample Matrix Spike Duplicate				Run: VARIAN1_150624A				06/24/15 14:59
Methyl tert-butyl ether (MTBE)	24.0	ug/L	1.0	96	70	130	0.6	20	
Benzene	24.5	ug/L	0.50	98	70	130	0.2	20	
Toluene	24.0	ug/L	0.50	96	70	130	0.3	20	
Ethylbenzene	24.2	ug/L	0.50	97	70	130	0.3	20	
m+p-Xylenes	49.5	ug/L	0.50	99	70	130	0.3	20	
o-Xylene	24.2	ug/L	0.50	97	70	130	0.5	20	
Naphthalene	24.0	ug/L	1.0	96	70	130	1.4	20	
Total Purgeable Hydrocarbons	358	ug/L	20	95	70	130	1.7	20	
Surr: VPH Aromatics Surrogate			1.0	94	70	130			
Surr: VPH Aliphatics Surrogate			1.0	92	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

TB5_061815

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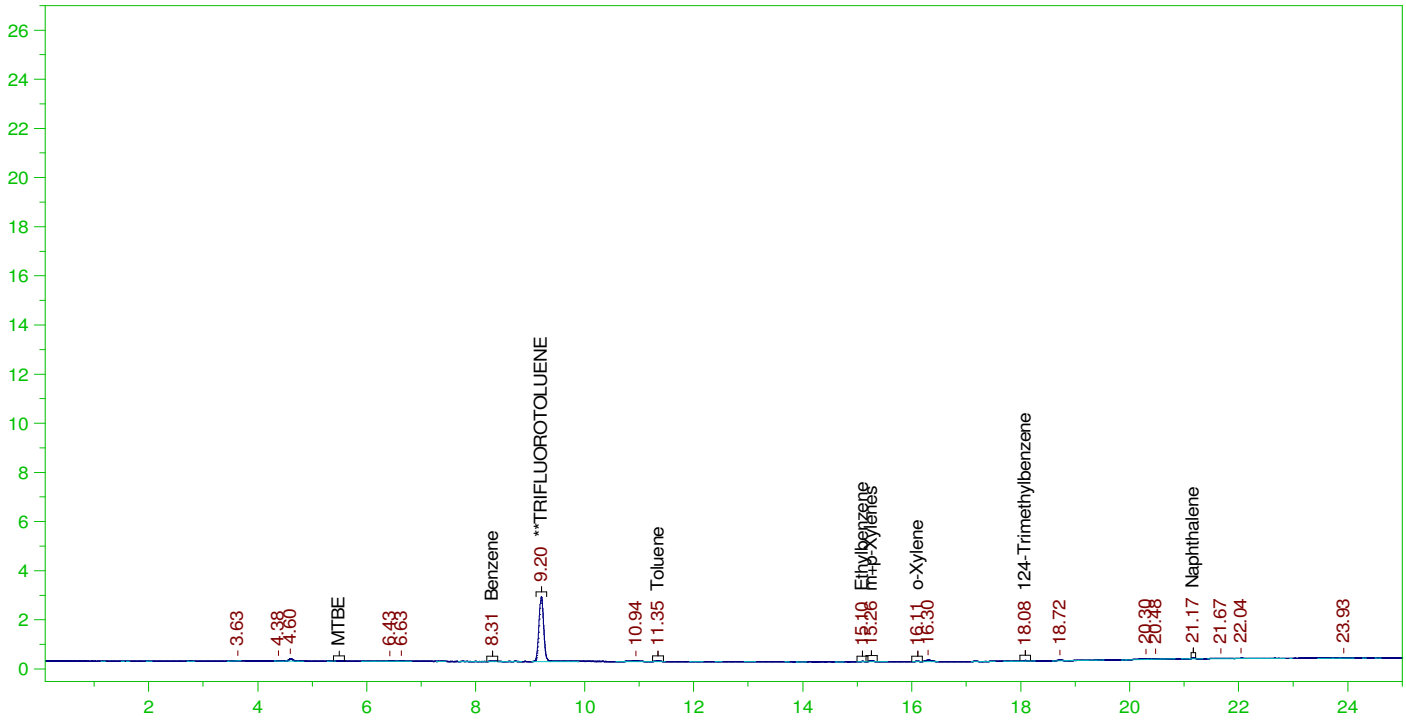

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-001A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0007.RAW
Date & Time Acquired: 6/24/2015 12:12:37 PM
Method File: G:\Org\VAR\Methods\150513M2098-1.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1505.367 C9-C10 Aromatics Amount: 0.8491637

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.311	8.311	8.311	70	.5	U
Toluene	11.348	11.348	11.348	147	.5	U
Ethylbenzene	15.101	15.101	15.101	75	.5	U
m+p-Xylenes	15.259	15.259	15.259	233	.5	U
o-Xylene	16.11	16.11	16.11	86	.5	U
124-Trimethylbenzene	18.081	18.081	18.081	85	.5	U
Naphthalene	21.168	21.168	21.168	145	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.204	25.	21.485	85.94	70-130

TB5_061815

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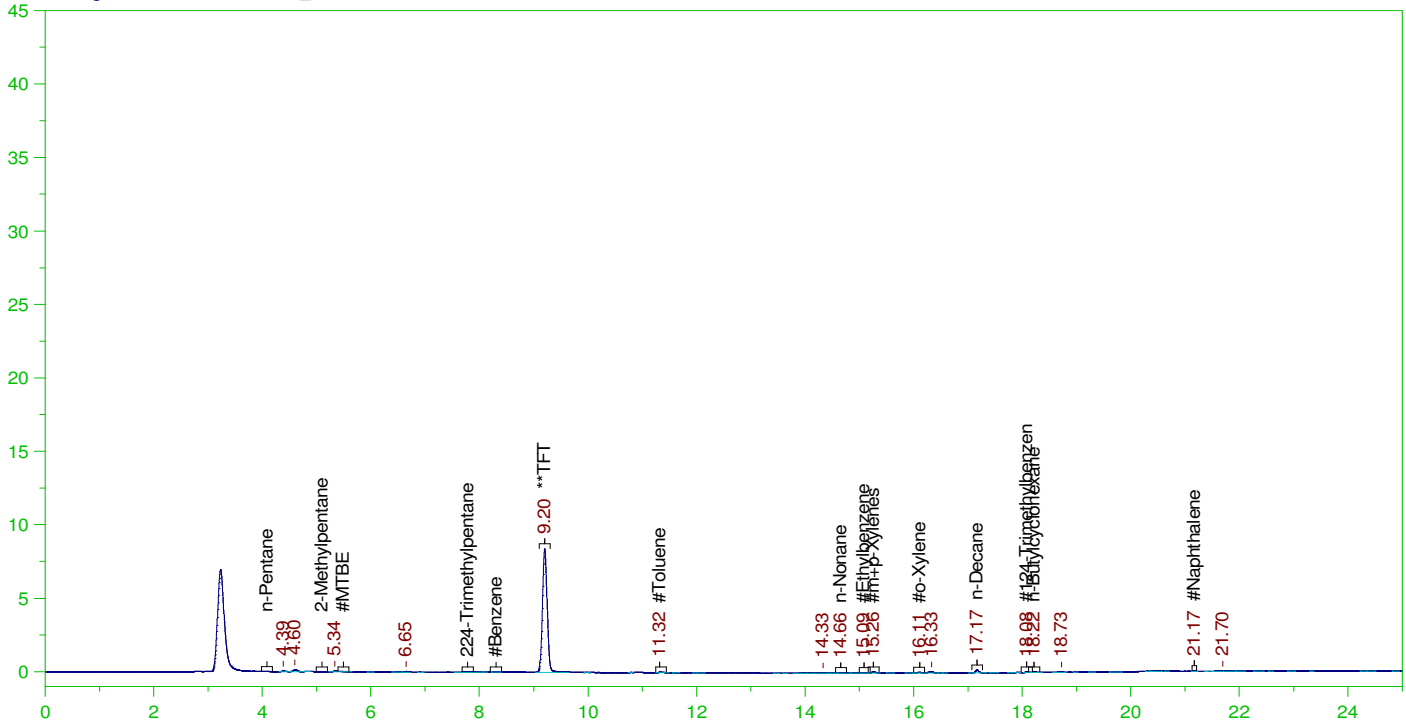


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-001A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0007.RAW
Date & Time Acquired: 6/24/2015 12:12:37 PM
Method File: G:\Org\VAR\Methods\150513M2098-1B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

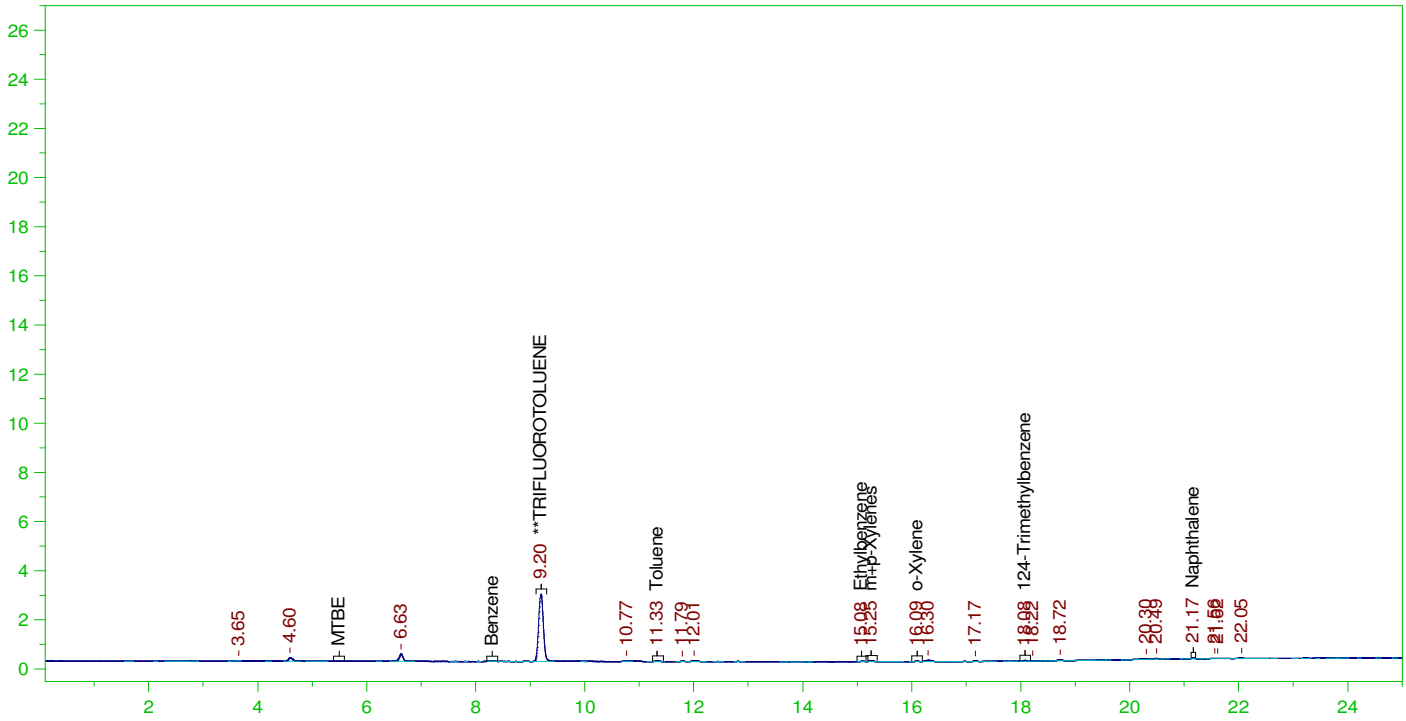
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.204	25.	21.74	86.96 -

GRO Area:4505.863 GRO Amount: 1.388728
TPH Area:7029.918 TPH Amount: 2.166653

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2959.203 C5-C8 Amount: 1.241657
C9-C12 Area:3432.217 C9-C12 Amount: 1.338801

2_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0015.RAW B15062098-002A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

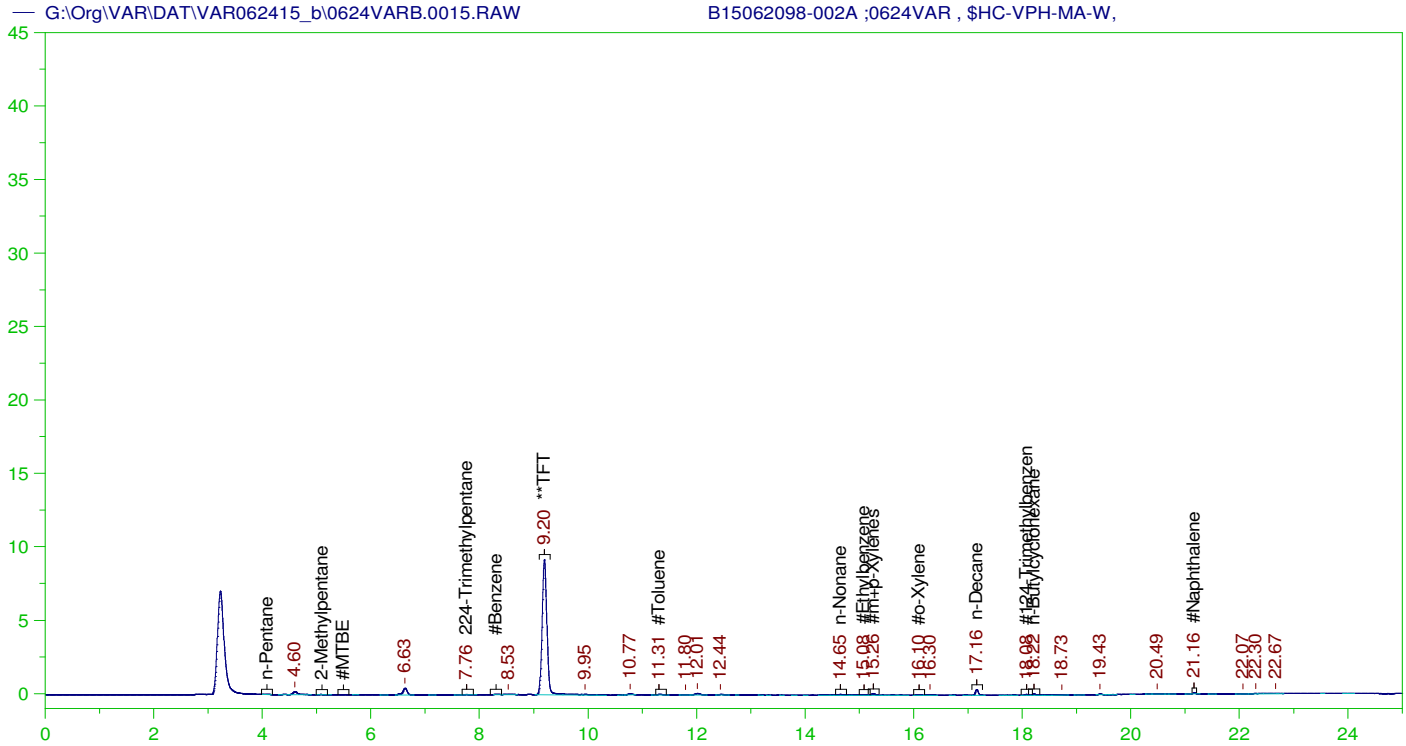
Sample Name: B15062098-002A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0015.RAW
Date & Time Acquired: 6/24/2015 4:40:14 PM
Method File: G:\Org\VAR\Methods\150513M2098-2.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1901.755 C9-C10 Aromatics Amount: 1.072762

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.327	11.327	11.327	144	.5	U
Ethylbenzene	15.083	15.083	15.083	108	.5	U
m+p-Xylenes	15.254	15.254	15.254	272	.5	U
o-Xylene	16.095	16.095	16.095	120	.5	U
124-Trimethylbenzene	18.077	18.077	18.077	121	.5	U
Naphthalene	21.165	21.165	21.165	184	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	22.258	89.03	70-130

2_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-002A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0015.RAW
Date & Time Acquired: 6/24/2015 4:40:14 PM
Method File: G:\Org\VAR\Methods\150513M2098-2B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

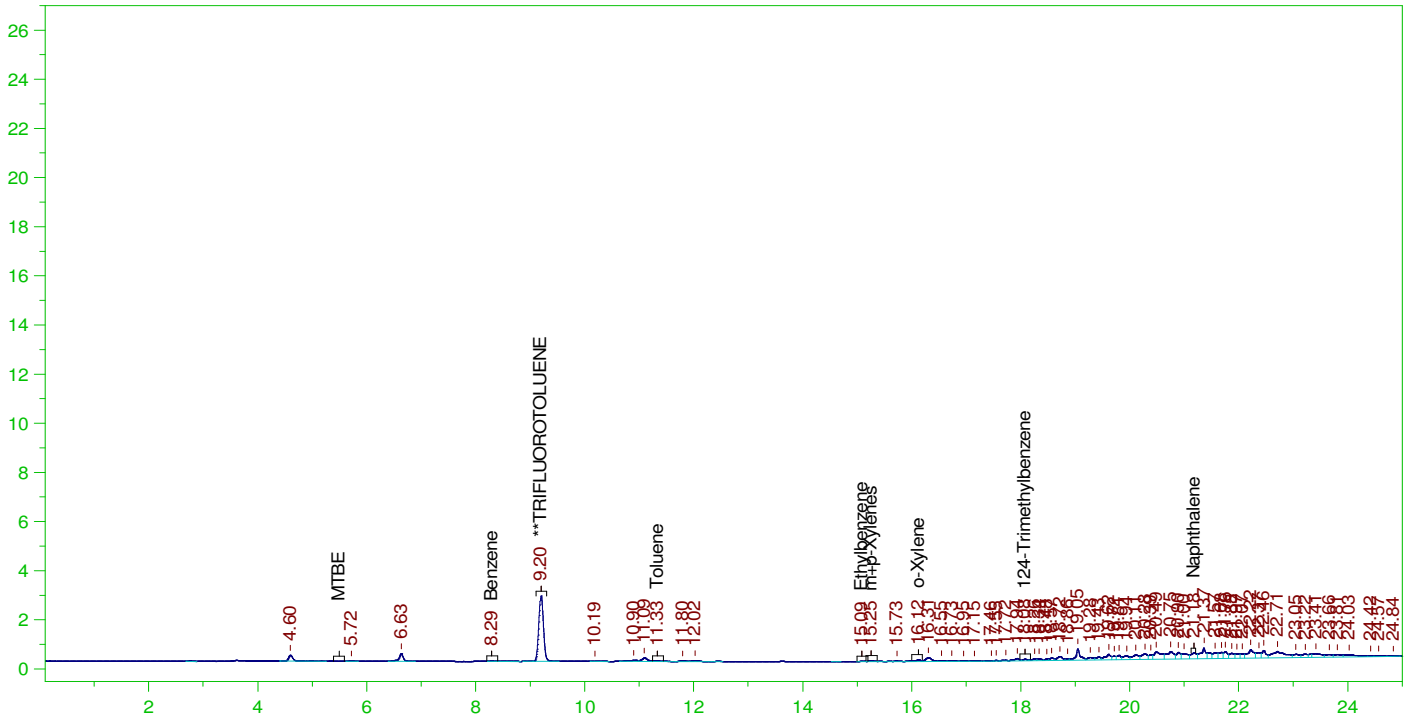
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	23.958	95.83 -

GRO Area:10023.98 GRO Amount: 3.089437
TPH Area:14109.47 TPH Amount: 4.348605

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:7375.957 C5-C8 Amount: 3.094889
C9-C12 Area:5748.555 C9-C12 Amount: 2.242332

EX-36_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0021.RAW B15062098-003A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-003A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0021.RAW
Date & Time Acquired: 6/24/2015 8:00:44 PM
Method File: G:\Org\VAR\Methods\150513M2098-3.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:26072.67 C9-C10 Aromatics Amount: 14.70735

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.293	8.293	8.293	112	.5	U
Toluene	11.333	11.333	11.333	202	.5	U
Ethylbenzene	15.089	15.089	15.089	79	.5	U
m+p-Xylenes	15.252	15.252	15.252	196	.5	U
o-Xylene	16.123	16.123	16.123	476	.5	U
124-Trimethylbenzene	18.077	18.077	18.077	287	.5	U
Naphthalene	21.18	-11.964	-11.98	1708	~~.911~~	NO pf6/26/15

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	21.557	86.23	70-130

EX-36_061815

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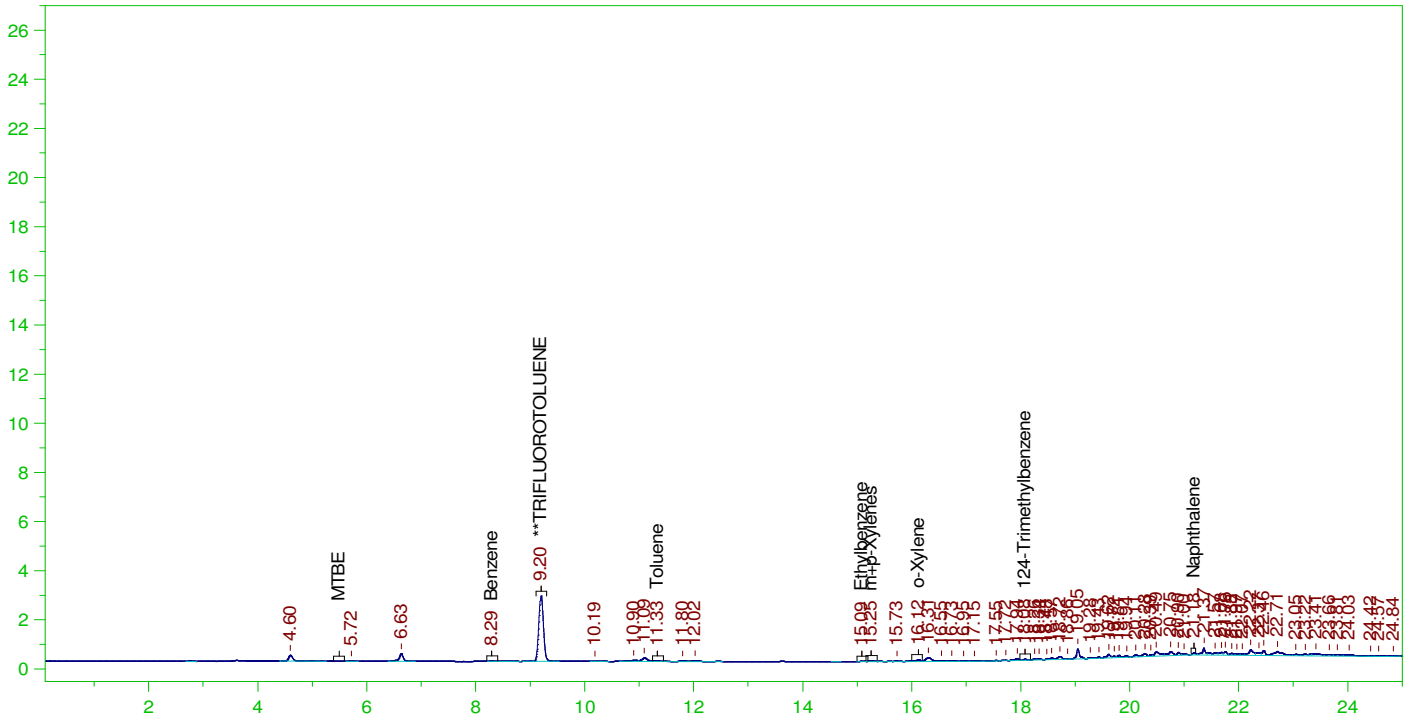

VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-003A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0021.RAW
Date & Time Acquired: 6/24/2015 8:00:44 PM
Method File: G:\Org\VAR\Methods\150513M2098-3N.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:12518.31 C9-C10 Aromatics Amount: 7.06146

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
~~MTBE~~	~~.~~	~~.~~	~~.~~		~~1.~~	~~U~~
~~Benzene~~	~~8.293~~	~~8.293~~	~~8.293~~	~~112~~	~~.5~~	~~U~~
~~Toluene~~	~~11.333~~	~~11.333~~	~~11.333~~	~~202~~	~~.5~~	~~U~~
~~Ethylbenzene~~	~~15.089~~	~~15.089~~	~~15.089~~	~~79~~	~~.5~~	~~U~~
~~m+p-Xylenes~~	~~15.252~~	~~15.252~~	~~15.252~~	~~196~~	~~.5~~	~~U~~
~~o-Xylene~~	~~16.123~~	~~16.123~~	~~16.123~~	~~476~~	~~.5~~	~~U~~
~~124-Trimethylbenzene~~	~~18.077~~	~~18.077~~	~~18.077~~	~~182~~	~~.5~~	~~U~~
Naphthalene	21.18	21.18	21.18	321	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	21.557	86.23	70-130

EX-36_061815

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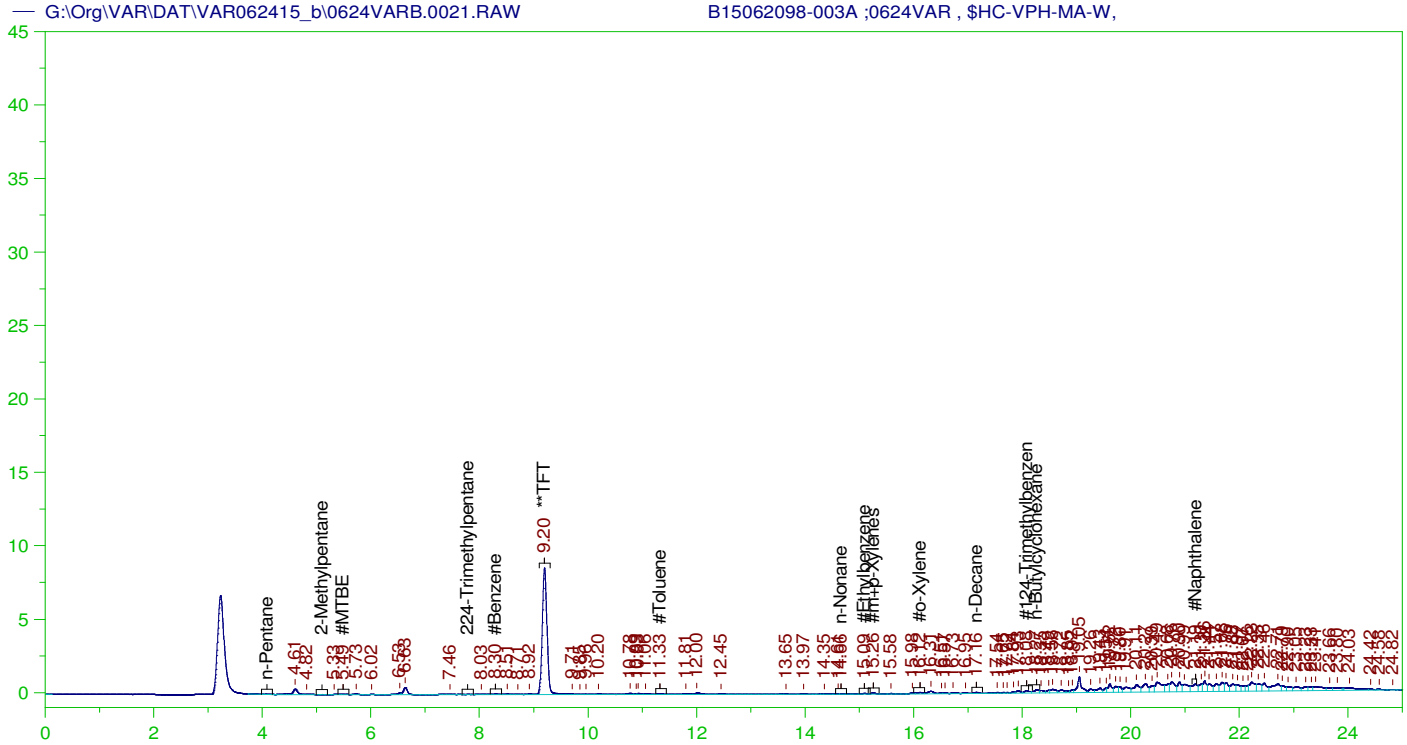


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-003A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0021.RAW
Date & Time Acquired: 6/24/2015 8:00:44 PM
Method File: G:\Org\VAR\Methods\150513M2098-3B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

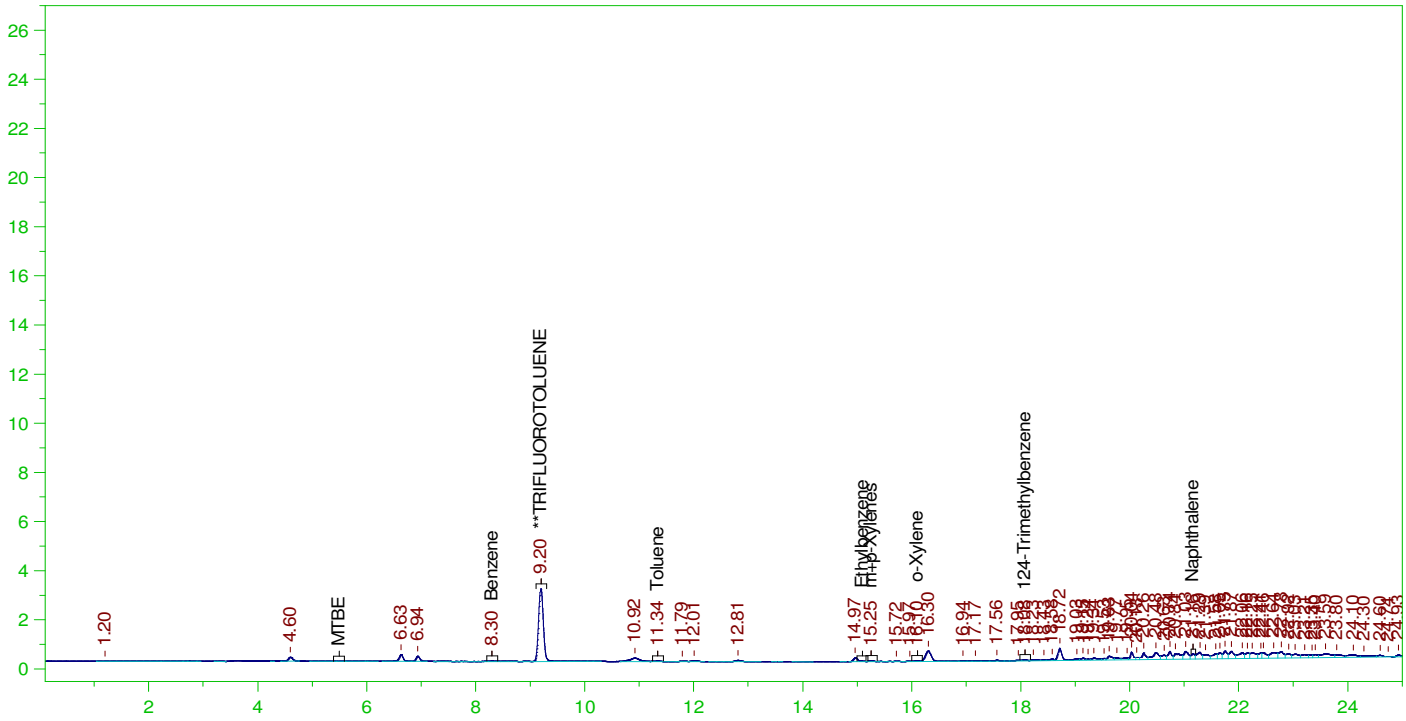
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.201	25.	22.492	89.97 -

GRO Area:19994.63 GRO Amount: 6.162437
TPH Area:149225.4 TPH Amount: 45.99195

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:16653.11 C5-C8 Amount: 6.987505
C9-C12 Area:66797.95 C9-C12 Amount: 26.0558

EX-27_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0016.RAW B15062098-004A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-004A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0016.RAW
Date & Time Acquired: 6/24/2015 5:13:55 PM
Method File: G:\Org\VAR\Methods\150513M2098-4.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:22609.83 C9-C10 Aromatics Amount: 12.754

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.297	8.297	8.297	136	.5	U
Toluene	11.341	11.341	11.341	141	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.255	15.255	15.255	268	.5	U
o-Xylene	16.103	16.103	16.103	184	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	219	.5	U
Naphthalene	21.16	21.16	21.16	906	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	24.356	97.42	70-130

EX-27_061815

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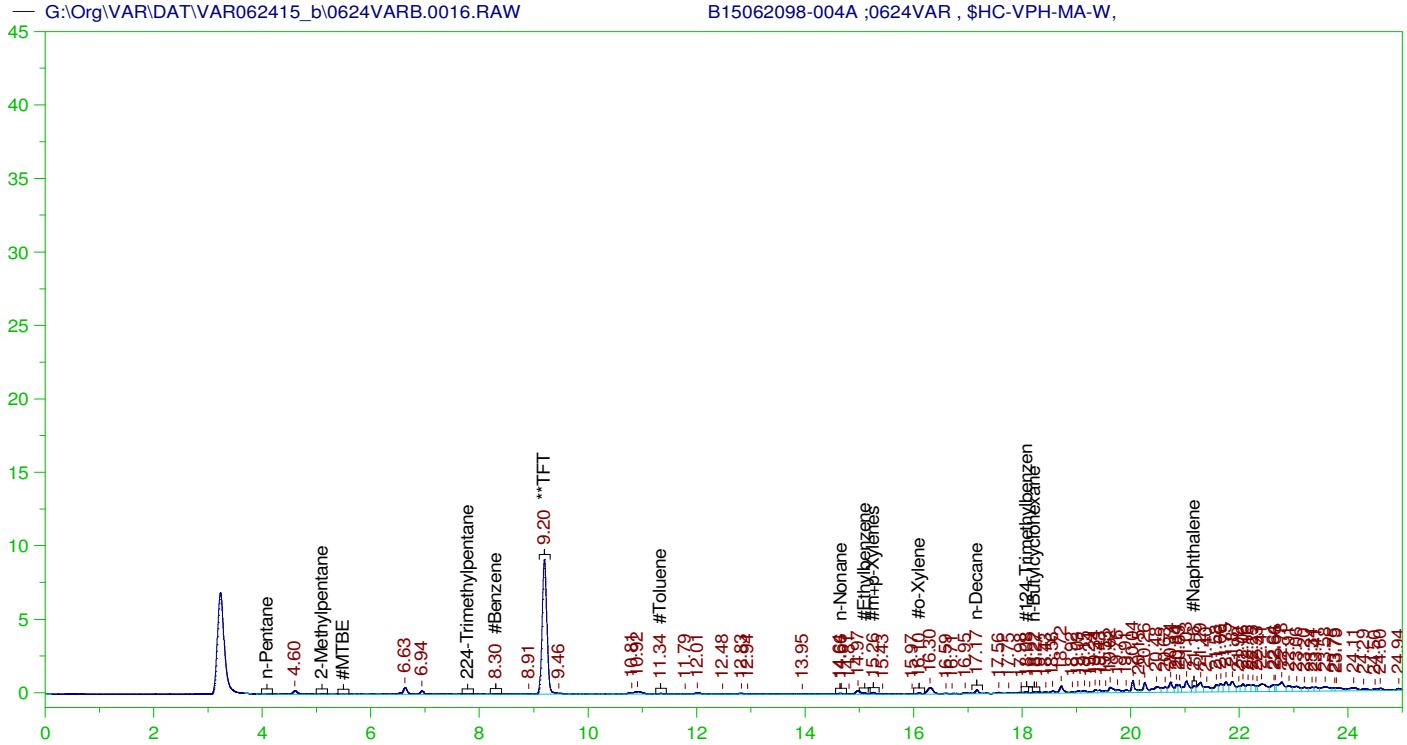

VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-004A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0016.RAW
Date & Time Acquired: 6/24/2015 5:13:55 PM
Method File: G:\Org\VAR\Methods\150513M2098-4B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	23.912	95.65 -

GRO Area:24159.52 GRO Amount: 7.446076
TPH Area:134861.6 TPH Amount: 41.56496

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:15462.01 C5-C8 Amount: 6.487729
C9-C12 Area:51507.5 C9-C12 Amount: 20.09147

1_061815

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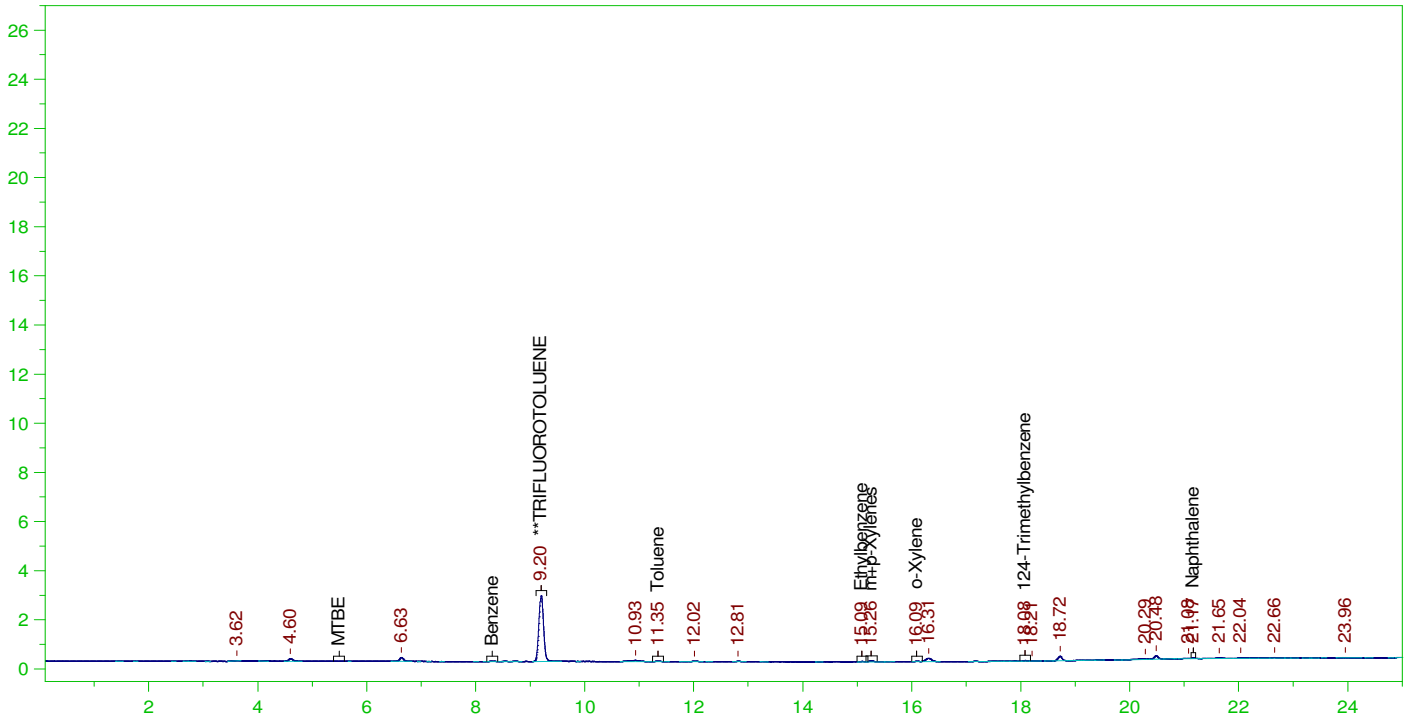


VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

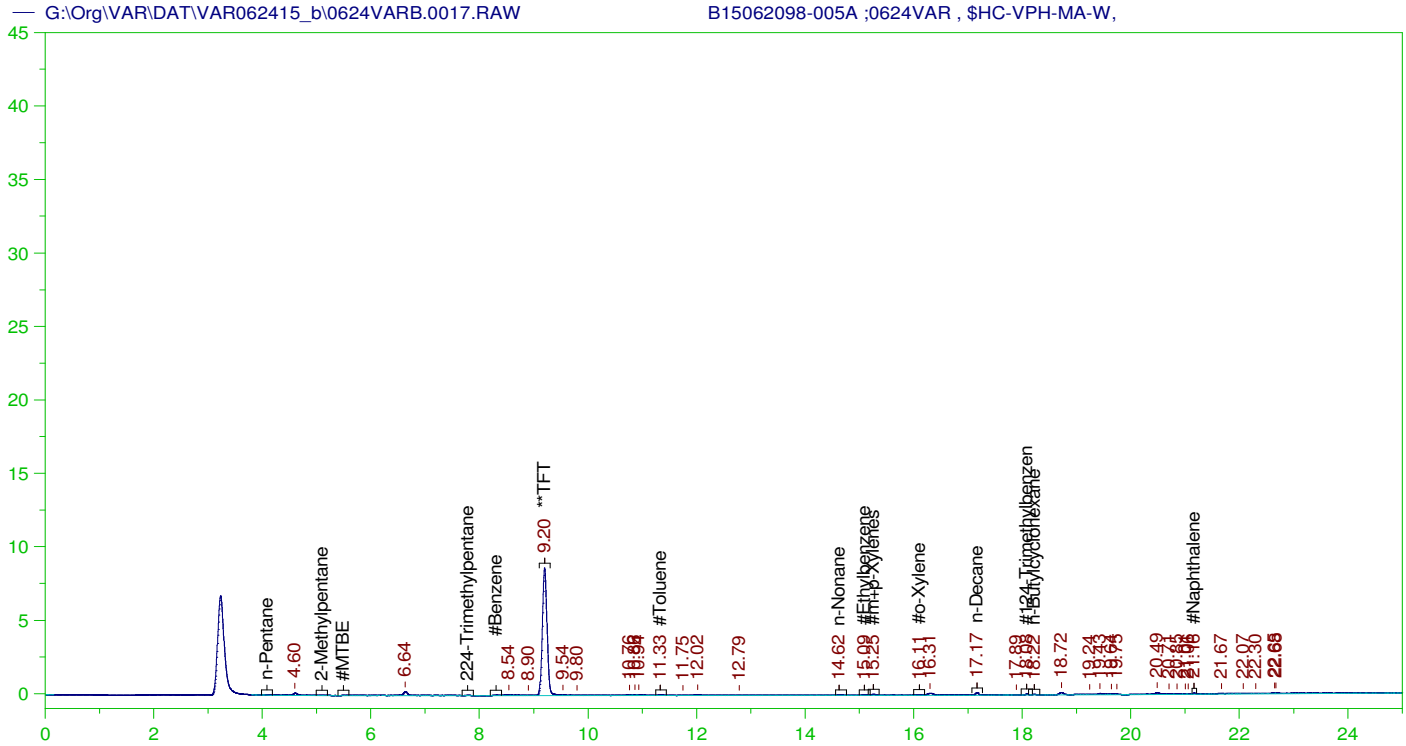
Sample Name: B15062098-005A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0017.RAW
Date & Time Acquired: 6/24/2015 5:47:20 PM
Method File: G:\Org\VAR\Methods\150513M2098-5.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:3731.194 C9-C10 Aromatics Amount: 2.104732

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.346	11.346	11.346	106	.5	U
Ethylbenzene	15.087	15.087	15.087	79	.5	U
m+p-Xylenes	15.256	15.256	15.256	225	.5	U
o-Xylene	16.094	16.094	16.094	93	.5	U
124-Trimethylbenzene	18.079	18.079	18.079	110	.5	U
Naphthalene	21.168	21.168	21.168	108	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.202	25.	21.824	87.29	70-130

1_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-005A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0017.RAW
Date & Time Acquired: 6/24/2015 5:47:20 PM
Method File: G:\Org\VAR\Methods\150513M2098-5B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

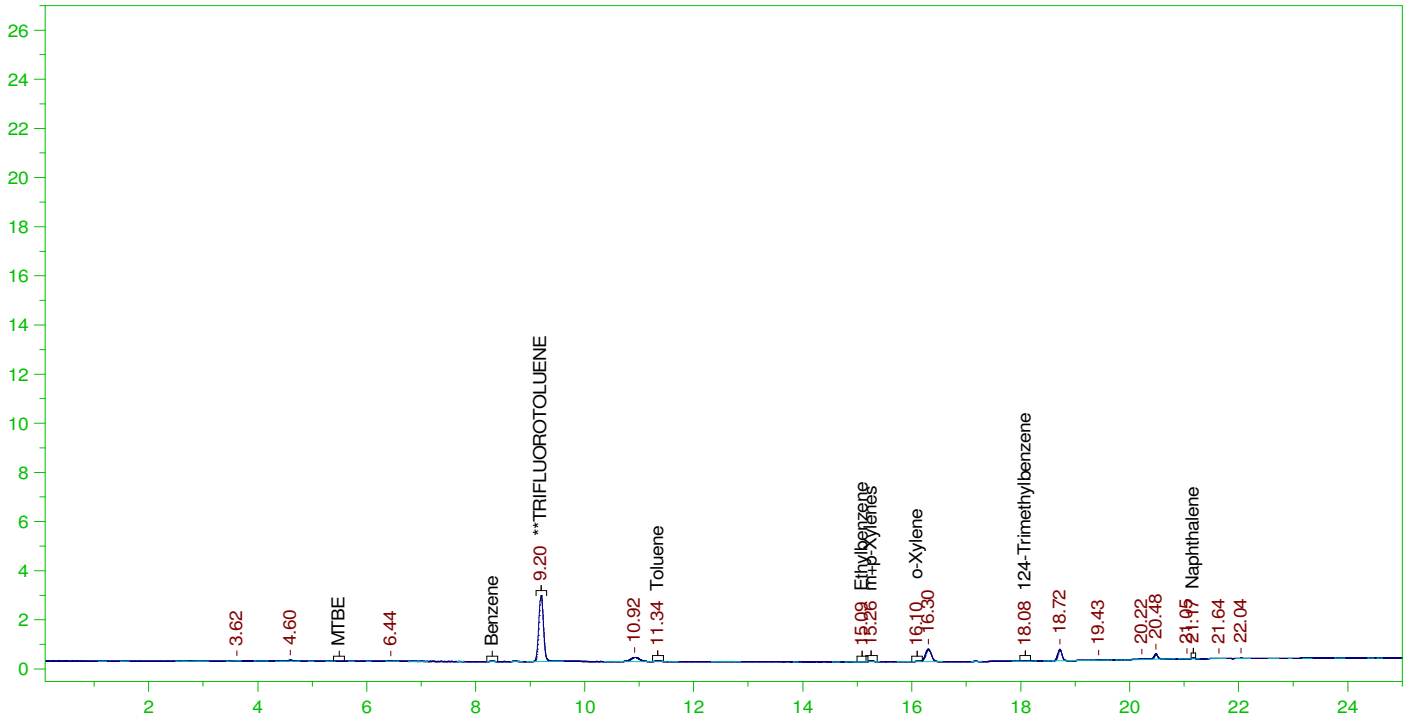
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.202	25.	22.552	90.21 -

GRO Area:12829.82 GRO Amount: 3.954209
TPH Area:25377.23 TPH Amount: 7.82138

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:10363.21 C5-C8 Amount: 4.348314
C9-C12 Area:10118.4 C9-C12 Amount: 3.946875

TB3_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0008.RAW B15062098-006A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-006A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0008.RAW
Date & Time Acquired: 6/24/2015 12:45:53 PM
Method File: G:\Org\VAR\Methods\150513M2098-6.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

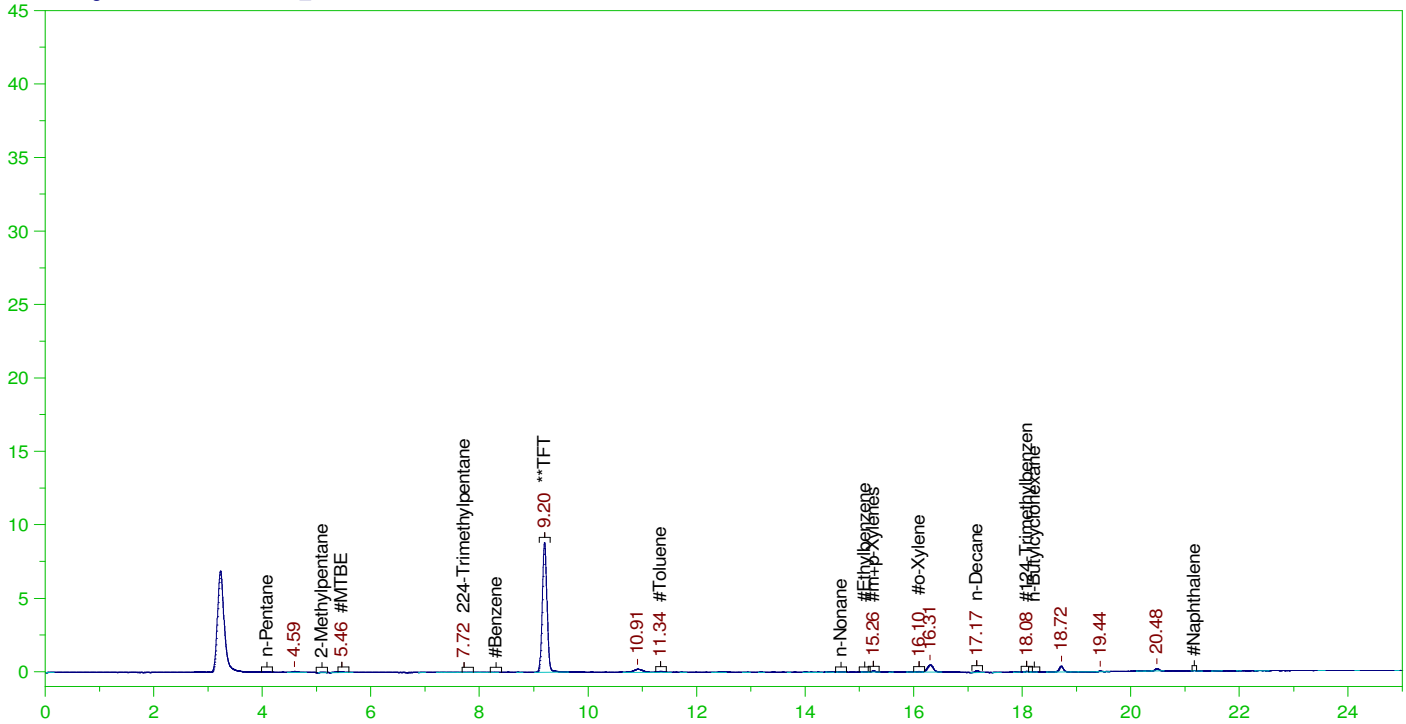
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:8387.967 C9-C10 Aromatics Amount: 4.731574

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.339	11.339	11.339	199	.5	U
Ethylbenzene	15.095	15.095	15.095	67	.5	U
m+p-Xylenes	15.256	15.256	15.256	213	.5	U
o-Xylene	16.097	16.097	16.097	86	.5	U
124-Trimethylbenzene	18.083	18.083	18.083	88	.5	U
Naphthalene	21.167	21.167	21.167	92	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.201	25.	21.886	87.54	70-130

TB3_061815

G:\Org\VAR\DAT\VAR062415_b\0624VARB.0008.RAW B15062098-006A ;0624VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-006A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0008.RAW
Date & Time Acquired: 6/24/2015 12:45:53 PM
Method File: G:\Org\VAR\Methods\150513M2098-6B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

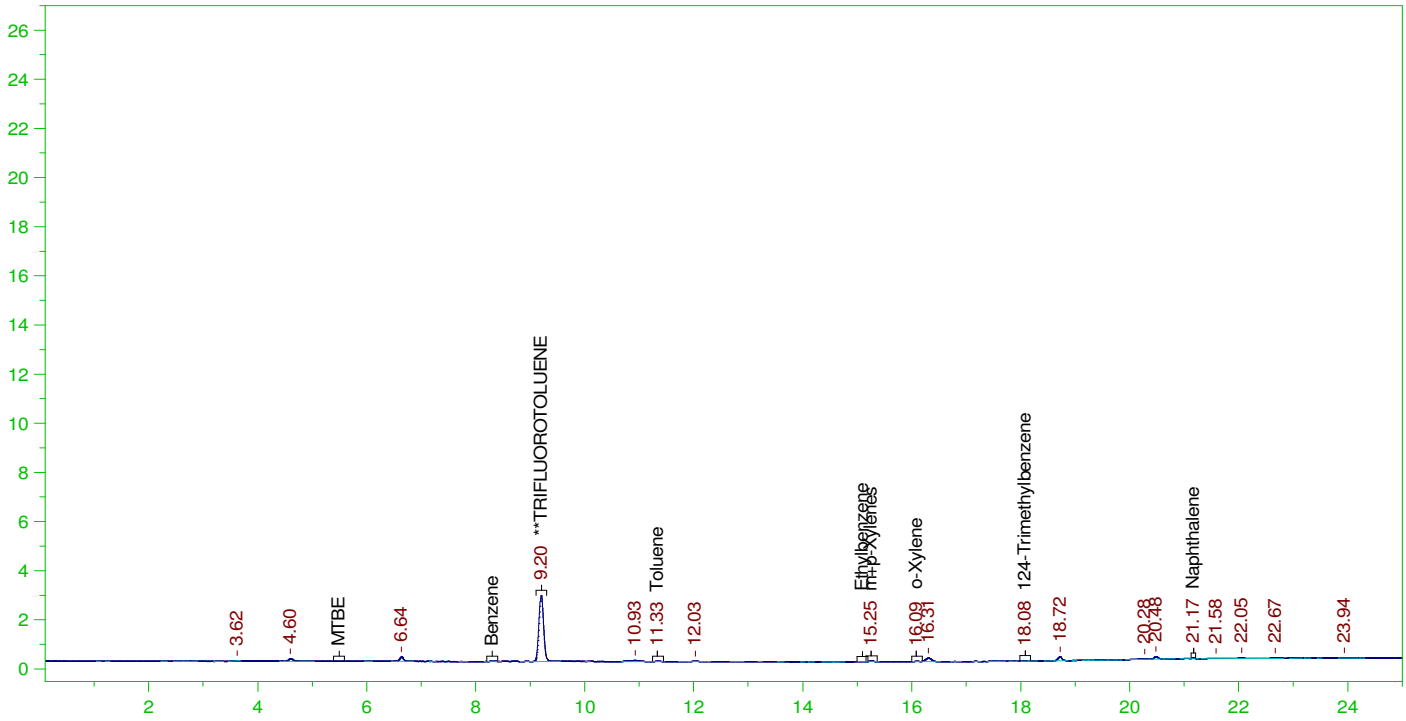
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.201	25.	22.785	91.14 -

GRO Area:9277.758 GRO Amount: 2.859448
TPH Area:13846.92 TPH Amount: 4.267685

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:4445.949 C5-C8 Amount: 1.865483
C9-C12 Area:9015.812 C9-C12 Amount: 3.516787

EX-14_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0018.RAW B15062098-007A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

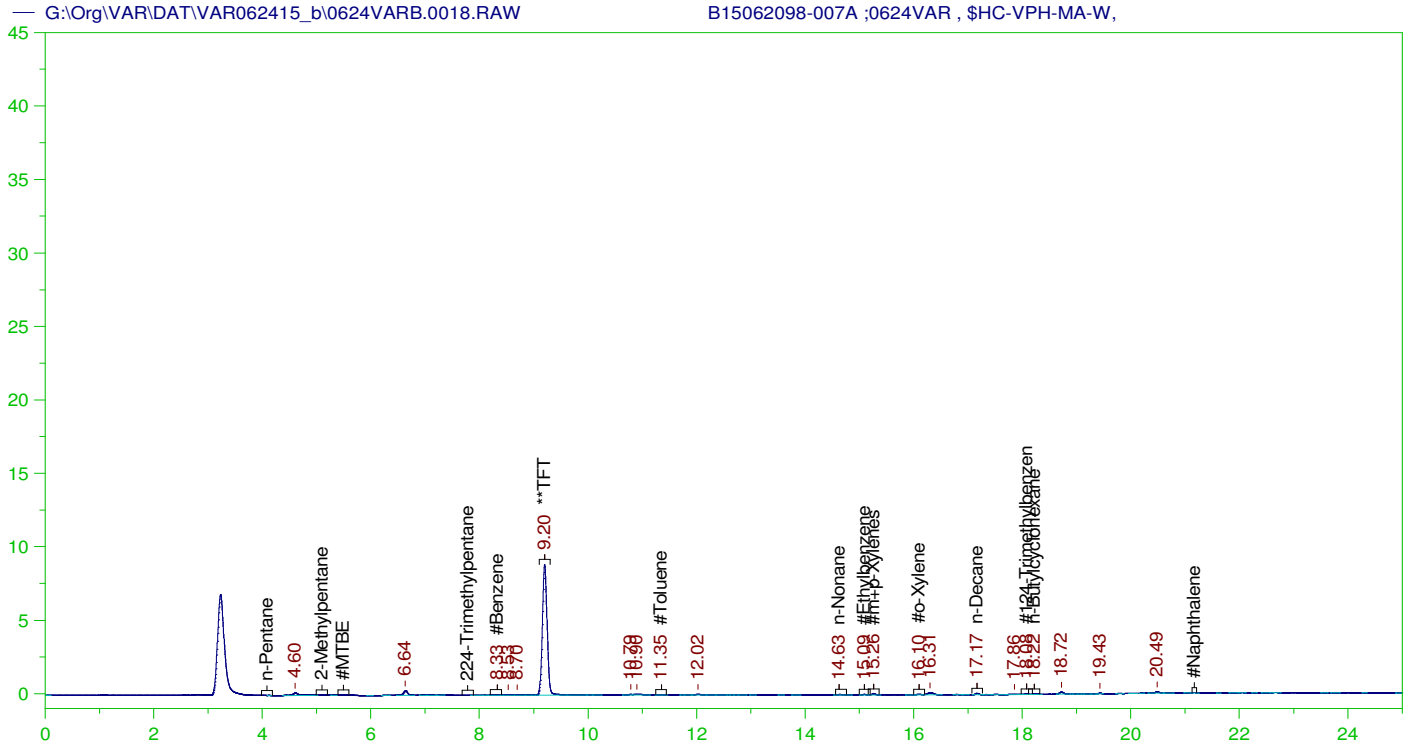
Sample Name: B15062098-007A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0018.RAW
Date & Time Acquired: 6/24/2015 6:20:39 PM
Method File: G:\Org\VAR\Methods\150513M2098-7.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:3331.313 C9-C10 Aromatics Amount: 1.879163

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.334	11.334	11.334	82	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.254	15.254	15.254	182	.5	U
o-Xylene	16.088	16.088	16.088	78	.5	U
124-Trimethylbenzene	18.081	18.081	18.081	81	.5	U
Naphthalene	21.172	21.172	21.172	88	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.203	25.	22.04	88.16	70-130

EX-14_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-007A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0018.RAW
Date & Time Acquired: 6/24/2015 6:20:39 PM
Method File: G:\Org\VAR\Methods\150513M2098-7B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

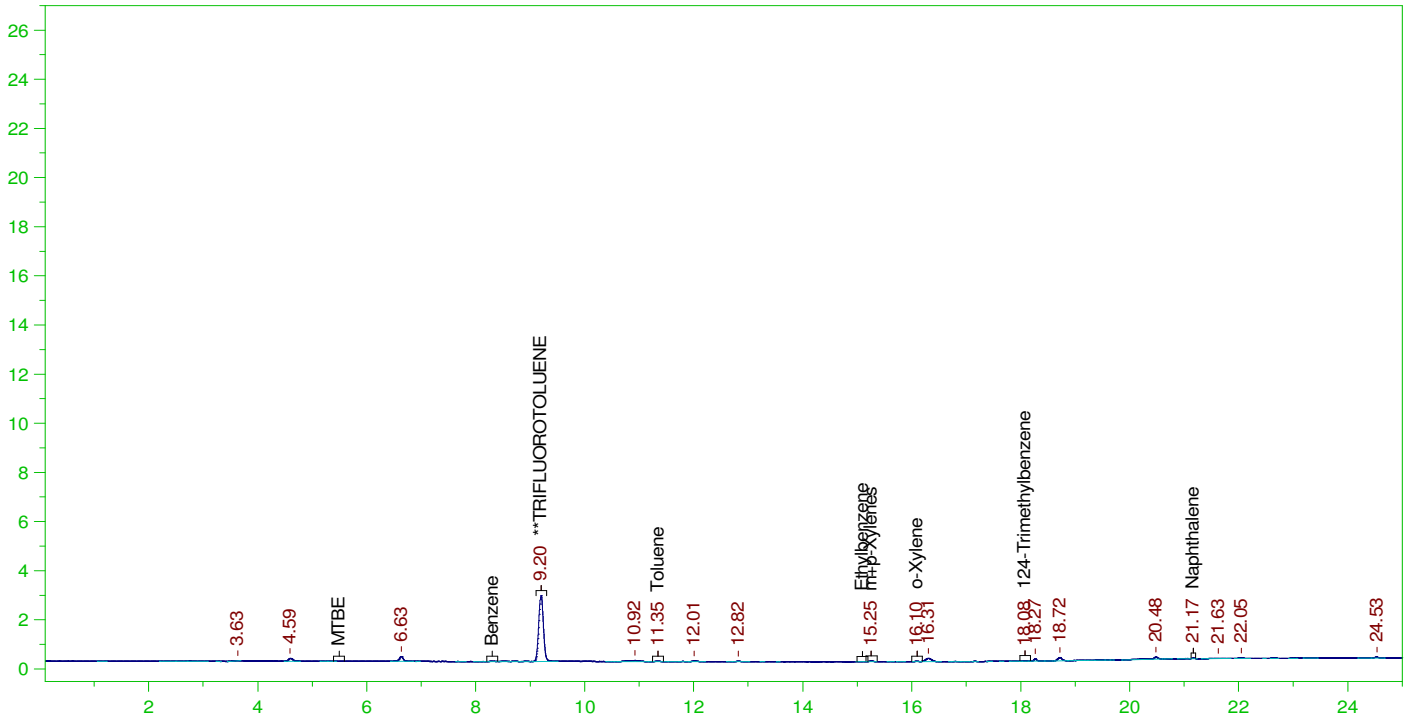
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	23.192	92.77 -

GRO Area:7715.418 GRO Amount: 2.377928
TPH Area:12284.71 TPH Amount: 3.786206

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:6441.582 C5-C8 Amount: 2.702833
C9-C12 Area:5277.034 C9-C12 Amount: 2.058406

EX-58_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0019.RAW B15062098-009B ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

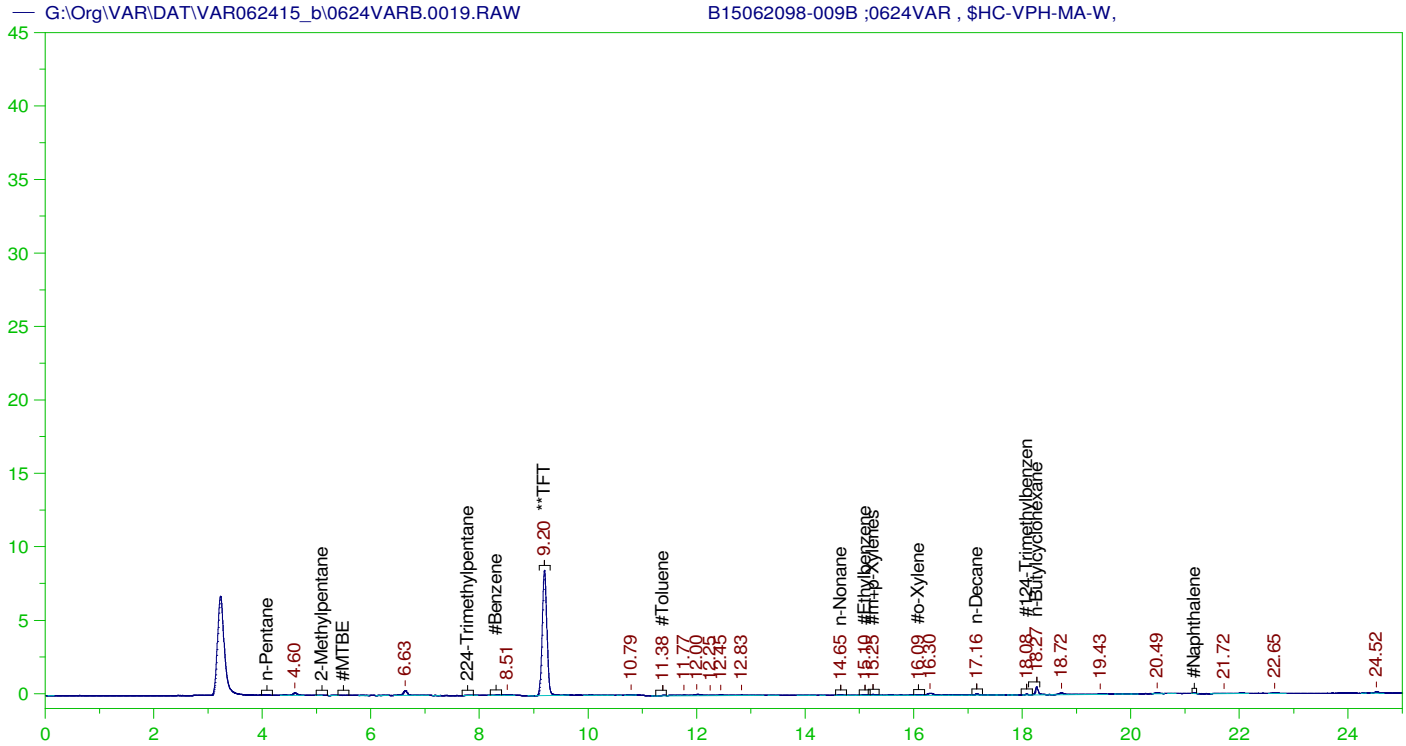
Sample Name: B15062098-009B ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0019.RAW
Date & Time Acquired: 6/24/2015 6:54:04 PM
Method File: G:\Org\VAR\Methods\150513M2098-9.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:3293.408 C9-C10 Aromatics Amount: 1.857781

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.346	11.346	11.346	75	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.252	15.252	15.252	143	.5	U
o-Xylene	16.097	16.097	16.097	74	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	78	.5	U
Naphthalene	21.167	21.167	21.167	84	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	21.739	86.96	70-130

EX-58_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-009B ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0019.RAW
Date & Time Acquired: 6/24/2015 6:54:04 PM
Method File: G:\Org\VAR\Methods\150513M2098-9B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

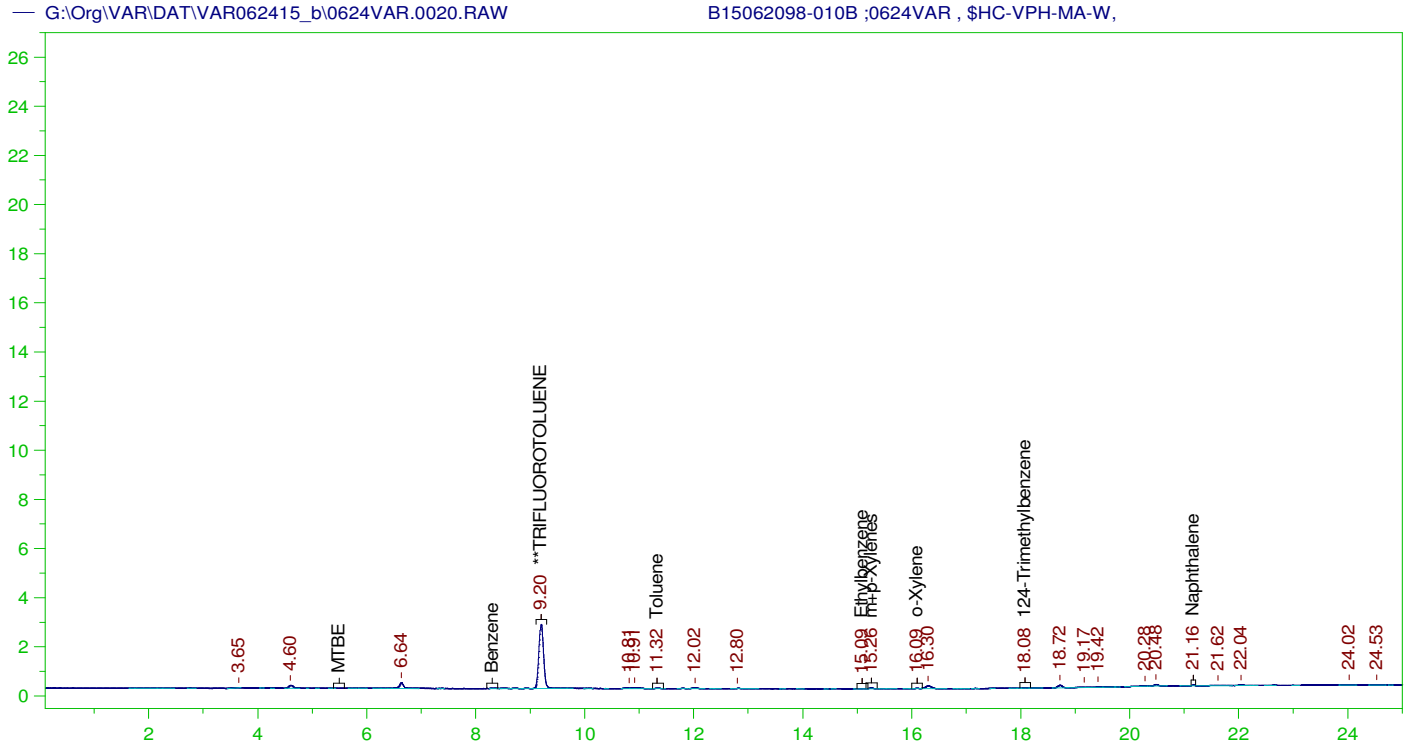
Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	21.876	87.51 -

GRO Area:8231.711 GRO Amount: 2.537052
TPH Area:14209.82 TPH Amount: 4.379534

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:6372.266 C5-C8 Amount: 2.673748
C9-C12 Area:6747.984 C9-C12 Amount: 2.632178

3_061815



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

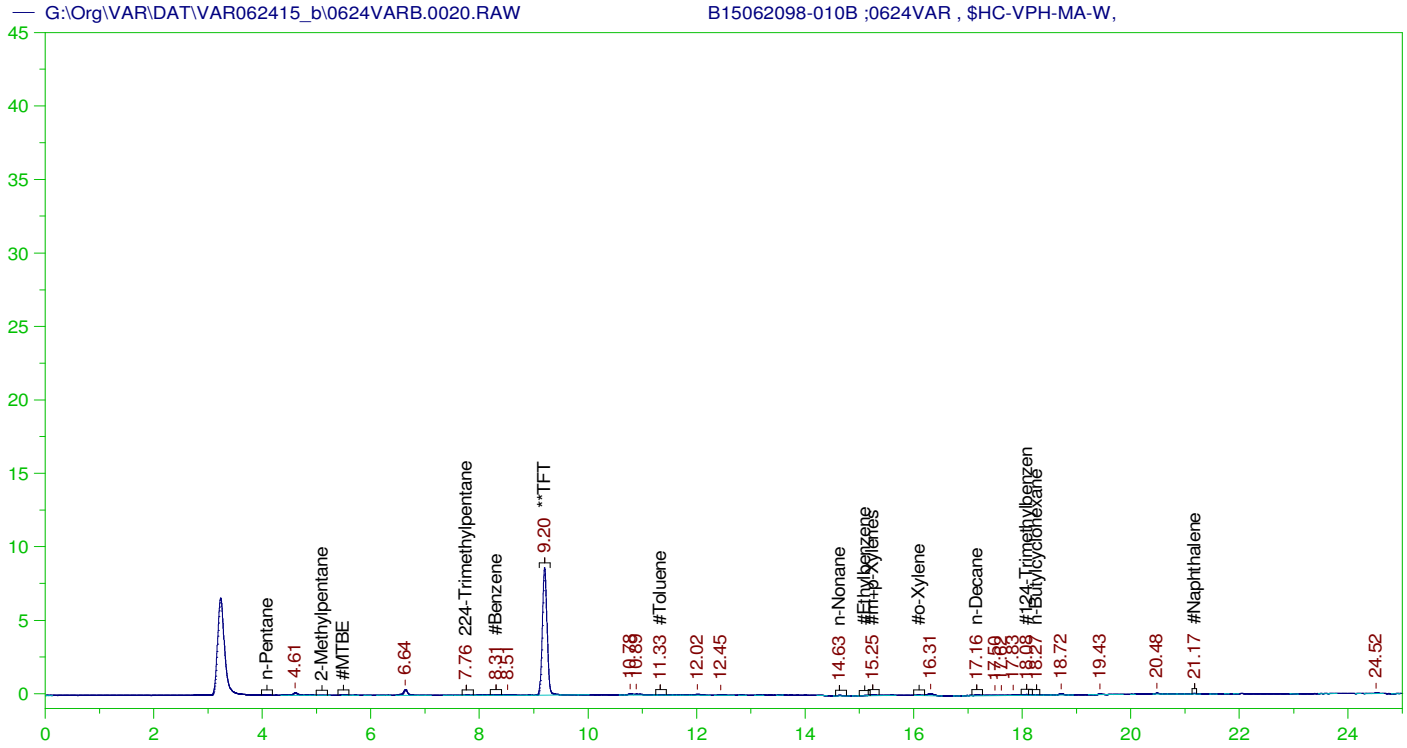
Sample Name: B15062098-010B ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0020.RAW
Date & Time Acquired: 6/24/2015 7:27:21 PM
Method File: G:\Org\VAR\Methods\150513M2098-10.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:2551.518 C9-C10 Aromatics Amount: 1.439288

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.324	11.324	11.324	75	.5	U
Ethylbenzene	15.094	15.094	15.094	82	.5	U
m+p-Xylenes	15.261	15.261	15.261	168	.5	U
o-Xylene	16.095	16.095	16.095	74	.5	U
124-Trimethylbenzene	18.077	18.077	18.077	87	.5	U
Naphthalene	21.163	21.163	21.163	94	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.202	25.	21.209	84.83	70-130

3_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062098-010B ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0020.RAW
Date & Time Acquired: 6/24/2015 7:27:21 PM
Method File: G:\Org\VAR\Methods\150513M2098-10B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	22.396	89.59 -

GRO Area:9195.707 GRO Amount: 2.83416
TPH Area:13926.15 TPH Amount: 4.292105

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:7229.051 C5-C8 Amount: 3.033248
C9-C12 Area:5910.288 C9-C12 Amount: 2.305419

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Batch: 90932
Lab ID: LCS-90932	Laboratory Control Sample				Run: GCFID-HP3-B_150629E				07/01/15 08:26
Total Extractable Hydrocarbons	5350	ug/L	300	86	60	140			
Surr: o-Terphenyl				89	40	140			
Lab ID: MB-90932	Method Blank				Run: GCFID-HP3-B_150629E				07/01/15 09:09
Total Extractable Hydrocarbons	ND	ug/L	300						
Surr: o-Terphenyl				83	40	140			
Lab ID: B15062098-002BMS	Sample Matrix Spike				Run: GCFID-HP3-B_150629E				07/01/15 10:37
Total Extractable Hydrocarbons	10000	ug/L	570	85	60	140			
Surr: o-Terphenyl				89	40	140			
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP3-B_150629E				07/01/15 11:21
Total Extractable Hydrocarbons	10400	ug/L	570	88	60	140	3.6	20	
Surr: o-Terphenyl				88	40	140			
Method: SW8015M									Analytical Run: R245440
Lab ID: CCV_0629HP362r-W	Continuing Calibration Verification Standard								07/01/15 06:35
n-Nonane	204	ug/L		102	75	125			
n-Decane	201	ug/L		101	75	125			
n-Dodecane	199	ug/L		100	75	125			
n-Tetradecane	193	ug/L		97	75	125			
n-Hexadecane	198	ug/L		99	75	125			
n-Octadecane	199	ug/L		100	75	125			
n-Nonadecane	201	ug/L		101	75	125			
n-Eicosane	199	ug/L		99	75	125			
n-Docosane	199	ug/L		100	75	125			
n-Tetracosane	200	ug/L		100	75	125			
n-Hexacosane	199	ug/L		99	75	125			
n-Octacosane	199	ug/L		100	75	125			
n-Triacontane	203	ug/L		101	75	125			
n-Hexatriacontane	201	ug/L		100	75	125			
Surr: o-Terphenyl				99	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Analytical Run: R245474
Lab ID: CCV_0701HP301r-W	Continuing Calibration Verification Standard								07/01/15 12:48
n-Nonane	198	ug/L		99	75	125			
n-Decane	194	ug/L		97	75	125			
n-Dodecane	192	ug/L		96	75	125			
n-Tetradecane	186	ug/L		93	75	125			
n-Hexadecane	191	ug/L		96	75	125			
n-Octadecane	192	ug/L		96	75	125			
n-Nonadecane	194	ug/L		97	75	125			
n-Eicosane	191	ug/L		96	75	125			
n-Docosane	191	ug/L		96	75	125			
n-Tetracosane	192	ug/L		96	75	125			
n-Hexacosane	190	ug/L		95	75	125			
n-Octacosane	191	ug/L		96	75	125			
n-Triacontane	194	ug/L		97	75	125			
n-Hexatriacontane	192	ug/L		96	75	125			
Surr: o-Terphenyl				95	75	125			

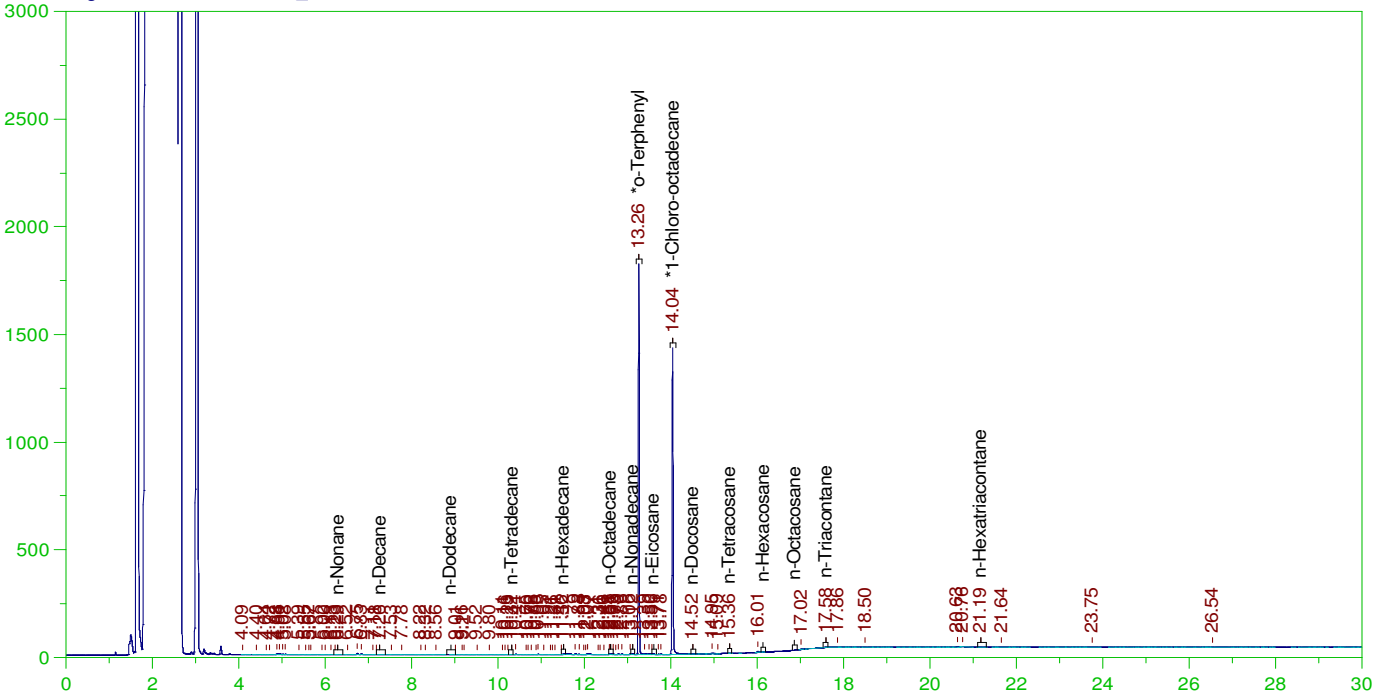
Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

2_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3062915_b\0629HP3.0066.RAW B15062098-002B ;0629HP3 , $HC-EPH-SCRN-W, V67



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062098-002B ;0629HP3 , $HC-EPH-SCRN-W, V67
Raw File: G:\org\HP3\DAT\HP3062915_b\0629HP3.0066.RAW
Date & Time Acquired: 7/1/2015 9:53:42 AM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.04 Dilution: 2 S.A.: 1

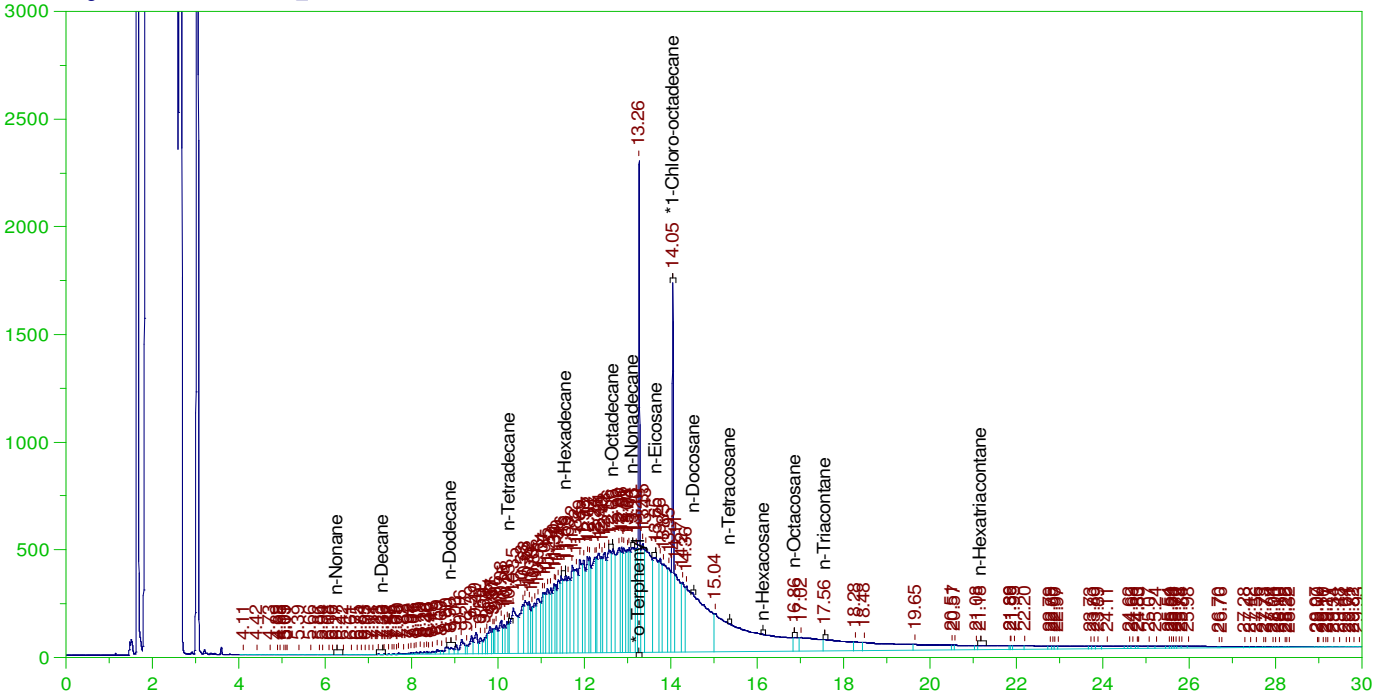
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.256	2949968	192.308	164.221	85.4	-
*1-Chloro-octadecane	14.041	2558584	192.308	185.983	96.71	-

DRO Area:209622.8 DRO Amount: 13.00928
TEH Area:333684.3 TEH Amount: 20.7086
C9-C18 Area:192377.2 C9-C18 Amount: 11.94194
C19-C36 Area:67442.75 C19-C36 Amount: 4.184503

EX-36_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0003.RAW B15062098-003B ;0701HP3 , $HC-EPH-SCRN-W, V03



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062098-003B ;0701HP3 , $HC-EPH-SCRN-W, V03
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0003.RAW
Date & Time Acquired: 7/1/2015 2:16:44 PM
Method File: g:\org\HP3\Methods\SR_SCN-070103-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.04 Dilution: 2 S.A.: 1

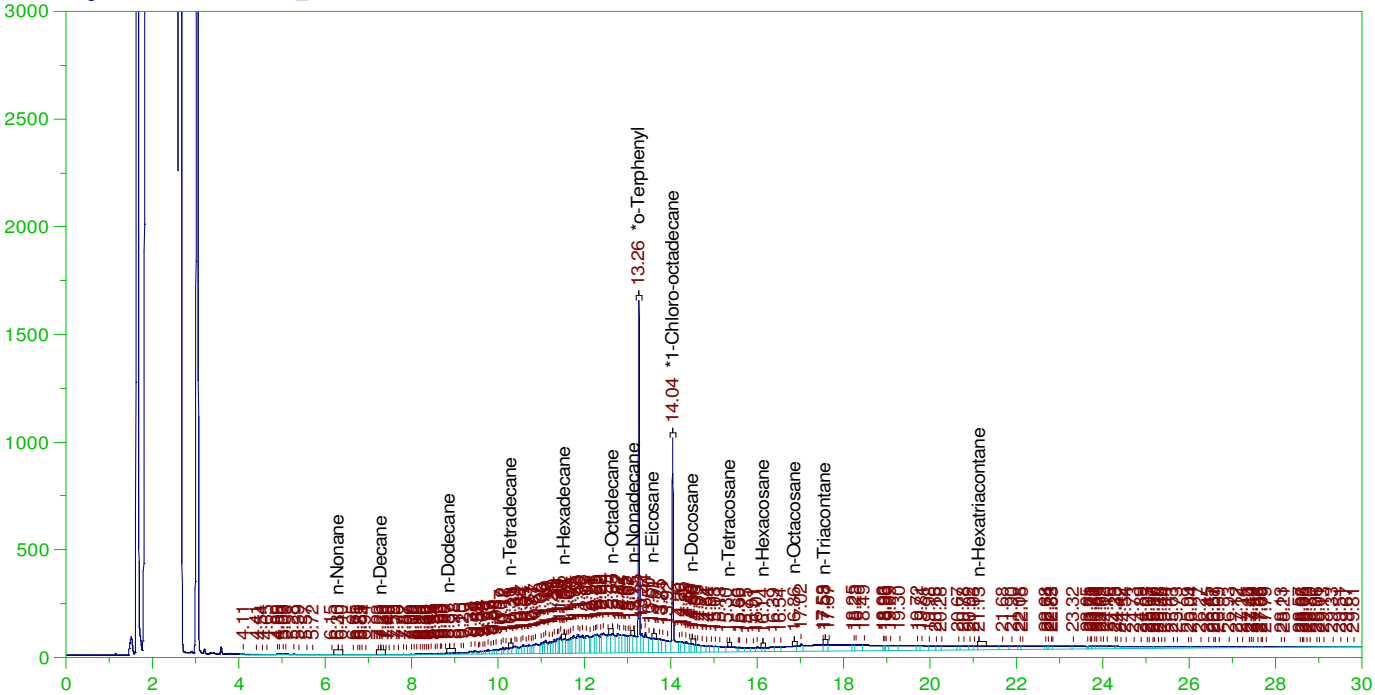
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.264	5179327	192.308	288.327	149.93	-
*1-Chloro-octadecane	14.046	4259066	192.308	309.591	160.99	-

DRO Area:1.178633E+08 DRO Amount: 7314.648
TEH Area:1.276257E+08 TEH Amount: 7920.509
C9-C18 Area:6.904162E+07 C9-C18 Amount: 4285.803
C19-C36 Area:5.311613E+07C19-C36 Amount: 3295.604

EX-27_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0004.RAW B15062098-004B ;0701HP3 , $HC-EPH-SCRN-W, V04



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

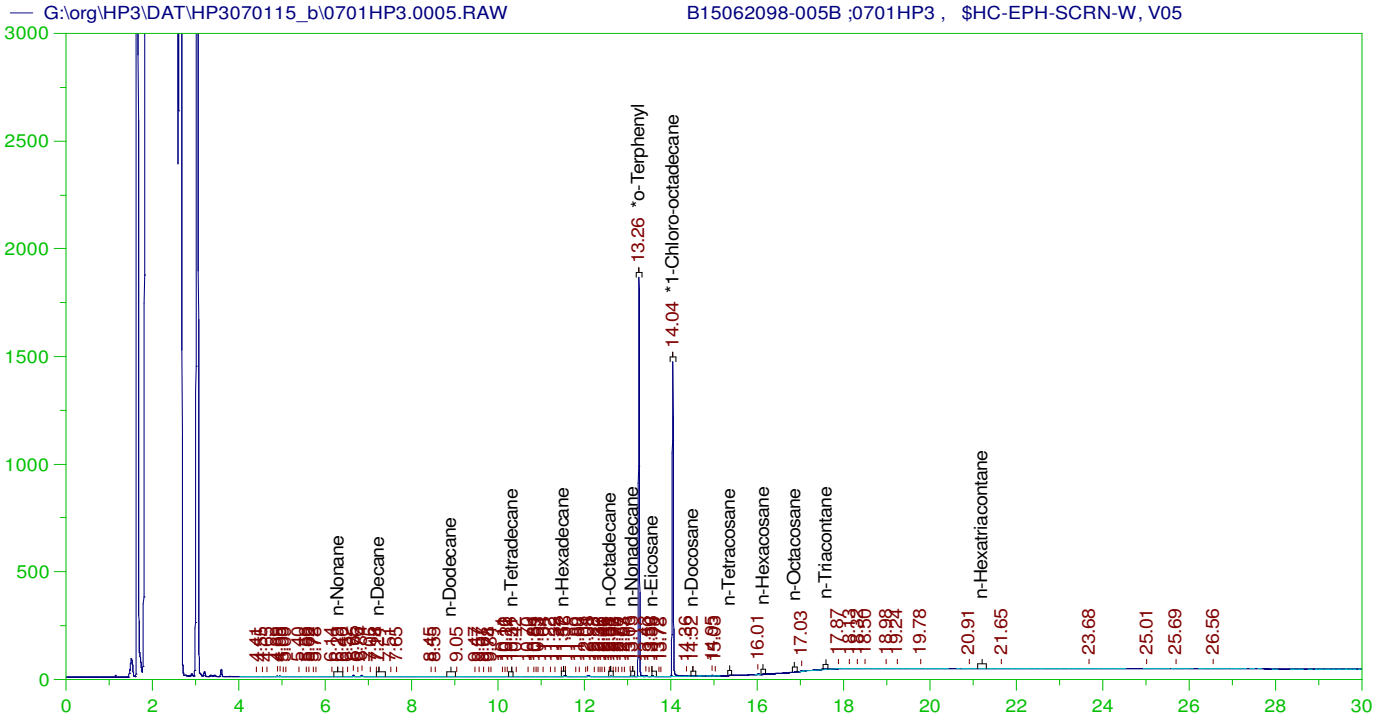
Sample Name: B15062098-004B ;0701HP3 , $HC-EPH-SCRN-W, V04
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0004.RAW
Date & Time Acquired: 7/1/2015 3:01:05 PM
Method File: g:\org\HP3\Methods\S3_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.26	2860591	190.476	157.729	82.81	-
*1-Chloro-octadecane	14.043	2151092	190.476	154.873	81.31	-

DRO Area:2.020288E+07 DRO Amount: 1241.859
TEH Area:2.928053E+07 TEH Amount: 1799.857
C9-C18 Area:1.235527E+07 C9-C18 Amount: 759.6572
C19-C36 Area:1.302738E+07C19-C36 Amount: 800.589

1_061815 Batch ID: 90932



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062098-005B ;0701HP3 , $HC-EPH-SCRN-W, V05
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0005.RAW
Date & Time Acquired: 7/1/2015 3:45:30 PM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

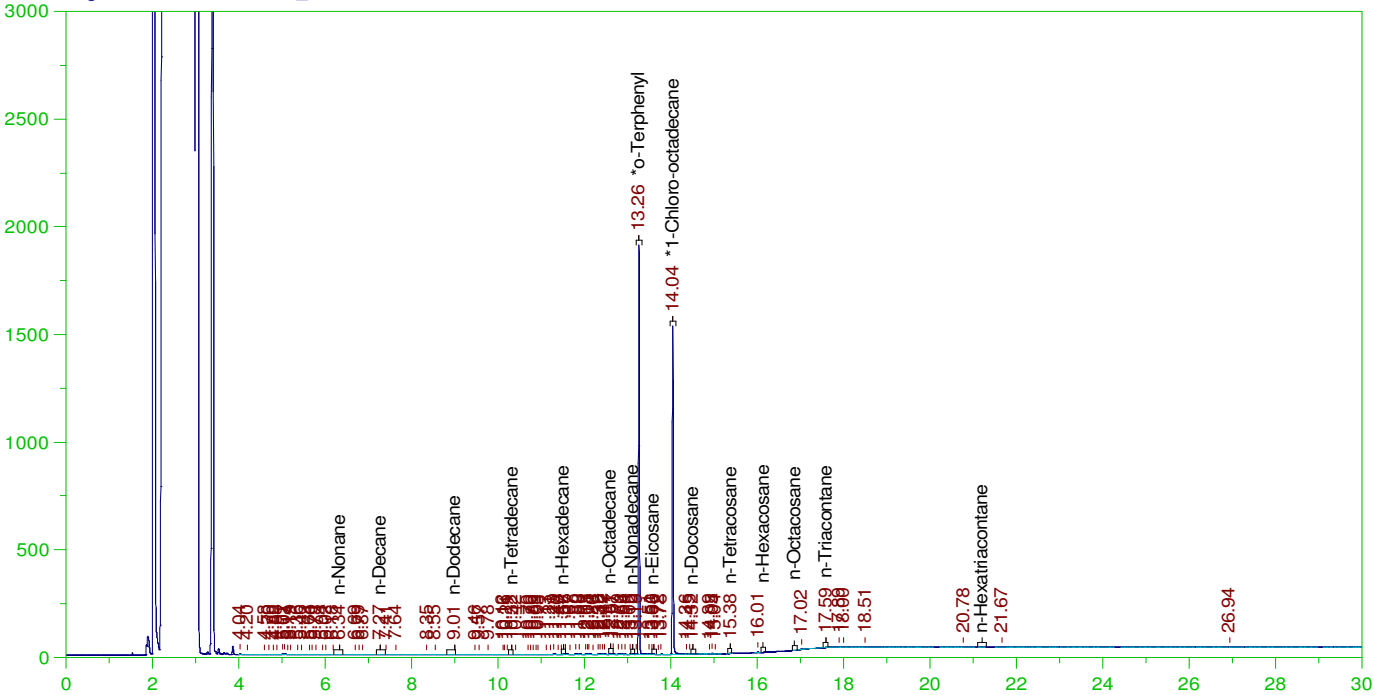
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.261	3016554	190.476	166.329	87.32	-
*1-Chloro-octadecane	14.045	2590900	190.476	186.538	97.93	-

DRO Area:201490.3 DRO Amount: 12.38548
TEH Area:396622.8 TEH Amount: 24.38016
C9-C18 Area:207579.1 C9-C18 Amount: 12.76289
C19-C36 Area:116756.3 C19-C36 Amount: 7.175179

EX-14_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0006.RAW B15062098-007B ;0701HP3 , $HC-EPH-SCRN-W, V06



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062098-007B ;0701HP3 , $HC-EPH-SCRN-W, V06
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0006.RAW
Date & Time Acquired: 7/1/2015 4:29:13 PM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

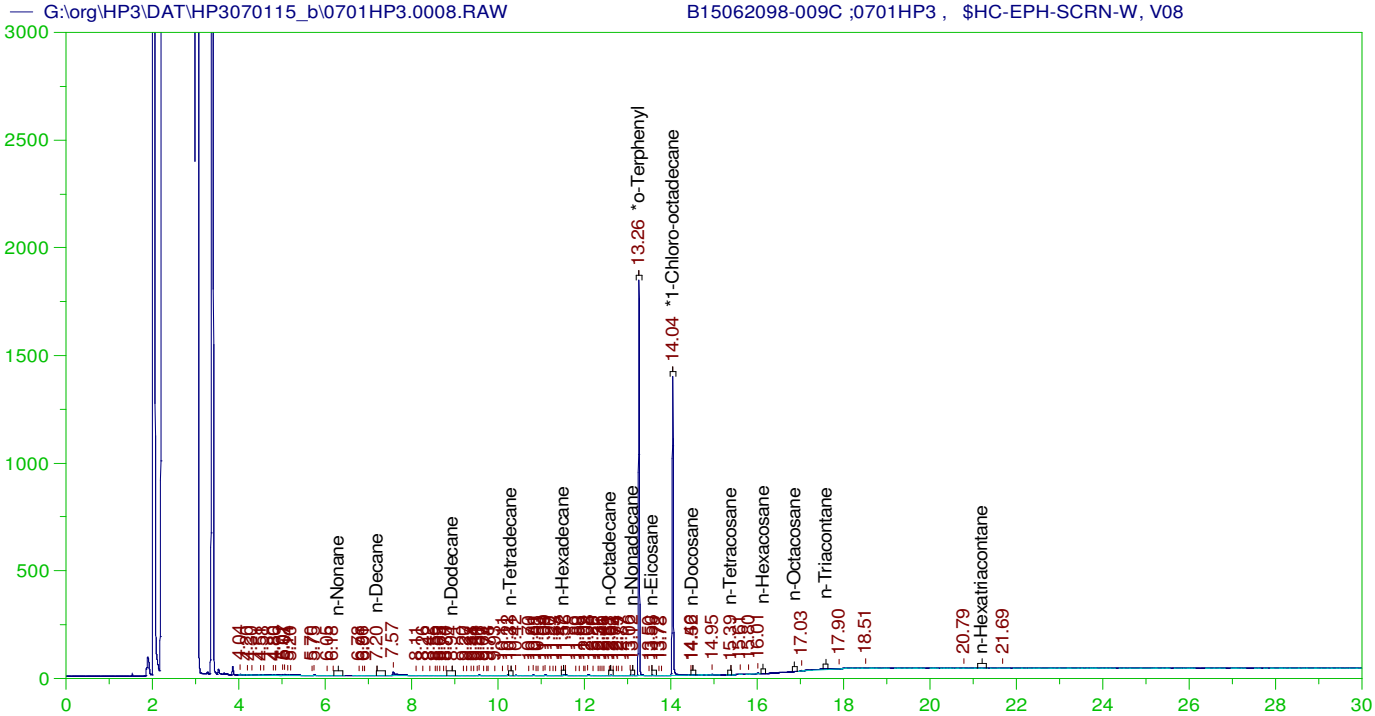
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.261	3092901	190.476	170.538	89.53	-
*1-Chloro-octadecane	14.045	2696948	190.476	194.174	101.94	-

DRO Area:317102.3 DRO Amount: 19.49208
TEH Area:397235.8 TEH Amount: 24.41784
C9-C18 Area:257314.2 C9-C18 Amount: 15.82082
C19-C36 Area:77707.25 C19-C36 Amount: 4.775449

EX-58_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0008.RAW B15062098-009C ;0701HP3 , $HC-EPH-SCRN-W, V08



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

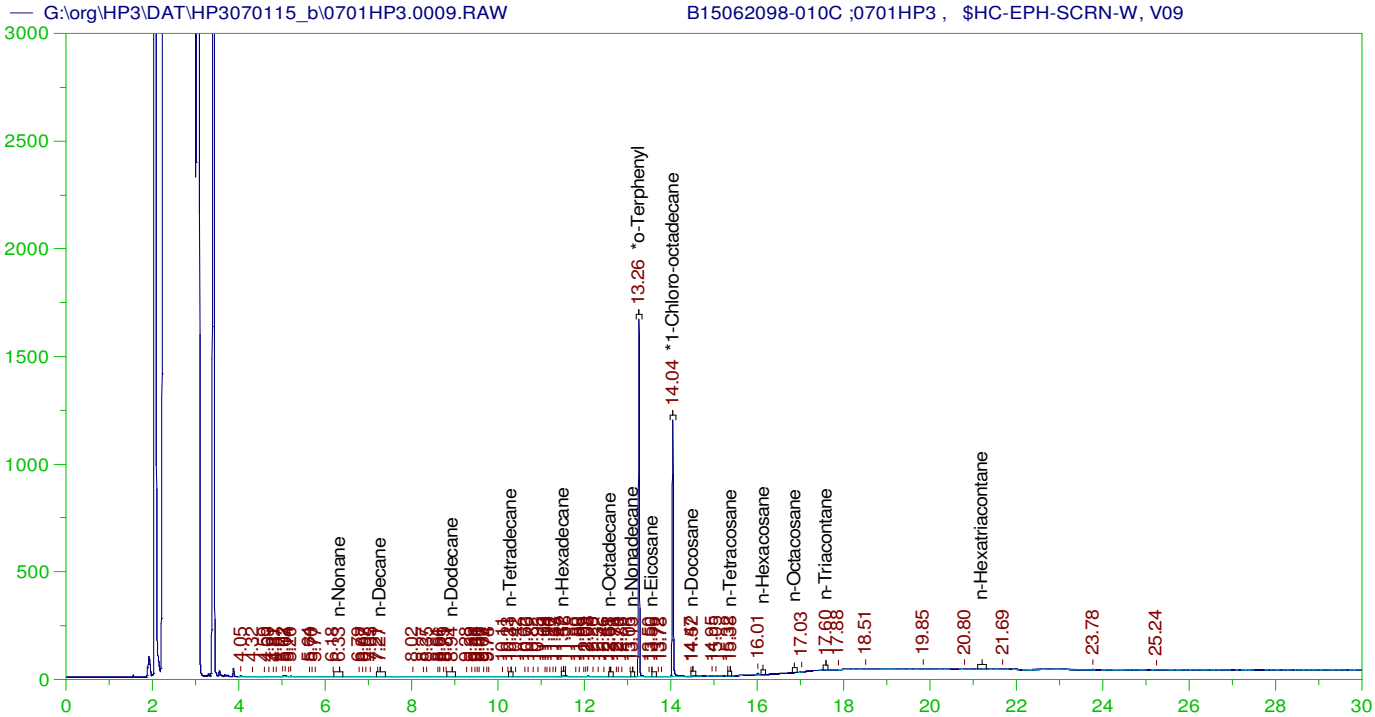
Sample Name: B15062098-009C ;0701HP3 , $HC-EPH-SCRN-W, V08
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0008.RAW
Date & Time Acquired: 7/1/2015 5:56:50 PM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.26	2964570	190.476	163.463	85.82	-
*1-Chloro-octadecane	14.044	2457883	190.476	176.961	92.9	-

DRO Area:312893.3 DRO Amount: 19.23336
TEH Area:466904.3 TEH Amount: 28.70032
C9-C18 Area:278480.5 C9-C18 Amount: 17.12222
C19-C36 Area:130948.3 C19-C36 Amount: 8.047339

3_061815 Batch ID: 90932



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062098-010C ;0701HP3 , $HC-EPH-SCRN-W, V09
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0009.RAW
Date & Time Acquired: 7/1/2015 6:40:42 PM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.26	2718788	190.476	149.91	78.7	-
*1-Chloro-octadecane	14.044	2137454	190.476	153.891	80.79	-

DRO Area:217004 DRO Amount: 13.3391
TEH Area:298261.5 TEH Amount: 18.33396
C9-C18 Area:182479.8 C9-C18 Amount: 11.21967
C19-C36 Area:51297.5 C19-C36 Amount: 3.152455

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91050
Lab ID: LCS-91050-90932	Laboratory Control Sample				Run: GCFID-HP4-B_150706E				07/08/15 07:49
C9 to C18 Aliphatics	912	ug/L	300	76	40	140			
C19 to C36 Aliphatics	1480	ug/L	300	92	40	140			
n-Nonane	96.4	ug/L	5.0	48	30	140			
n-Decane	122	ug/L	5.0	61	40	140			
n-Dodecane	138	ug/L	5.0	69	40	140			
n-Tetradecane	151	ug/L	5.0	76	40	140			
n-Hexadecane	166	ug/L	5.0	83	40	140			
n-Octadecane	173	ug/L	5.0	86	40	140			
n-Nonadecane	181	ug/L	5.0	91	40	140			
n-Eicosane	178	ug/L	5.0	88	40	140			
n-Docosane	180	ug/L	5.0	89	40	140			
n-Tetracosane	183	ug/L	5.0	91	40	140			
n-Hexacosane	183	ug/L	5.0	91	40	140			
n-Octacosane	182	ug/L	5.0	90	40	140			
n-Triacontane	188	ug/L	5.0	94	40	140			
n-Hexatriacontane	190	ug/L	5.0	95	40	140			
Surr: 1-Chloro-octadecane			5.0	108	40	140			
Lab ID: MB-91050-90932	Method Blank				Run: GCFID-HP4-B_150706E				07/08/15 09:19
C9 to C18 Aliphatics	ND	ug/L	300						
C19 to C36 Aliphatics	ND	ug/L	300						
Surr: 1-Chloro-octadecane			5.0	81	40	140			
Lab ID: B15062098-002BMS	Sample Matrix Spike				Run: GCFID-HP4-B_150706E				07/08/15 12:20
C9 to C18 Aliphatics	1460	ug/L	570	64	40	140			
C19 to C36 Aliphatics	2460	ug/L	570	81	40	140			
n-Nonane	134	ug/L	5.0	35	30	140			
n-Decane	166	ug/L	5.0	44	40	140			
n-Dodecane	183	ug/L	5.0	48	40	140			
n-Tetradecane	207	ug/L	5.0	54	40	140			
n-Hexadecane	244	ug/L	5.0	64	40	140			
n-Octadecane	276	ug/L	5.0	72	40	140			
n-Nonadecane	295	ug/L	5.0	78	40	140			
n-Eicosane	295	ug/L	5.0	77	40	140			
n-Docosane	300	ug/L	5.0	79	40	140			
n-Tetracosane	306	ug/L	5.0	80	40	140			
n-Hexacosane	306	ug/L	5.0	80	40	140			
n-Octacosane	303	ug/L	5.0	79	40	140			
n-Triacontane	314	ug/L	5.0	83	40	140			
n-Hexatriacontane	318	ug/L	5.0	83	40	140			
Surr: 1-Chloro-octadecane			9.5	95	40	140			
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150706E				07/08/15 13:50
C9 to C18 Aliphatics	1630	ug/L	570	71	40	140	11	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91050
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150706E			07/08/15 13:50	
C19 to C36 Aliphatics	2710	ug/L	570	89	40	140	9.6	20	
n-Nonane	163	ug/L	5.0	43	30	140	19	30	
n-Decane	205	ug/L	5.0	54	40	140	21	20	R
n-Dodecane	230	ug/L	5.0	61	40	140	23	20	R
n-Tetradecane	255	ug/L	5.0	67	40	140	20	20	R
n-Hexadecane	289	ug/L	5.0	76	40	140	17	20	
n-Octadecane	311	ug/L	5.0	82	40	140	12	20	
n-Nonadecane	329	ug/L	5.0	86	40	140	11	20	
n-Eicosane	327	ug/L	5.0	86	40	140	10	20	
n-Docosane	331	ug/L	5.0	87	40	140	9.6	20	
n-Tetracosane	336	ug/L	5.0	88	40	140	9.4	20	
n-Hexacosane	336	ug/L	5.0	88	40	140	9.3	20	
n-Octacosane	332	ug/L	5.0	87	40	140	9.1	20	
n-Triacontane	345	ug/L	5.0	91	40	140	9.3	20	
n-Hexatriacontane	349	ug/L	5.0	92	40	140	9.4	20	
Surr: 1-Chloro-octadecane			9.5	96	40	140			
Lab ID: LCS-91050-90932	Laboratory Control Sample				Run: GCFID-HP4-B_150706E			07/08/15 08:34	
C11 to C22 Aromatics	2740	ug/L	300	80	40	140			
Total Extractable Hydrocarbons	5190	ug/L	300	84	40	140			
Naphthalene	120	ug/L	5.0	60	40	140			
2-MethylNaphthalene	125	ug/L	5.0	62	40	140			
Acenaphthylene	139	ug/L	5.0	69	40	140			
Acenaphthene	147	ug/L	5.0	73	40	140			
Fluorene	152	ug/L	5.0	76	40	140			
Phenanthrene	154	ug/L	5.0	77	40	140			
Anthracene	162	ug/L	5.0	81	40	140			
Fluoranthene	165	ug/L	5.0	82	40	140			
Pyrene	167	ug/L	5.0	83	40	140			
Benzo(a)Anthracene	165	ug/L	5.0	83	40	140			
Chrysene	175	ug/L	5.0	87	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	334	ug/L	5.0	84	40	140			
Benzo(a)Pyrene	184	ug/L	5.0	92	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	332	ug/L	5.0	83	40	140			
Benzo(g,h,I)perylene	160	ug/L	5.0	80	40	140			
Surr: 2-Bromonaphthalene			5.0	78	40	140			
Surr: 2-Fluorobiphenyl			5.0	81	40	140			
Surr: o-Terphenyl			5.0	80	40	140			
Lab ID: MB-91050-90932	Method Blank				Run: GCFID-HP4-B_150706E			07/08/15 10:04	
C11 to C22 Aromatics	ND	ug/L	300						
Total Extractable Hydrocarbons	ND	ug/L	300						
Naphthalene	ND	ug/L	5.0						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/10/15

Project: BNSF Livingston Shop Complex - Task-G **Work Order:** B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91050
Lab ID: MB-91050-90932	Method Blank				Run: GCFID-HP4-B_150706E				07/08/15 10:04
2-MethylNaphthalene	ND	ug/L	5.0						
Acenaphthylene	ND	ug/L	5.0						
Acenaphthene	ND	ug/L	5.0						
Fluorene	ND	ug/L	5.0						
Phenanthrene	ND	ug/L	5.0						
Anthracene	ND	ug/L	5.0						
Fluoranthene	ND	ug/L	5.0						
Pyrene	ND	ug/L	5.0						
Benzo(a)Anthracene	ND	ug/L	5.0						
Chrysene	ND	ug/L	5.0						
Benzo(b)Fluoranthene/Benzo(k)Fluoran	ND	ug/L	5.0						
Benzo(a)Pyrene	ND	ug/L	5.0						
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	ND	ug/L	5.0						
Benzo(g,h,I)perylene	ND	ug/L	5.0						
Surr: 2-Bromonaphthalene			5.0	74	40	140			
Surr: 2-Fluorobiphenyl			5.0	80	40	140			
Surr: o-Terphenyl			5.0	75	40	140			
Lab ID: B15062098-002BMS	Sample Matrix Spike				Run: GCFID-HP4-B_150706E				07/08/15 13:05
C11 to C22 Aromatics	5630	ug/L	570	87	40	140			
Total Extractable Hydrocarbons	9760	ug/L	570	83	40	140			
Naphthalene	222	ug/L	9.5	58	40	140			
2-MethylNaphthalene	234	ug/L	9.5	61	40	140			
Acenaphthylene	264	ug/L	9.5	69	40	140			
Acenaphthene	281	ug/L	9.5	74	40	140			
Fluorene	298	ug/L	9.5	78	40	140			
Phenanthrene	315	ug/L	9.5	83	40	140			
Anthracene	336	ug/L	9.5	88	40	140			
Fluoranthene	349	ug/L	9.5	92	40	140			
Pyrene	361	ug/L	9.5	95	40	140			
Benzo(a)Anthracene	350	ug/L	9.5	92	40	140			
Chrysene	370	ug/L	9.5	97	40	140			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	708	ug/L	9.5	93	40	140			
Benzo(a)Pyrene	389	ug/L	9.5	102	40	140			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	704	ug/L	9.5	92	40	140			
Benzo(g,h,I)perylene	338	ug/L	9.5	89	40	140			
Surr: 2-Bromonaphthalene			9.5	74	40	140			
Surr: 2-Fluorobiphenyl			9.5	81	40	140			
Surr: o-Terphenyl			9.5	88	40	140			
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150706E				07/08/15 14:36
C11 to C22 Aromatics	5680	ug/L	570	88	40	140	0.8	20	
Total Extractable Hydrocarbons	10200	ug/L	570	86	40	140	4.1	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Batch: 91050
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP4-B_150706E			07/08/15 14:36	
Naphthalene	251	ug/L	9.5	66	40	140	12	20	
2-MethylNaphthalene	257	ug/L	9.5	67	40	140	9.5	20	
Acenaphthylene	280	ug/L	9.5	74	40	140	6.1	20	
Acenaphthene	294	ug/L	9.5	77	40	140	4.6	20	
Fluorene	303	ug/L	9.5	79	40	140	1.5	20	
Phenanthrene	311	ug/L	9.5	82	40	140	1.1	20	
Anthracene	329	ug/L	9.5	86	40	140	2.0	20	
Fluoranthene	342	ug/L	9.5	90	40	140	1.9	20	
Pyrene	347	ug/L	9.5	91	40	140	3.9	20	
Benzo(a)Anthracene	348	ug/L	9.5	91	40	140	0.7	20	
Chrysene	366	ug/L	9.5	96	40	140	1.1	20	
Benzo(b)Fluoranthene/Benzo(k)Fluoran	703	ug/L	9.5	92	40	140	0.8	20	
Benzo(a)Pyrene	387	ug/L	9.5	101	40	140	0.7	20	
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	700	ug/L	9.5	92	40	140	0.7	20	
Benzo(g,h,I)perylene	337	ug/L	9.5	88	40	140	0.4	20	
Surr: 2-Bromonaphthalene			9.5	80	40	140			
Surr: 2-Fluorobiphenyl			9.5	87	40	140			
Surr: o-Terphenyl			9.5	83	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-EPH									Analytical Run: R245819
Lab ID: CCV_0706HP484r-W	Continuing Calibration Verification Standard								07/08/15 23:43
n-Nonane	211	ug/L	5.0	106	75	125			
n-Decane	204	ug/L	5.0	102	75	125			
n-Dodecane	195	ug/L	5.0	98	75	125			
n-Tetradecane	191	ug/L	5.0	95	75	125			
n-Hexadecane	192	ug/L	5.0	96	75	125			
n-Octadecane	190	ug/L	5.0	95	75	125			
n-Nonadecane	191	ug/L	5.0	96	75	125			
n-Eicosane	191	ug/L	5.0	96	75	125			
n-Docosane	192	ug/L	5.0	96	75	125			
n-Tetracosane	192	ug/L	5.0	96	75	125			
n-Hexacosane	191	ug/L	5.0	96	75	125			
n-Octacosane	193	ug/L	5.0	96	75	125			
n-Triacontane	195	ug/L	5.0	98	75	125			
n-Hexatriacontane	198	ug/L	5.0	99	75	125			
Surr: 1-Chloro-octadecane			5.0	105	75	125			
Lab ID: CCV_0706HP485r-W	Continuing Calibration Verification Standard								07/09/15 00:29
Naphthalene	223	ug/L	5.0	111	75	125			
2-MethylNaphthalene	222	ug/L	5.0	111	75	125			
Acenaphthylene	222	ug/L	5.0	111	75	125			
Acenaphthene	222	ug/L	5.0	111	75	125			
Fluorene	219	ug/L	5.0	110	75	125			
Phenanthrene	215	ug/L	5.0	108	75	125			
Anthracene	224	ug/L	5.0	112	75	125			
Fluoranthene	218	ug/L	5.0	109	75	125			
Pyrene	220	ug/L	5.0	110	75	125			
Benzo(a)Anthracene	215	ug/L	5.0	108	75	125			
Chrysene	232	ug/L	5.0	116	75	125			
Benzo(b)Fluoranthene/Benzo(k)Fluoran	435	ug/L	5.0	109	75	125			
Benzo(a)Pyrene	242	ug/L	5.0	121	75	125			
Dibenz(a,h)anthracene/Indeno(1,2,3-cd	442	ug/L	5.0	111	75	125			
Benzo(g,h,I)perylene	220	ug/L	5.0	110	75	125			
Surr: 2-Bromonaphthalene			5.0	101	75	125			
Surr: 2-Fluorobiphenyl			5.0	105	75	125			
Surr: o-Terphenyl			5.0	101	75	125			

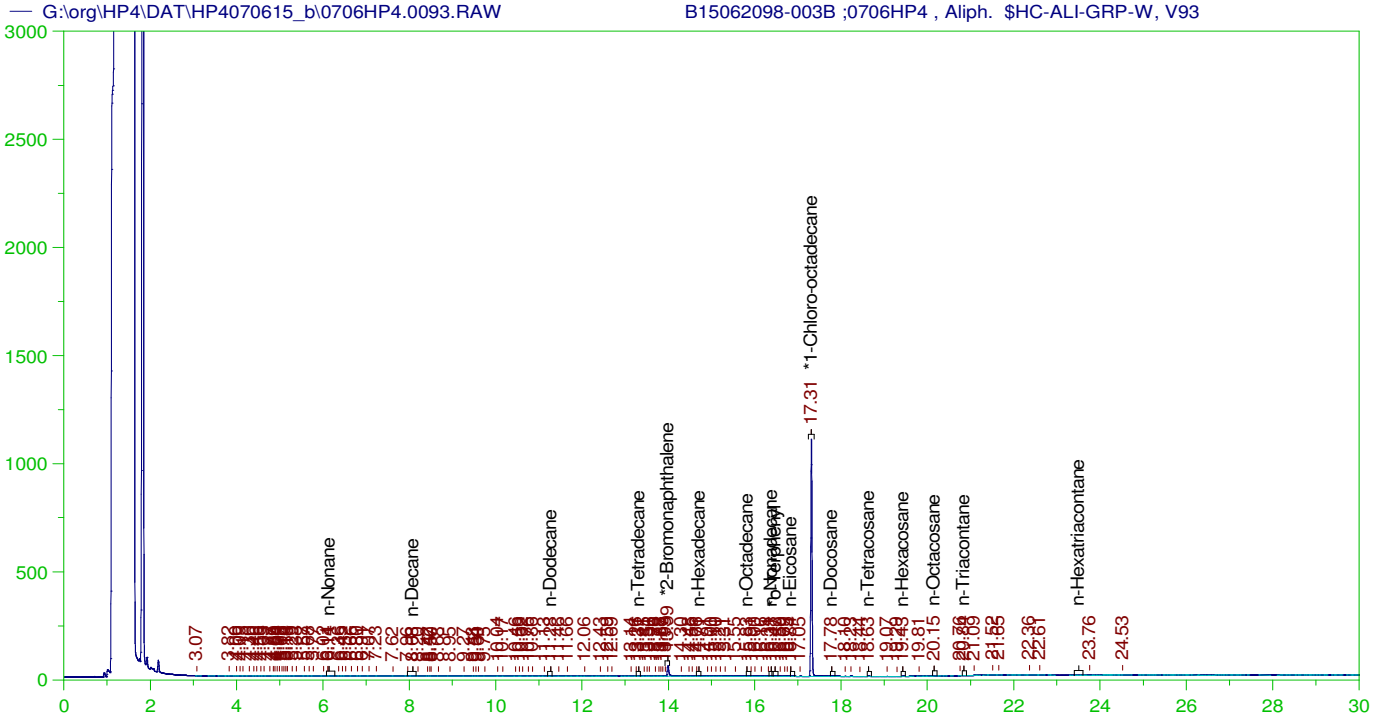
Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

EX-36_061815 Batch ID: 91050

G:\org\HP4\DAT\HP4070615_b\0706HP4.0093.RAW B15062098-003B ;0706HP4 , Aliph. $HC-ALI-GRP-W, V93



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15062098-003B ;0706HP4 , Aliph. $HC-ALI-GRP-W, V93
Raw File: G:\org\HP4\DAT\HP4070615_b\0706HP4.0093.RAW
Date & Time Acquired: 7/9/2015 6:33:01 AM
Method File: g:\org\HP4\Methods\LR_EPH-AY-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AY.CAL
Sample Weight: 1.04 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.955 to 20.222
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.075 to 16.332
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.357 to 23.606

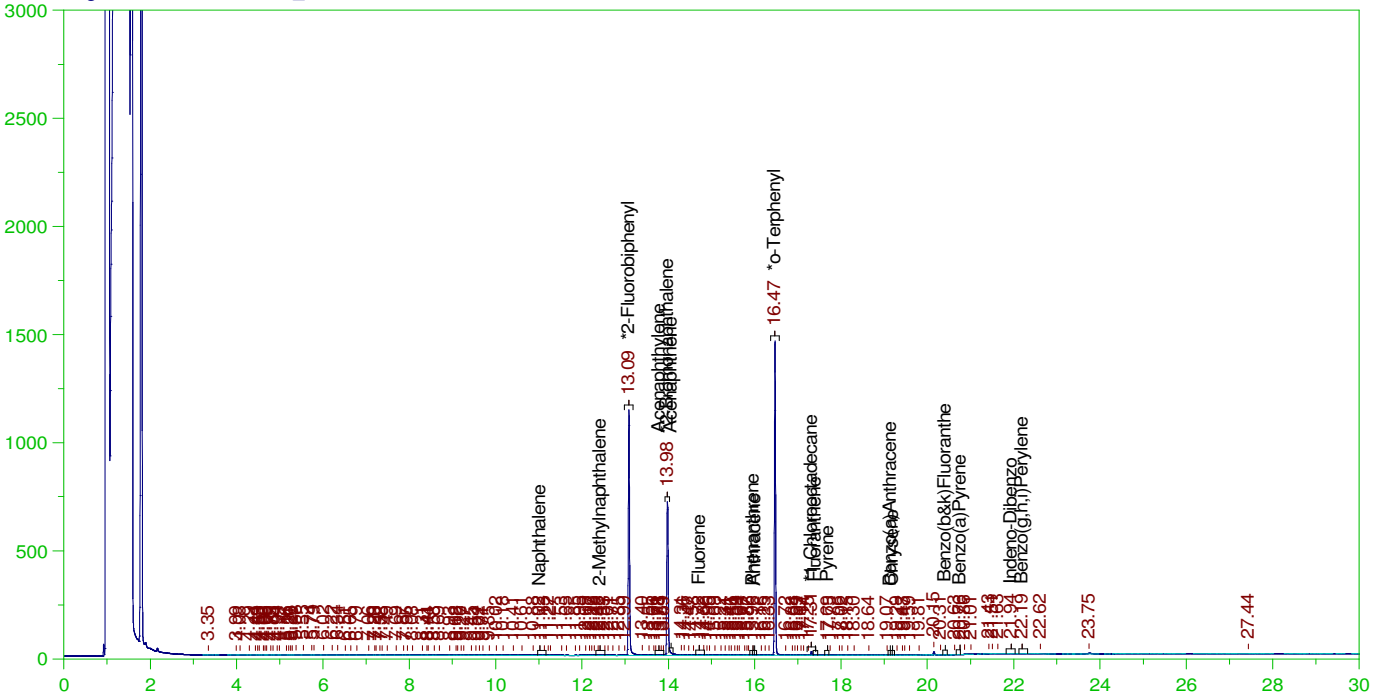
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.314	192.308	188.873	98.21	-

DRO Area:323655.3 DRO Amount: 21.74909
TEH Area:743955.5 TEH Amount: 49.99254

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:540373.1 C9-C18 Amount: 36.89762
C19-C36 Area:87854.34 C19-C36 Amount: 5.834231

EX-36_061815 Batch ID: 91050

G:\org\HP4\DAT\HP4070615_b\0706HP4.0094.RAW B15062098-003B ;0706HP4 , Arom. $HC-ARO-GRP-W, V94



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15062098-003B ;0706HP4 , Arom. $HC-ARO-GRP-W, V94
Raw File: G:\org\HP4\DAT\HP4070615_b\0706HP4.0094.RAW
Date & Time Acquired: 7/9/2015 7:18:48 AM
Method File: g:\org\HP4\Methods\RR_EPH-AY-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AY.CAL
Sample Weight: 1.04 Dilution: 2 S.A.: 1

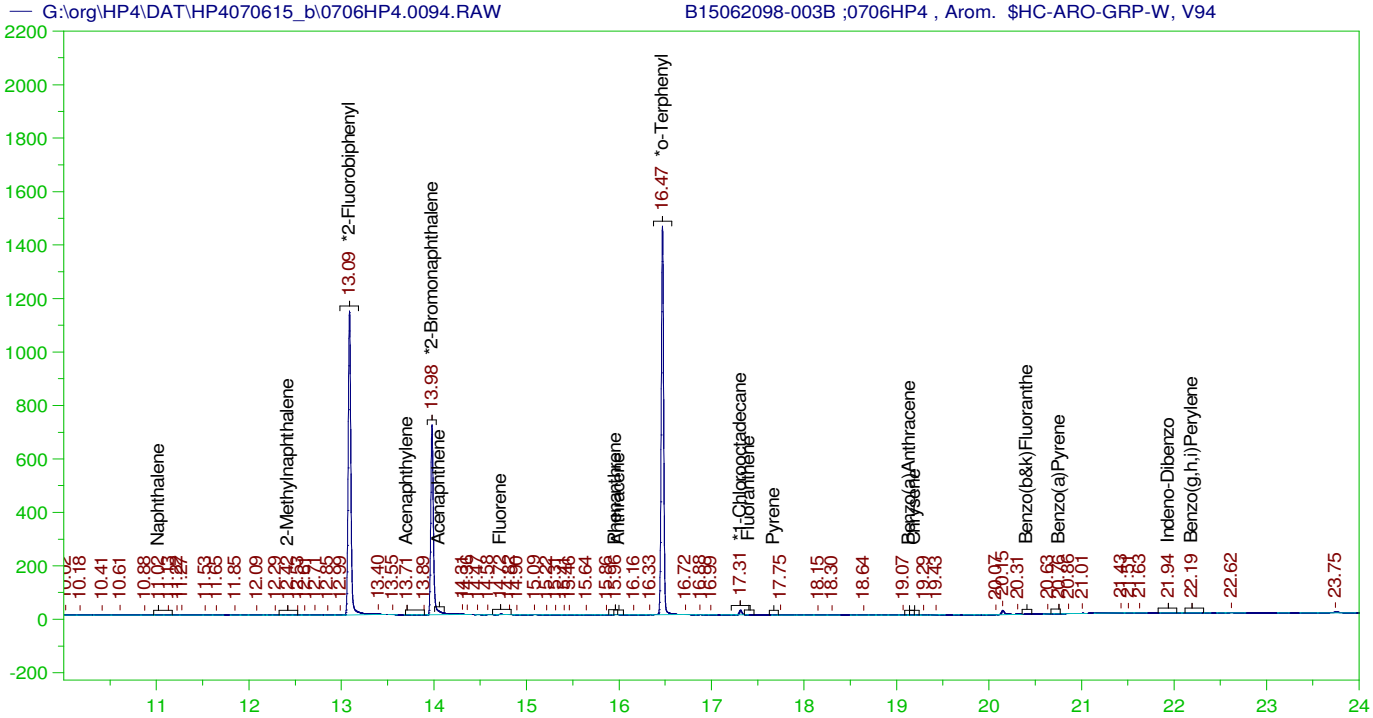
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.97 to 22.321

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	13.086	192.308	173.822	90.39	-
*2-Bromonaphthalene	13.978	192.308	160.537	83.48	-
*o-Terphenyl	16.47	192.308	172.006	89.44	-
*1-Chlorooctadecane	17.312	192.308	4.443	2.31	-

C11-C22 Aromatics Area:469387.5 C11-C22 Aromatics Amount: 32.5443
EPH Aromatics total Area:852648.1 EPH Aromatics Total Amount: 59.11712

EX-36_061815 Batch ID: 91050

G:\org\HP4\DAT\HP4070615_b\0706HP4.0094.RAW B15062098-003B ;0706HP4 , Arom. $HC-ARO-GRP-W, V94



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

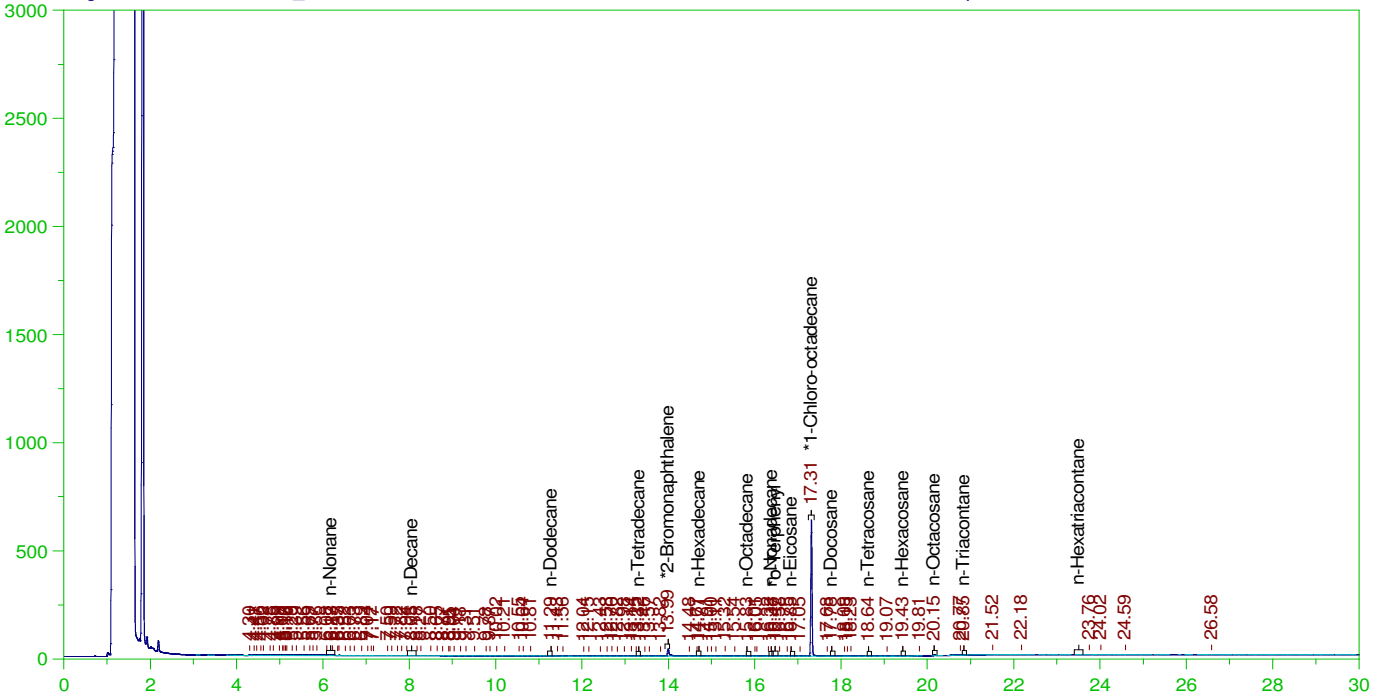
Sample Name: B15062098-003B ;0706HP4 , Arom. $HC-ARO-GRP-W, V94
Raw File: G:\org\HP4\DAT\HP4070615_b\0706HP4.0094.RAW
Date & Time Acquired: 7/9/2015 7:18:48 AM
Method File: g:\org\HP4\Methods\RS_EPH-AY-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AY.CAL
Sample Weight: 1.04 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	11.023	11.023	11.023	1937	1.923	U
2-Methylnaphthalene	12.42	12.42	12.42	615	1.923	U
Acenaphthylene	13.708	13.708	13.708	546	1.923	U
Acenaphthene	.	.	.		1.923	U
Fluorene	14.722	14.722	14.722	3766	1.923	U
Phenanthrene	15.961	15.961	15.961	5149	1.923	U
Anthracene	.	.	.		1.923	U
Fluoranthene	.	.	.		1.923	U
Pyrene	.	.	.		1.923	U
Benzo(a)Anthracene	.	.	.		1.923	U
Chrysene	.	.	.		1.923	U
Benzo(b&k)Fluoranthe	.	.	.		3.846	U
Benzo(a)Pyrene	20.757	20.757	20.757	910	1.923	U
Indeno-Dibenzo	21.941	21.941	21.941	948	3.846	U
Benzo(g,h,i)Perylene	22.194	22.194	22.194	1711	1.923	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	13.086	192.308	171.173	89.01	40-140
*2-Bromonaphthalene	13.978	192.308	155.696	80.96	40-140
*o-Terphenyl	16.47	192.308	169.653	88.22	40-140
*1-Chlorooctadecane	17.312	192.308	2.857	1.49	40-140

EX-27_061815 Batch ID: 91050

G:\org\HP4\DAT\HP4070615_b\0706HP4.0091.RAW B15062098-004B ;0706HP4 , Aliph. $HC-ALI-GRP-W, V91



EPH ALIPHATICS (FID) ANALYSIS REPORT

Sample Name: B15062098-004B ;0706HP4 , Aliph. $HC-ALI-GRP-W, V91
Raw File: G:\org\HP4\DAT\HP4070615_b\0706HP4.0091.RAW
Date & Time Acquired: 7/9/2015 5:01:41 AM
Method File: g:\org\HP4\Methods\LR_EPH-AY-L%.met
Calibration File: G:\Org\HP4\Cals\AL140908AY.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Aliphatic Hydrocarbons: 28163.85
Mean RF for C19 to C36 Aliphatic Hydrocarbons: 28958.51
Mean RF for Total Extractable Hydrocarbons: 28617.94
Rt range for Diesel Range Organics: 7.955 to 20.222
Rt range for C9 to C18 Aliphatic Hydrocarbons: 6.075 to 16.332
Rt range for C19 to C36 Aliphatic Hydrocarbons: 16.357 to 23.606

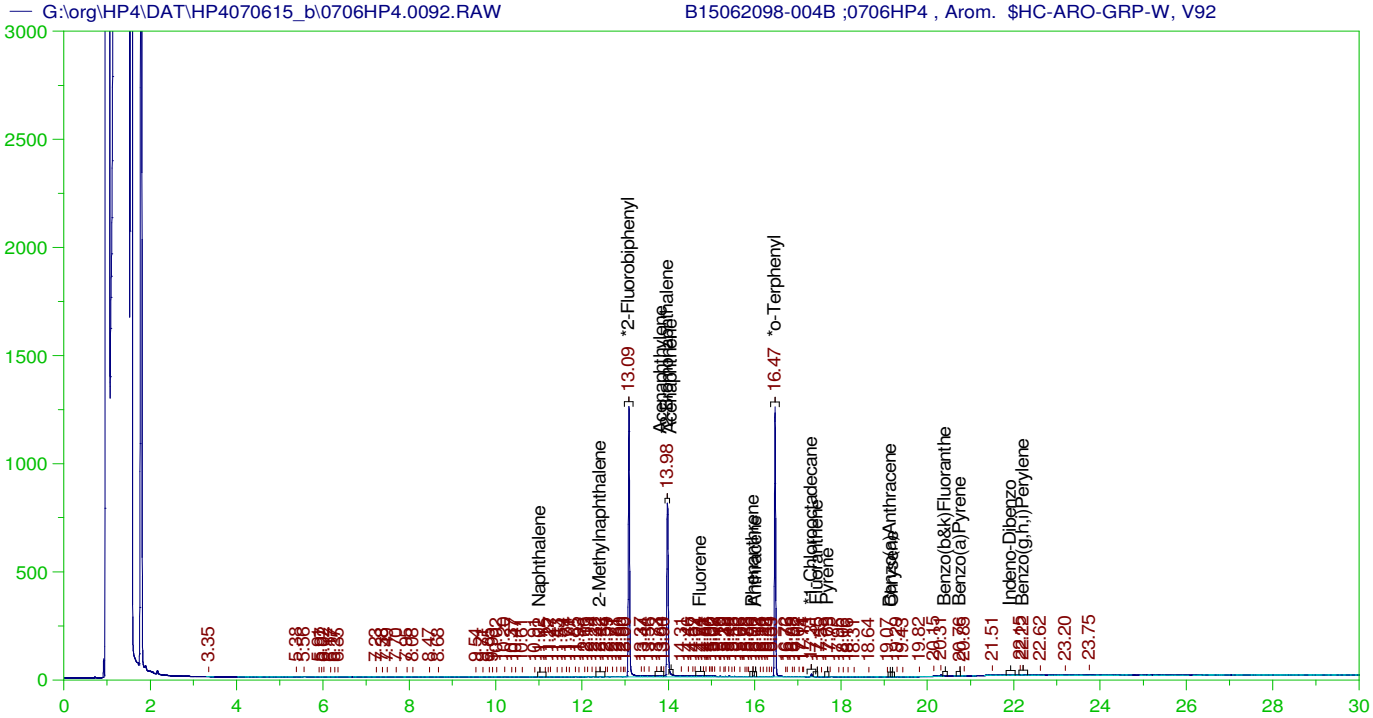
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*1-Chloro-octadecane	17.313	190.476	106.982	56.17	-

DRO Area:156822.6 DRO Amount: 10.43785
TEH Area:459239.2 TEH Amount: 30.56618

Aliphatic Hydrocarbon Areas and Amounts:
C9-C18 Area:315444.6 C9-C18 Amount: 21.33398
C19-C36 Area:66186.86 C19-C36 Amount: 4.353477

EX-27_061815 Batch ID: 91050

G:\org\HP4\DAT\HP4070615_b\0706HP4.0092.RAW B15062098-004B ;0706HP4 , Arom. $HC-ARO-GRP-W, V92



EPH AROMATICS RANGE VALUES (FID) ANALYSIS REPORT

Sample Name: B15062098-004B ;0706HP4 , Arom. $HC-ARO-GRP-W, V92
Raw File: G:\org\HP4\DAT\HP4070615_b\0706HP4.0092.RAW
Date & Time Acquired: 7/9/2015 5:47:18 AM
Method File: g:\org\HP4\Methods\RR_EPH-070692-AY-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AY.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

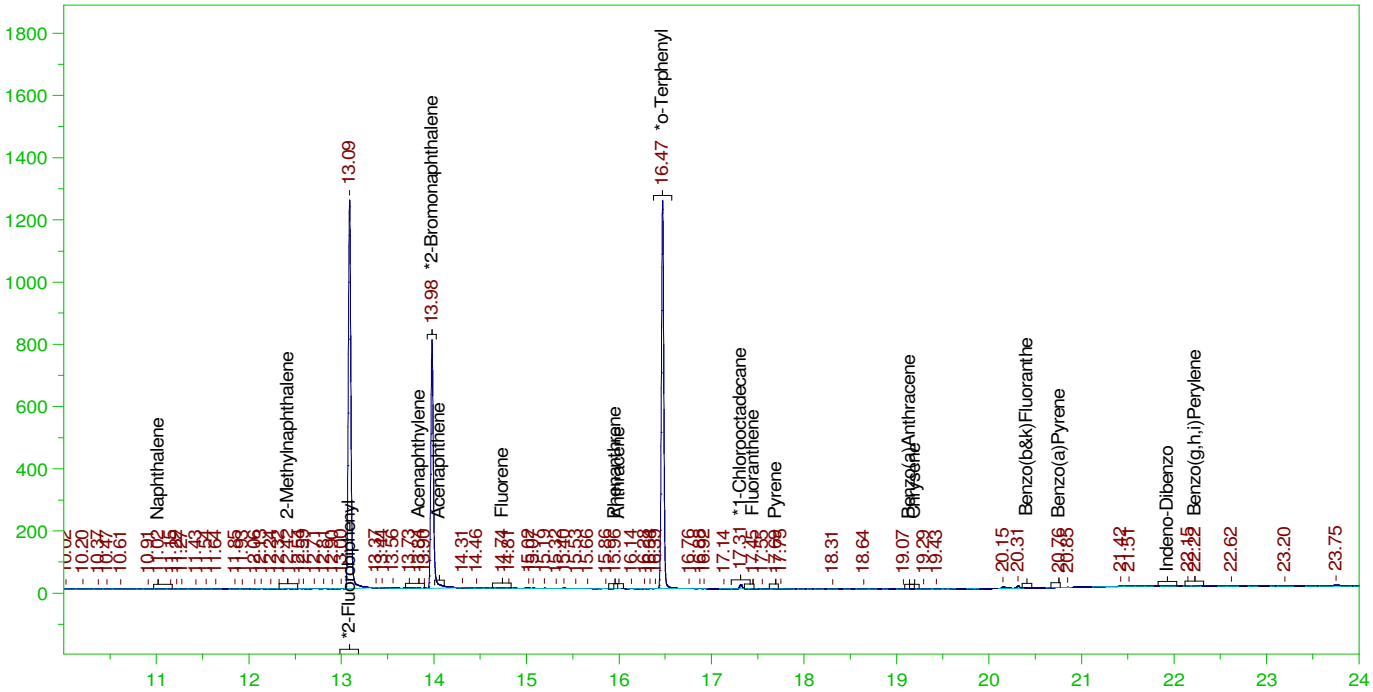
Mean RF EPH Aromatics: 27736.6
Rt range for EPH C11 to C22 Aromatics: 10.97 to 22.321

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	
*2-Fluorobiphenyl	13.087	190.476	189.569	99.52	-
*2-Bromonaphthalene	13.979	190.476	179.167	94.06	-
*o-Terphenyl	16.471	190.476	146.715	77.03	-
*1-Chlorooctadecane	17.314	190.476	3.017	1.58	-

C11-C22 Aromatics Area:681157.1 C11-C22 Aromatics Amount: 46.77726
EPH Aromatics total Area:765569.7 EPH Aromatics Total Amount: 52.57415

EX-27_061815 Batch ID: 91050

G:\org\HP4\DAT\HP4070615_b\0706HP4.0092.RAW B15062098-004B ;0706HP4 , Arom. $HC-ARO-GRP-W, V92



EPH AROMATICS TARGET VALUES (FID) ANALYSIS REPORT

Sample Name: B15062098-004B ;0706HP4 , Arom. $HC-ARO-GRP-W, V92
Raw File: G:\org\HP4\DAT\HP4070615_b\0706HP4.0092.RAW
Date & Time Acquired: 7/9/2015 5:47:18 AM
Method File: g:\org\HP4\Methods\RS_EPH-AY-L%.met
Calibration File: G:\Org\HP4\Cals\AR140908AY.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
Naphthalene	11.021	11.021	11.021	2686	1.905	U
2-Methylnaphthalene	12.419	12.419	12.419	3706	1.905	U
Acenaphthylene	13.838	13.838	13.838	871	1.905	U
Acenaphthene	.	.	.		1.905	U
Fluorene	14.742	14.742	14.742	3969	1.905	U
Phenanthrene	15.958	15.958	15.958	2104	1.905	U
Anthracene	.	.	.		1.905	U
Fluoranthene	17.448	17.448	17.448	1197	1.905	U
Pyrene	17.695	17.695	17.695	1027	1.905	U
Benzo(a)Anthracene	.	.	.		1.905	U
Chrysene	.	.	.		1.905	U
Benzo(b&k)Fluoranthe	.	.	.		3.81	U
Benzo(a)Pyrene	20.759	20.759	20.759	868	1.905	U
Indeno-Dibenzo	.	.	.		3.81	U
Benzo(g,h,i)Perylene	22.224	22.224	22.224	763	1.905	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
*2-Fluorobiphenyl	13.087	190.476	185.48	97.38	40-140
*2-Bromonaphthalene	13.979	190.476	171.992	90.3	40-140
*o-Terphenyl	16.471	190.476	144.995	76.12	40-140
*1-Chlorooctadecane	17.314	190.476	2.223	1.17	40-140

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G

Report Date: 07/10/15
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 91128
Lab ID: MB-91128-91050-90932	Method Blank				Run: SV5973N2.I_150707A				07/07/15 23:33
Surr: 2-Fluorobiphenyl			4.0	82	25	94			
Surr: o-Terphenyl			4.0	72	40	140			
Lab ID: MB-91128-91050-90932	Method Blank				Run: SV5973N2.I_150707A				07/08/15 00:03
2-Methylnaphthalene	ND	ug/L	0.20						
Acenaphthene	ND	ug/L	0.20						
Acenaphthylene	ND	ug/L	0.20						
Anthracene	ND	ug/L	0.20						
Benzo(a)anthracene	ND	ug/L	0.20						
Benzo(a)pyrene	ND	ug/L	0.20						
Benzo(b)fluoranthene	ND	ug/L	0.20						
Benzo(g,h,i)perylene	ND	ug/L	0.20						
Benzo(k)fluoranthene	ND	ug/L	0.20						
Chrysene	ND	ug/L	0.20						
Dibenzo(a,h)anthracene	ND	ug/L	0.20						
Fluoranthene	ND	ug/L	0.20						
Fluorene	ND	ug/L	0.20						
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.20						
Naphthalene	ND	ug/L	0.20						
Phenanthrene	0.200	ug/L	0.20						
Pyrene	ND	ug/L	0.20						
Lab ID: LCS-91128	Laboratory Control Sample				Run: SV5973N2.I_150707A				07/08/15 03:55
2-Methylnaphthalene	134	ug/L	4.0	67	40	140			
Acenaphthene	136	ug/L	4.0	68	40	140			
Acenaphthylene	122	ug/L	4.0	61	40	140			
Anthracene	158	ug/L	4.0	79	40	140			
Benzo(a)anthracene	163	ug/L	4.0	81	40	140			
Benzo(a)pyrene	178	ug/L	4.0	89	40	140			
Benzo(b)fluoranthene	168	ug/L	4.0	84	40	140			
Benzo(g,h,i)perylene	167	ug/L	4.0	84	40	140			
Benzo(k)fluoranthene	154	ug/L	4.0	77	40	140			
Chrysene	149	ug/L	4.0	74	40	140			
Dibenzo(a,h)anthracene	166	ug/L	4.0	83	40	140			
Fluoranthene	146	ug/L	4.0	73	40	140			
Fluorene	161	ug/L	4.0	81	40	140			
Indeno(1,2,3-cd)pyrene	163	ug/L	4.0	81	40	140			
Naphthalene	114	ug/L	4.0	57	40	140			
Phenanthrene	124	ug/L	4.0	62	40	140			
Pyrene	137	ug/L	4.0	68	40	140			
Surr: 2-Fluorobiphenyl			4.0	78	40	140			
Surr: o-Terphenyl			4.0	71	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Batch: 91128
Lab ID: B15062098-002BMS	Sample Matrix Spike				Run: SV5973N2.I_150707A				07/08/15 04:55
2-Methylnaphthalene	251	ug/L	7.6	66	40	140			
Acenaphthene	262	ug/L	7.6	69	40	140			
Acenaphthylene	229	ug/L	7.6	60	40	140			
Anthracene	324	ug/L	7.6	85	40	140			
Benzo(a)anthracene	342	ug/L	7.6	90	40	140			
Benzo(a)pyrene	373	ug/L	7.6	98	40	140			
Benzo(b)fluoranthene	355	ug/L	7.6	93	40	140			
Benzo(g,h,i)perylene	349	ug/L	7.6	92	40	140			
Benzo(k)fluoranthene	321	ug/L	7.6	84	40	140			
Chrysene	310	ug/L	7.6	81	40	140			
Dibenzo(a,h)anthracene	346	ug/L	7.6	91	40	140			
Fluoranthene	307	ug/L	7.6	81	40	140			
Fluorene	318	ug/L	7.6	84	40	140			
Indeno(1,2,3-cd)pyrene	327	ug/L	7.6	86	40	140			
Naphthalene	208	ug/L	7.6	55	40	140			
Phenanthrene	251	ug/L	7.6	66	40	140			
Pyrene	286	ug/L	7.6	75	40	140			
Surr: 2-Fluorobiphenyl			7.6	80	40	140			
Surr: o-Terphenyl			7.6	77	40	140			
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: SV5973N2.I_150707A				07/08/15 05:25
2-Methylnaphthalene	271	ug/L	7.6	71	40	140	7.9	40	
Acenaphthene	264	ug/L	7.6	69	40	140	0.6	40	
Acenaphthylene	241	ug/L	7.6	63	40	140	5.2	40	
Anthracene	315	ug/L	7.6	83	40	140	2.9	40	
Benzo(a)anthracene	344	ug/L	7.6	90	40	140	0.7	40	
Benzo(a)pyrene	372	ug/L	7.6	98	40	140	0.4	40	
Benzo(b)fluoranthene	359	ug/L	7.6	94	40	140	1.1	40	
Benzo(g,h,i)perylene	344	ug/L	7.6	90	40	140	1.5	40	
Benzo(k)fluoranthene	318	ug/L	7.6	83	40	140	1.0	40	
Chrysene	302	ug/L	7.6	79	40	140	2.5	40	
Dibenzo(a,h)anthracene	338	ug/L	7.6	89	40	140	2.5	40	
Fluoranthene	311	ug/L	7.6	82	40	140	1.2	40	
Fluorene	313	ug/L	7.6	82	40	140	1.7	40	
Indeno(1,2,3-cd)pyrene	325	ug/L	7.6	85	40	140	0.7	40	
Naphthalene	232	ug/L	7.6	61	40	140	11	40	
Phenanthrene	245	ug/L	7.6	64	40	140	2.2	40	
Pyrene	298	ug/L	7.6	78	40	140	3.9	40	
Surr: 2-Fluorobiphenyl			7.6	84	40	140			
Surr: o-Terphenyl			7.6	72	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/10/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062098

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8270C									Analytical Run: R245875
Lab ID: 09-Jul-15_CCV_3	Continuing Calibration Verification Standard								07/09/15 15:37
2-Methylnaphthalene	1.90	ug/L	0.10	95	80	120			
Acenaphthene	1.99	ug/L	0.10	100	80	120			
Acenaphthylene	1.96	ug/L	0.10	98	80	120			
Anthracene	1.96	ug/L	0.10	98	80	120			
Benzo(a)anthracene	2.08	ug/L	0.10	104	80	120			
Benzo(a)pyrene	2.30	ug/L	0.10	115	80	120			
Benzo(b)fluoranthene	2.20	ug/L	0.10	110	80	120			
Benzo(g,h,i)perylene	2.03	ug/L	0.10	101	80	120			
Benzo(k)fluoranthene	2.00	ug/L	0.10	100	80	120			
Chrysene	1.92	ug/L	0.10	96	80	120			
Dibenzo(a,h)anthracene	2.14	ug/L	0.10	107	80	120			
Fluoranthene	1.70	ug/L	0.10	85	80	120			
Fluorene	2.15	ug/L	0.10	107	80	120			
Indeno(1,2,3-cd)pyrene	2.23	ug/L	0.10	112	80	120			
Naphthalene	1.99	ug/L	0.10	100	80	120			
Phenanthrene	1.77	ug/L	0.10	89	80	120			
Pyrene	2.02	ug/L	0.10	101	80	120			
Surr: 2-Fluorobiphenyl			0.10	104	80	120			
Surr: Nitrobenzene-d5			0.10	103	80	120			
Surr: Terphenyl-d14			0.10	104	80	120			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15062098

Login completed by:	Tabitha Edwards	Date Received:	6/23/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/23/2015	Carrier name:	Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temperature Blank temperature for Cooler 1 was 0.5°C, Cooler 3 was 0.4°C, and Cooler 4 was 0.5°C. Container temperature for Cooler 2 was 3.4°C.

Sample containers were received for D2_061715 however this sample was not listed on the Chain of Custody. Per Amanda Aldersley no analysis is needed on D2_061715.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments
1 T85_061815	6/18/15	0800	1-W		X	X								X		
2 2_061815	6/18/15	1900	5-W		X	X	X							X		
3 EX-36_061815	6/18/15	1950	5-W		X	X	X							X		
4 EX-27_061815	6/18/15	2040	5-W		X	X	X							X		
5																
6																
7																
8																
9																
10																

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: UPS GRD PTN

Cooler ID(s): 1: 0.5°C TB 2: 3.4°C 3: 0.4°C TB 4: 0.5°C TB

Receipt Temp: SEE ABOVE °C

On Ice: (Yes) No

Custody Seal Intact Signature Match: (Y) N C

LABORATORY USE ONLY: B506 2098-001 002 003 004

Custody Record MUST be Signed

Relinquished by (print): CHRIS LaROSE	Date/Time: 6/22/15 1430	Signature:	Received by (print): SEALED FOR SHIPMENT	Date/Time:	Signature:
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: KYLE LARSEN	Date/Time: 23 JUN 2015 9:00 am	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 0.5°C TB 2: 3.4°C 3: 0.4°C TB 4: 0.5°C TB
Receipt Temp: SEE ABOVE °C
On Ice: (Yes) No
Custody Seal: (Y) N C
Intact: (Y) N
Signature Match: (Y) N

Number of Containers / Sample Type: A W S V B O / Air Water Soils/Solids Vegetation Bioassay Other

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	1_061815	6/18/15	1505	5-W		X	X	X							X			B506208-005
2	TB3_061815	6/18/15	0800	1-W		X	X								X			006
3	EX-14_061815	6/18/15	1600	5-W		X	X	X							X			007
4	TB4_061815	6/18/15	0800	1-W	X										X			008
5	EX-58_061815	6/18/15	1655	8-W	X	X		X							X			009
6	3_061815	6/18/15	1745	8-W	X	X		X							+			010
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CRIS LABOSE	6/22/15 1430		SEALED FOR SHIPMENT'CL		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KYLE LARSEN Date/Time: 23 JUN 2015 9:00am Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

ANALYTICAL SUMMARY REPORT

July 07, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15062115 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - Task-G

Energy Laboratories Inc Billings MT received the following 7 samples for Kennedy Jenks Consultants on 6/23/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15062115-001	TB1_061815	06/18/15 13:30	06/23/15	Aqueous	Volatile Petroleum Hydrocarbons
B15062115-002	D2_061815	06/18/15 8:00	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons 8260-Volatile Organic Compounds-Short List
B15062115-003	EX-57_061815	06/18/15 15:05	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15062115-004	HRO-22_061815	06/18/15 16:35	06/23/15	Aqueous	Same As Above
B15062115-005	EX-22_061815	06/18/15 17:50	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons 8260-Volatile Organic Compounds-Short List
B15062115-006	EX-64_061815	06/18/15 19:05	06/23/15	Aqueous	EPH-Liquid-Liquid Extraction Hydrocarbons, Extractable Petroleum Screen Volatile Petroleum Hydrocarbons
B15062115-007	EX-34_061815	06/18/15 19:55	06/23/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

CLIENT: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062115

Revised Date: 07/07/15
Report Date: 07/02/15

CASE NARRATIVE

Revised Report:
The report was revised to include MTBE, Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene in the EPH Method 8260B analysis report.

This revised report replaces any previous report in its entirety.

DATES REPORT

Work Order: B15062115
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -

Revised Date: 07/07/15
Report Date: 07/02/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15062115-001A	TB1_061815	6/18/2015 1:30:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062115-002A	D2_061815	6/18/2015 8:00:00 AM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062115-002B	D2_061815	6/18/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/24/2015
B15062115-002C	D2_061815	6/18/2015 8:00:00 AM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062115-003A	EX-57_061815	6/18/2015 3:05:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062115-003B	EX-57_061815	6/18/2015 3:05:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062115-004A	HRO-22_061815	6/18/2015 4:35:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/24/2015
B15062115-004B	HRO-22_061815	6/18/2015 4:35:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062115-005A	EX-22_061815	6/18/2015 5:50:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/25/2015
B15062115-005B	EX-22_061815	6/18/2015 5:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/24/2015
B15062115-005C	EX-22_061815	6/18/2015 5:50:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062115-006A	EX-64_061815	6/18/2015 7:05:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/25/2015
B15062115-006B	EX-64_061815	6/18/2015 7:05:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/1/2015
B15062115-007A	EX-34_061815	6/18/2015 7:55:00 PM	Aqueous	Volatile Petroleum Hydrocarbons		NA	6/25/2015
B15062115-007B	EX-34_061815	6/18/2015 7:55:00 PM	Aqueous	Hydrocarbons, Extractable Petroleum Screen		06/29/2015 SW8015M [90932]	7/2/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-001
Client Sample ID: TB1_061815

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 13:30
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 13:19 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 13:19 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 13:19 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 13:19 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 13:19 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 13:19 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 13:19 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 13:19 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 13:19 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 13:19 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 13:19 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 13:19 / pbf
Surr: VPH Aromatics Surrogate	89.0	%REC		70-130		MA-VPH	06/24/15 13:19 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/24/15 13:19 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-002
Client Sample ID: D2_061815

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 08:00
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Chlorobenzene	0.42	ug/L	J	0.50		SW8260B	06/24/15 19:25 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 19:25 / nl
2-Chlorotoluene	0.13	ug/L	J	0.50		SW8260B	06/24/15 19:25 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,4-Dichlorobenzene	0.40	ug/L	J	0.50		SW8260B	06/24/15 19:25 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
cis-1,2-Dichloroethene	0.67	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 19:25 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Tetrachloroethene	1.2	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 08:00
DateReceived: 06/23/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-002
Client Sample ID: D2_061815

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	1.0	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 19:25 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 19:25 / nl
Surr: Dibromofluoromethane	112	%REC		77-126		SW8260B	06/24/15 19:25 / nl
Surr: 1,2-Dichloroethane-d4	104	%REC		70-130		SW8260B	06/24/15 19:25 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/24/15 19:25 / nl
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	06/24/15 19:25 / nl
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 21:07 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 21:07 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 21:07 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 21:07 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 21:07 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 21:07 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 21:07 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 21:07 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 21:07 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 21:07 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 21:07 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 21:07 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/24/15 21:07 / pbf
Surr: VPH Aliphatics Surrogate	83.0	%REC		70-130		MA-VPH	06/24/15 21:07 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	686	ug/L		300	1000	SW8015M	07/01/15 19:24 / tmc
Surr: o-Terphenyl	89.0	%REC		40-140		SW8015M	07/01/15 19:24 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 15:05
DateReceived: 06/23/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-003
Client Sample ID: EX-57_061815

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 22:14 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 22:14 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 22:14 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 22:14 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 22:14 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 22:14 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 22:14 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 22:14 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 22:14 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 22:14 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 22:14 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 22:14 / pbf
Surr: VPH Aromatics Surrogate	83.0	%REC		70-130		MA-VPH	06/24/15 22:14 / pbf
Surr: VPH Aliphatics Surrogate	88.0	%REC		70-130		MA-VPH	06/24/15 22:14 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/01/15 20:07 / tmc
Surr: o-Terphenyl	93.0	%REC		40-140		SW8015M	07/01/15 20:07 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-004
Client Sample ID: HRO-22_061815

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 16:35
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/24/15 23:21 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/24/15 23:21 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/24/15 23:21 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/24/15 23:21 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/24/15 23:21 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/24/15 23:21 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/24/15 23:21 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/24/15 23:21 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/24/15 23:21 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/24/15 23:21 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/24/15 23:21 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/24/15 23:21 / pbf
Surr: VPH Aromatics Surrogate	89.0	%REC		70-130		MA-VPH	06/24/15 23:21 / pbf
Surr: VPH Aliphatics Surrogate	91.0	%REC		70-130		MA-VPH	06/24/15 23:21 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	684	ug/L		300	1000	SW8015M	07/01/15 22:18 / tmc
Surr: o-Terphenyl	90.0	%REC		40-140		SW8015M	07/01/15 22:18 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 17:50
DateReceived: 06/23/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-005
Client Sample ID: EX-22_061815

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Chlorobenzene	0.41	ug/L	J	0.50		SW8260B	06/24/15 19:54 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/24/15 19:54 / nl
2-Chlorotoluene	0.16	ug/L	J	0.50		SW8260B	06/24/15 19:54 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,4-Dichlorobenzene	0.46	ug/L	J	0.50		SW8260B	06/24/15 19:54 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
cis-1,2-Dichloroethene	0.65	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/24/15 19:54 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Tetrachloroethene	1.3	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 17:50
DateReceived: 06/23/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-005
Client Sample ID: EX-22_061815

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	1.0	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/24/15 19:54 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/24/15 19:54 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/24/15 19:54 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/24/15 19:54 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/24/15 19:54 / nl
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	06/24/15 19:54 / nl
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/25/15 00:27 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/25/15 00:27 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/25/15 00:27 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/25/15 00:27 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/25/15 00:27 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/25/15 00:27 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/25/15 00:27 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/25/15 00:27 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/25/15 00:27 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/25/15 00:27 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/25/15 00:27 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/25/15 00:27 / pbf
Surr: VPH Aromatics Surrogate	92.0	%REC		70-130		MA-VPH	06/25/15 00:27 / pbf
Surr: VPH Aliphatics Surrogate	89.0	%REC		70-130		MA-VPH	06/25/15 00:27 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	726	ug/L		300	1000	SW8015M	07/01/15 23:01 / tmc
Surr: o-Terphenyl	88.0	%REC		40-140		SW8015M	07/01/15 23:01 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 19:05
DateReceived: 06/23/15
Matrix: Aqueous

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-006
Client Sample ID: EX-64_061815

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/25/15 01:34 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/25/15 01:34 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/25/15 01:34 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/25/15 01:34 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/25/15 01:34 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/25/15 01:34 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/25/15 01:34 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/25/15 01:34 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/25/15 01:34 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/25/15 01:34 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/25/15 01:34 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/25/15 01:34 / pbf
Surr: VPH Aromatics Surrogate	92.0	%REC		70-130		MA-VPH	06/25/15 01:34 / pbf
Surr: VPH Aliphatics Surrogate	90.0	%REC		70-130		MA-VPH	06/25/15 01:34 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	865	ug/L		300	1000	SW8015M	07/01/15 23:44 / tmc
Surr: o-Terphenyl	89.0	%REC		40-140		SW8015M	07/01/15 23:44 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task-G
Lab ID: B15062115-007
Client Sample ID: EX-34_061815

Revised Date: 07/07/15
Report Date: 07/02/15
Collection Date: 06/18/15 19:55
DateReceived: 06/23/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PETROLEUM HYDROCARBONS-VOLATILE							
Methyl tert-butyl ether (MTBE)	ND	ug/L		1.0	30	MA-VPH	06/25/15 02:41 / pbf
Benzene	ND	ug/L		0.50	5	MA-VPH	06/25/15 02:41 / pbf
Toluene	ND	ug/L		0.50	1000	MA-VPH	06/25/15 02:41 / pbf
Ethylbenzene	ND	ug/L		0.50	700	MA-VPH	06/25/15 02:41 / pbf
m+p-Xylenes	ND	ug/L		0.50		MA-VPH	06/25/15 02:41 / pbf
o-Xylene	ND	ug/L		0.50		MA-VPH	06/25/15 02:41 / pbf
Xylenes, Total	ND	ug/L		0.50	10000	MA-VPH	06/25/15 02:41 / pbf
Naphthalene	ND	ug/L		1.0	100	MA-VPH	06/25/15 02:41 / pbf
C9 to C10 Aromatics	ND	ug/L		20	1000	MA-VPH	06/25/15 02:41 / pbf
C5 to C8 Aliphatics	ND	ug/L		20	700	MA-VPH	06/25/15 02:41 / pbf
C9 to C12 Aliphatics	ND	ug/L		20	1000	MA-VPH	06/25/15 02:41 / pbf
Total Purgeable Hydrocarbons	ND	ug/L		20	1000	MA-VPH	06/25/15 02:41 / pbf
Surr: VPH Aromatics Surrogate	91.0	%REC		70-130		MA-VPH	06/25/15 02:41 / pbf
Surr: VPH Aliphatics Surrogate	91.0	%REC		70-130		MA-VPH	06/25/15 02:41 / pbf

- Note 1: The C5 to C8 Aliphatics value is corrected for aromatic constituents Benzene and Toluene.
- Note 2: The C9 to C12 Aliphatics value is corrected for aromatic constituents Ethylbenzene, m+p-Xylenes, o-Xylene and C9 to C10 Aromatics.

EXTRACTABLE PETROLEUM HYDROCARBONS-SCREEN							
Total Extractable Hydrocarbons	ND	ug/L		300	1000	SW8015M	07/02/15 00:27 / tmc
Surr: o-Terphenyl	88.0	%REC		40-140		SW8015M	07/02/15 00:27 / tmc

- Note: Total Extractable Hydrocarbons are defined as the total hydrocarbon responses regardless of elution time.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/07/15

Client: Kennedy Jenks Consultants

Report Date: 07/02/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: LCS-062415	Laboratory Control Sample				Run: SV5972.I_150624A				06/24/15 14:36
Benzene	4.72	ug/L	1.0	94	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	5.64	ug/L	1.0	113	68	131			
Bromodichloromethane	5.28	ug/L	1.0	106	67	138			
Bromoform	4.84	ug/L	1.0	97	64	136			
Bromomethane	5.12	ug/L	1.0	102	60	138			
Carbon tetrachloride	4.84	ug/L	1.0	97	61	144			
Chlorobenzene	5.44	ug/L	1.0	109	78	136			
Chlorodibromomethane	5.40	ug/L	1.0	108	72	136			
Chloroethane	4.24	ug/L	1.0	85	64	136			
Chloroform	4.76	ug/L	1.0	95	69	133			
Chloromethane	3.62	ug/L	1.0	72	63	149			
1,2-Dibromoethane	5.40	ug/L	1.0	108	75	131			
2-Chlorotoluene	5.48	ug/L	1.0	110	74	135			
Dibromomethane	5.60	ug/L	1.0	112	72	133			
1,2-Dichlorobenzene	5.48	ug/L	1.0	110	78	129			
4-Chlorotoluene	5.00	ug/L	1.0	100	79	135			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131			
Dichlorodifluoromethane	5.04	ug/L	1.0	101	55	141			
1,1-Dichloroethane	5.20	ug/L	1.0	104	72	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	57	146			
1,1-Dichloroethene	4.76	ug/L	1.0	95	66	142			
cis-1,2-Dichloroethene	5.12	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138			
1,2-Dichloropropane	5.16	ug/L	1.0	103	72	135			
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134			
2,2-Dichloropropane	4.96	ug/L	1.0	99	42	167			
1,1-Dichloropropene	5.04	ug/L	1.0	101	72	140			
cis-1,3-Dichloropropene	5.16	ug/L	1.0	103	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.32	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.16	ug/L	1.0	83	58	151			
Methylene chloride	4.08	ug/L	1.0	82	73	126			
Naphthalene	3.61	ug/L	1.0	72	55	139			
Styrene	5.36	ug/L	1.0	107	76	134			
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	72	132			
Tetrachloroethene	5.84	ug/L	1.0	117	78	137			
Toluene	5.32	ug/L	1.0	106	78	134			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	64	141			
1,1,2-Trichloroethane	5.32	ug/L	1.0	106	72	133			
Trichloroethene	5.40	ug/L	1.0	108	75	138			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/07/15

Client: Kennedy Jenks Consultants

Report Date: 07/02/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: LCS-062415	Laboratory Control Sample				Run: SV5972.I_150624A				06/24/15 14:36
Trichlorofluoromethane	5.00	ug/L	1.0	100	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.60	ug/L	1.0	132	60	140			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133			
Vinyl chloride	4.68	ug/L	1.0	94	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.28	ug/L	1.0	106	79	136			
Xylenes, Total	16.1	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	117	79	122			
Lab ID: MB-062415	Method Blank				Run: SV5972.I_150624A				06/24/15 15:33
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/07/15

Client: Kennedy Jenks Consultants

Report Date: 07/02/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: MB-062415	Method Blank				Run: SV5972.I_150624A				06/24/15 15:33
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	116	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
Benzene	5.32	ug/L	1.0	106	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	6.16	ug/L	1.0	123	68	131			
Bromodichloromethane	5.72	ug/L	1.0	114	67	138			
Bromoform	5.12	ug/L	1.0	102	64	136			
Bromomethane	4.68	ug/L	1.0	94	60	138			
Carbon tetrachloride	5.56	ug/L	1.0	111	61	144			
Chlorobenzene	5.76	ug/L	1.0	115	78	136			
Chlorodibromomethane	5.96	ug/L	1.0	119	72	136			
Chloroethane	4.36	ug/L	1.0	87	64	136			
Chloroform	5.36	ug/L	1.0	107	69	133			
Chloromethane	3.75	ug/L	1.0	75	63	149			
1,2-Dibromoethane	5.80	ug/L	1.0	116	75	131			
2-Chlorotoluene	5.56	ug/L	1.0	111	74	135			
Dibromomethane	5.96	ug/L	1.0	119	72	133			
1,2-Dichlorobenzene	5.32	ug/L	1.0	106	78	129			
4-Chlorotoluene	4.80	ug/L	1.0	96	79	135			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/07/15

Client: Kennedy Jenks Consultants

Report Date: 07/02/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MS	Sample Matrix Spike				Run: SV5972.I_150624A				06/24/15 20:23
1,3-Dichlorobenzene	5.16	ug/L	1.0	103	79	132			
1,4-Dichlorobenzene	5.12	ug/L	1.0	102	78	131			
Dichlorodifluoromethane	5.36	ug/L	1.0	107	55	141			
1,1-Dichloroethane	5.76	ug/L	1.0	115	72	130			
1,2-Dichloroethane	5.36	ug/L	1.0	107	57	146			
1,1-Dichloroethene	5.28	ug/L	1.0	106	66	142			
cis-1,2-Dichloroethene	5.72	ug/L	1.0	114	74	133			
trans-1,2-Dichloroethene	6.08	ug/L	1.0	122	76	138			
1,2-Dichloropropane	5.60	ug/L	1.0	112	72	135			
1,3-Dichloropropane	5.44	ug/L	1.0	109	75	134			
2,2-Dichloropropane	5.12	ug/L	1.0	102	42	167			
1,1-Dichloropropene	5.60	ug/L	1.0	112	72	140			
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	75	132			
trans-1,3-Dichloropropene	5.60	ug/L	1.0	112	77	145			
Ethylbenzene	5.80	ug/L	1.0	116	78	131			
Methyl tert-butyl ether (MTBE)	4.48	ug/L	1.0	90	58	151			
Methylene chloride	4.64	ug/L	1.0	93	73	126			
Naphthalene	3.09	ug/L	1.0	62	55	139			
Styrene	5.64	ug/L	1.0	113	76	134			
1,1,1,2-Tetrachloroethane	6.08	ug/L	1.0	122	75	135			
1,1,2,2-Tetrachloroethane	5.24	ug/L	1.0	105	72	132			
Tetrachloroethene	6.32	ug/L	1.0	126	78	137			
Toluene	5.76	ug/L	1.0	115	78	134			
1,1,1-Trichloroethane	5.52	ug/L	1.0	110	64	141			
1,1,2-Trichloroethane	5.92	ug/L	1.0	118	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	5.16	ug/L	1.0	103	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.88	ug/L	1.0	138	60	140			
1,2,3-Trichloropropane	5.52	ug/L	1.0	110	67	133			
Vinyl chloride	4.84	ug/L	1.0	97	66	140			
m+p-Xylenes	11.7	ug/L	1.0	117	78	133			
o-Xylene	5.76	ug/L	1.0	115	79	136			
Xylenes, Total	17.5	ug/L	1.0	117	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	105	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	96	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A				06/24/15 20:52
Benzene	4.96	ug/L	1.0	99	71	133	7.0	20	
Bromobenzene	5.48	ug/L	1.0	110	78	133	3.7	20	
Bromochloromethane	5.80	ug/L	1.0	116	68	131	6.0	20	
Bromodichloromethane	5.36	ug/L	1.0	107	67	138	6.5	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/07/15

Client: Kennedy Jenks Consultants

Report Date: 07/02/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A			06/24/15 20:52	
Bromoform	5.04	ug/L	1.0	101	64	136	1.6	20	
Bromomethane	4.84	ug/L	1.0	97	60	138	3.4	20	
Carbon tetrachloride	5.16	ug/L	1.0	103	61	144	7.5	20	
Chlorobenzene	5.56	ug/L	1.0	111	78	136	3.5	20	
Chlorodibromomethane	5.72	ug/L	1.0	114	72	136	4.1	20	
Chloroethane	4.72	ug/L	1.0	94	64	136	7.9	20	
Chloroform	5.08	ug/L	1.0	102	69	133	5.4	20	
Chloromethane	3.82	ug/L	1.0	76	63	149	1.9	20	
1,2-Dibromoethane	5.72	ug/L	1.0	114	75	131	1.4	20	
2-Chlorotoluene	5.48	ug/L	1.0	110	74	135	1.4	20	
Dibromomethane	5.84	ug/L	1.0	117	72	133	2.0	20	
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129	3.7	20	
4-Chlorotoluene	4.88	ug/L	1.0	98	79	135	1.7	20	
1,3-Dichlorobenzene	5.40	ug/L	1.0	108	79	132	4.5	20	
1,4-Dichlorobenzene	5.24	ug/L	1.0	105	78	131	2.3	20	
Dichlorodifluoromethane	5.28	ug/L	1.0	106	55	141	1.5	20	
1,1-Dichloroethane	5.44	ug/L	1.0	109	72	130	5.7	20	
1,2-Dichloroethane	5.00	ug/L	1.0	100	57	146	6.9	20	
1,1-Dichloroethene	4.92	ug/L	1.0	98	66	142	7.1	20	
cis-1,2-Dichloroethene	5.44	ug/L	1.0	109	74	133	5.0	20	
trans-1,2-Dichloroethene	5.56	ug/L	1.0	111	76	138	8.9	20	
1,2-Dichloropropane	5.32	ug/L	1.0	106	72	135	5.1	20	
1,3-Dichloropropane	5.12	ug/L	1.0	102	75	134	6.1	20	
2,2-Dichloropropane	4.64	ug/L	1.0	93	42	167	9.8	20	
1,1-Dichloropropene	5.20	ug/L	1.0	104	72	140	7.4	20	
cis-1,3-Dichloropropene	5.08	ug/L	1.0	102	75	132	0.8	20	
trans-1,3-Dichloropropene	5.28	ug/L	1.0	106	77	145	5.9	20	
Ethylbenzene	5.56	ug/L	1.0	111	78	131	4.2	20	
Methyl tert-butyl ether (MTBE)	4.40	ug/L	1.0	88	58	151	1.8	20	
Methylene chloride	4.28	ug/L	1.0	86	73	126	8.1	20	
Naphthalene	3.53	ug/L	1.0	71	55	139	13	20	
Styrene	5.56	ug/L	1.0	111	76	134	1.4	20	
1,1,1,2-Tetrachloroethane	5.80	ug/L	1.0	116	75	135	4.7	20	
1,1,2,2-Tetrachloroethane	5.24	ug/L	1.0	105	72	132	0.0	20	
Tetrachloroethene	6.04	ug/L	1.0	121	78	137	4.5	20	
Toluene	5.48	ug/L	1.0	110	78	134	5.0	20	
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	64	141	7.5	20	
1,1,2-Trichloroethane	5.52	ug/L	1.0	110	72	133	7.0	20	
Trichloroethene	5.52	ug/L	1.0	110	75	138	3.6	20	
Trichlorofluoromethane	4.96	ug/L	1.0	99	58	139	4.0	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.52	ug/L	1.0	130	60	140	5.4	20	
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133	1.5	20	
Vinyl chloride	4.68	ug/L	1.0	94	66	140	3.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 07/07/15

Client: Kennedy Jenks Consultants

Report Date: 07/02/15

Project: BNSF Livingston Shop Complex - Task-G

Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R245041
Lab ID: B15061952-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150624A			06/24/15 20:52	
m+p-Xylenes	11.2	ug/L	1.0	112	78	133	4.9	20	
o-Xylene	5.48	ug/L	1.0	110	79	136	5.0	20	
Xylenes, Total	16.6	ug/L	1.0	111	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	99	76	127			
Surr: Toluene-d8			1.0	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/02/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Analytical Run: R245190
Lab ID: CCV_0624VAR02r-W	Continuing Calibration Verification Standard								06/24/15 09:25
1,2,4-Trimethylbenzene	20.8	ug/L	1.0	83	75	125			
2,2,4-Trimethylpentane	21.6	ug/L	1.0	86	75	125			
2-Methylpentane	22.2	ug/L	1.0	89	75	125			
n-Butylcyclohexane	20.6	ug/L	1.0	82	75	125			
n-Decane	19.5	ug/L	1.0	78	75	125			
Methyl tert-butyl ether (MTBE)	20.9	ug/L	1.0	84	75	125			
Benzene	21.1	ug/L	0.50	84	75	125			
Toluene	20.6	ug/L	0.50	83	75	125			
Ethylbenzene	20.9	ug/L	0.50	84	75	125			
m+p-Xylenes	42.2	ug/L	0.50	84	75	125			
o-Xylene	21.0	ug/L	0.50	84	75	125			
Naphthalene	20.0	ug/L	1.0	80	75	125			
n-Pentane	21.9	ug/L	1.0	88	75	125			
Surr: VPH Aromatics Surrogate			1.0	102	75	125			
Surr: VPH Aliphatics Surrogate			1.0	103	75	125			
Method: MA-VPH									Batch: R245190
Lab ID: LCS_0624VAR03r	Laboratory Control Sample				Run: VARIAN1_150624A				06/24/15 09:59
1,2,4-Trimethylbenzene	23.6	ug/L	1.0	94	70	130			
2,2,4-Trimethylpentane	23.7	ug/L	1.0	95	70	130			
2-Methylpentane	23.7	ug/L	1.0	95	70	130			
n-Butylcyclohexane	23.5	ug/L	1.0	94	70	130			
n-Decane	23.9	ug/L	1.0	96	70	130			
Methyl tert-butyl ether (MTBE)	23.2	ug/L	1.0	93	70	130			
Benzene	23.5	ug/L	0.50	94	70	130			
Toluene	22.9	ug/L	0.50	91	70	130			
Ethylbenzene	23.2	ug/L	0.50	93	70	130			
m+p-Xylenes	47.5	ug/L	0.50	95	70	130			
o-Xylene	23.5	ug/L	0.50	94	70	130			
Naphthalene	22.9	ug/L	1.0	92	70	130			
Total Purgeable Hydrocarbons	351	ug/L	20	94	70	130			
n-Pentane	23.9	ug/L	1.0	96	70	130			
Surr: VPH Aromatics Surrogate			1.0	90	70	130			
Surr: VPH Aliphatics Surrogate			1.0	94	70	130			
Lab ID: MBLK_0624VAR06r	Method Blank				Run: VARIAN1_150624A				06/24/15 11:39
Methyl tert-butyl ether (MTBE)	ND	ug/L	1.0						
Benzene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
Ethylbenzene	ND	ug/L	0.50						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/02/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: MA-VPH									Batch: R245190
Lab ID: MBLK_0624VAR06r	Method Blank				Run: VARIAN1_150624A				06/24/15 11:39
Naphthalene	ND	ug/L	1.0						
C9 to C10 Aromatics	ND	ug/L	20						
C5 to C8 Aliphatics	ND	ug/L	20						
C9 to C12 Aliphatics	ND	ug/L	20						
Total Purgeable Hydrocarbons	ND	ug/L	20						
Surr: VPH Aromatics Surrogate			1.0	89	70	130			
Surr: VPH Aliphatics Surrogate			1.0	88	70	130			
Lab ID: B15062001-001EMS	Sample Matrix Spike				Run: VARIAN1_150624A				06/24/15 14:26
Methyl tert-butyl ether (MTBE)	23.9	ug/L	1.0	96	70	130			
Benzene	24.5	ug/L	0.50	98	70	130			
Toluene	23.9	ug/L	0.50	96	70	130			
Ethylbenzene	24.3	ug/L	0.50	97	70	130			
m+p-Xylenes	49.6	ug/L	0.50	99	70	130			
o-Xylene	24.3	ug/L	0.50	97	70	130			
Naphthalene	23.7	ug/L	1.0	95	70	130			
Total Purgeable Hydrocarbons	364	ug/L	20	97	70	130			
Surr: VPH Aromatics Surrogate			1.0	95	70	130			
Surr: VPH Aliphatics Surrogate			1.0	92	70	130			
Lab ID: B15062001-001EMSD	Sample Matrix Spike Duplicate				Run: VARIAN1_150624A				06/24/15 14:59
Methyl tert-butyl ether (MTBE)	24.0	ug/L	1.0	96	70	130	0.6	20	
Benzene	24.5	ug/L	0.50	98	70	130	0.2	20	
Toluene	24.0	ug/L	0.50	96	70	130	0.3	20	
Ethylbenzene	24.2	ug/L	0.50	97	70	130	0.3	20	
m+p-Xylenes	49.5	ug/L	0.50	99	70	130	0.3	20	
o-Xylene	24.2	ug/L	0.50	97	70	130	0.5	20	
Naphthalene	24.0	ug/L	1.0	96	70	130	1.4	20	
Total Purgeable Hydrocarbons	358	ug/L	20	95	70	130	1.7	20	
Surr: VPH Aromatics Surrogate			1.0	94	70	130			
Surr: VPH Aliphatics Surrogate			1.0	92	70	130			

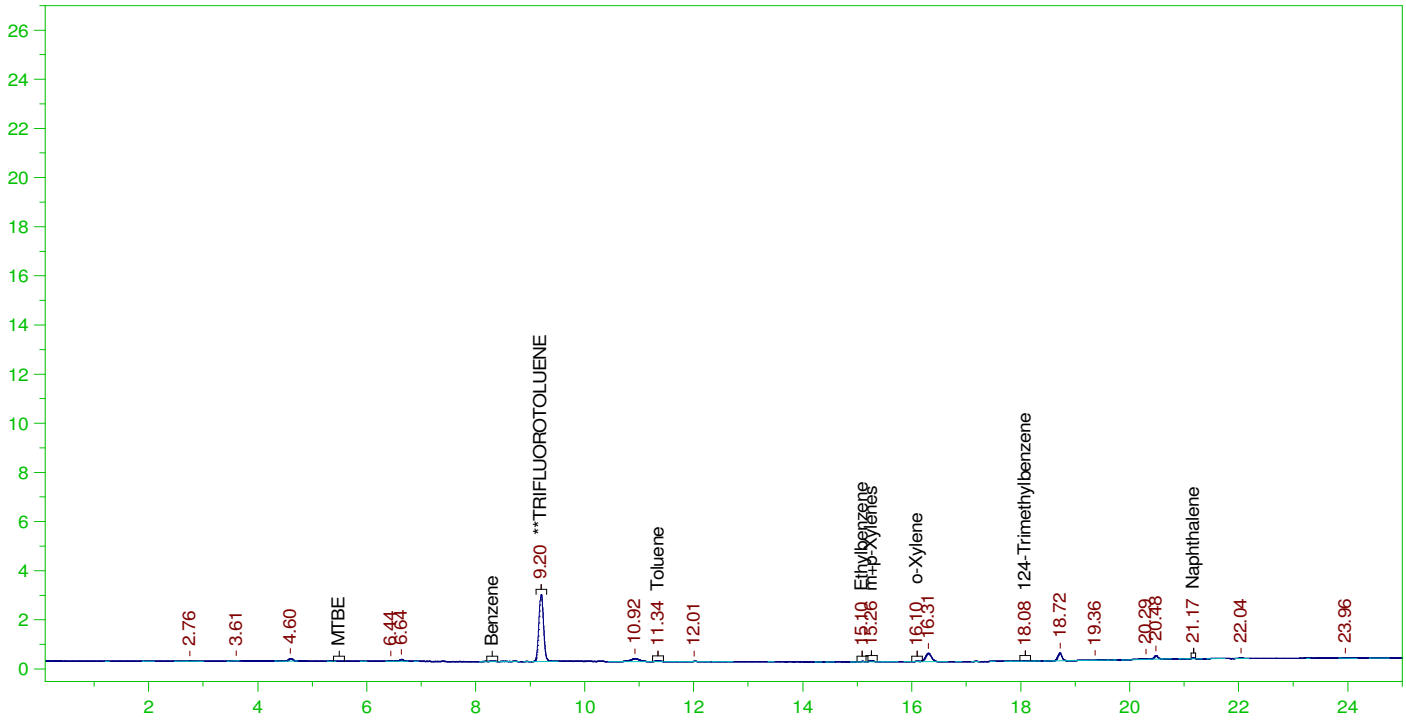
Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

TB1_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0009.RAW B15062115-001A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-001A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0009.RAW
Date & Time Acquired: 6/24/2015 1:19:10 PM
Method File: G:\Org\VAR\Methods\150513M2115-1.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:5880.373 C9-C10 Aromatics Amount: 3.317064

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.342	11.342	11.342	196	.5	U
Ethylbenzene	15.096	15.096	15.096	81	.5	U
m+p-Xylenes	15.259	15.259	15.259	253	.5	U
o-Xylene	16.097	16.097	16.097	92	.5	U
124-Trimethylbenzene	18.082	18.082	18.082	92	.5	U
Naphthalene	21.169	21.169	21.169	125	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.202	25.	22.218	88.87	70-130

TB1_061815

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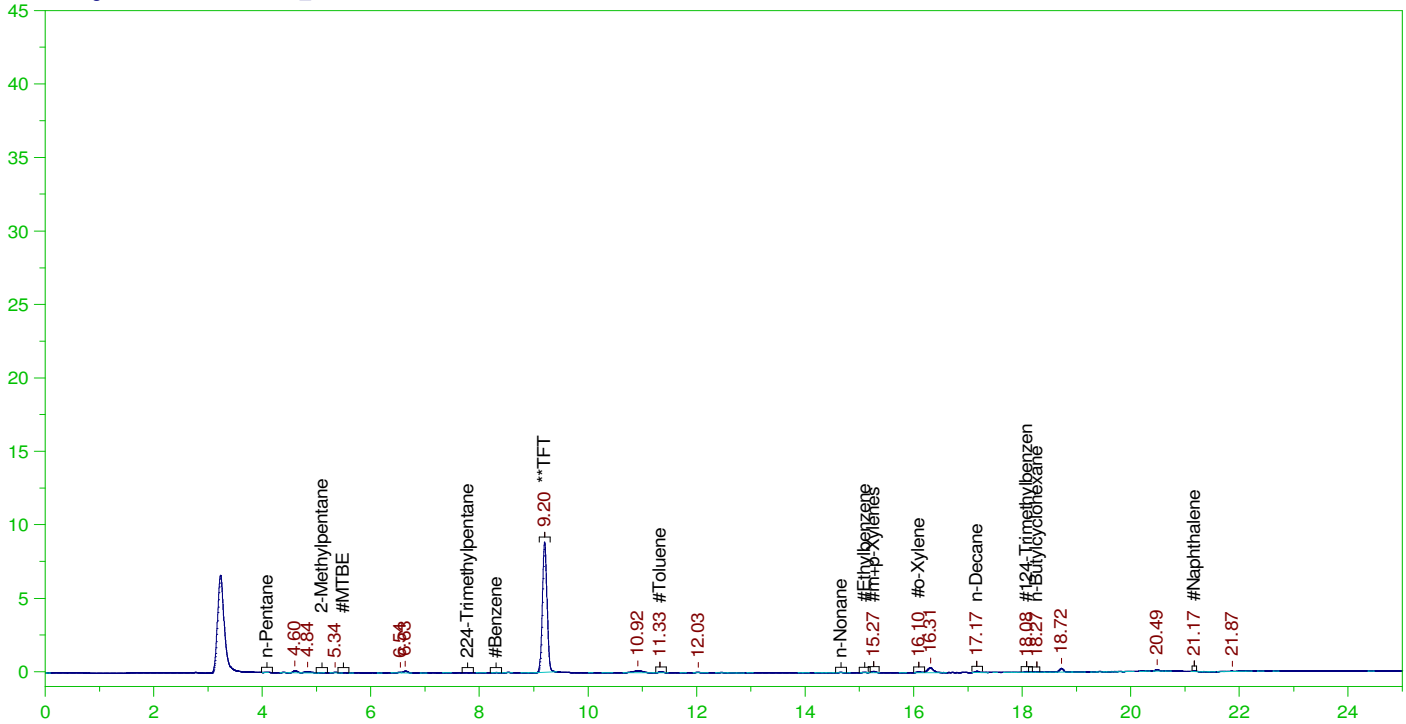


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-001A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0009.RAW
Date & Time Acquired: 6/24/2015 1:19:10 PM
Method File: G:\Org\VAR\Methods\150513M2115-1B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

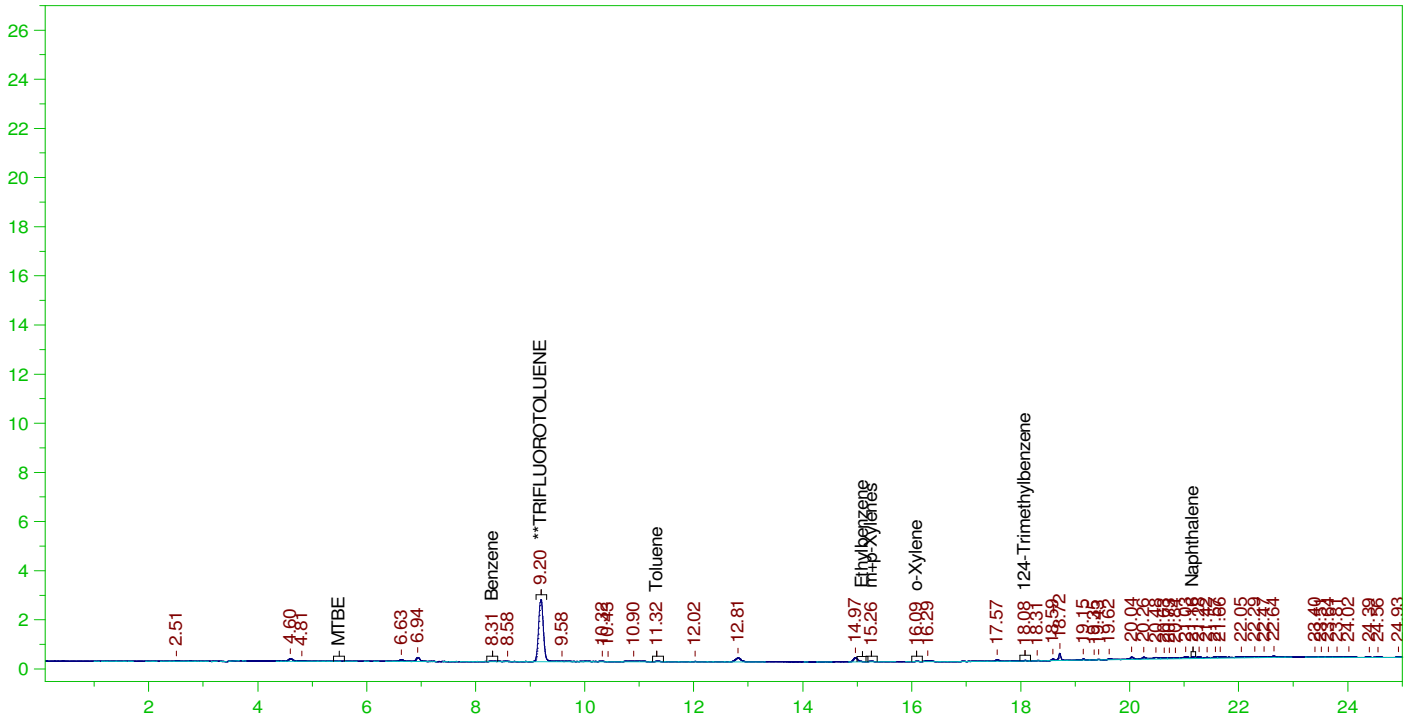
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.203	25.	22.516	90.06 -

GRO Area:7980.039 GRO Amount: 2.459485
TPH Area:13256.74 TPH Amount: 4.08579

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5573.176 C5-C8 Amount: 2.338457
C9-C12 Area:7098.024 C9-C12 Amount: 2.768718

D2_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0023.RAW B15062115-002A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-002A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0023.RAW
Date & Time Acquired: 6/24/2015 9:07:19 PM
Method File: G:\Org\VAR\Methods\150513M2115-2.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:6258.599 C9-C10 Aromatics Amount: 3.530418

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.312	8.312	8.312	111	.5	U
Toluene	11.318	11.318	11.318	130	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.258	15.258	15.258	137	.5	U
o-Xylene	16.089	16.089	16.089	77	.5	U
124-Trimethylbenzene	18.076	18.076	18.076	159	.5	U
Naphthalene	21.161	21.161	21.161	326	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	20.648	82.59	70-130

D2_061815

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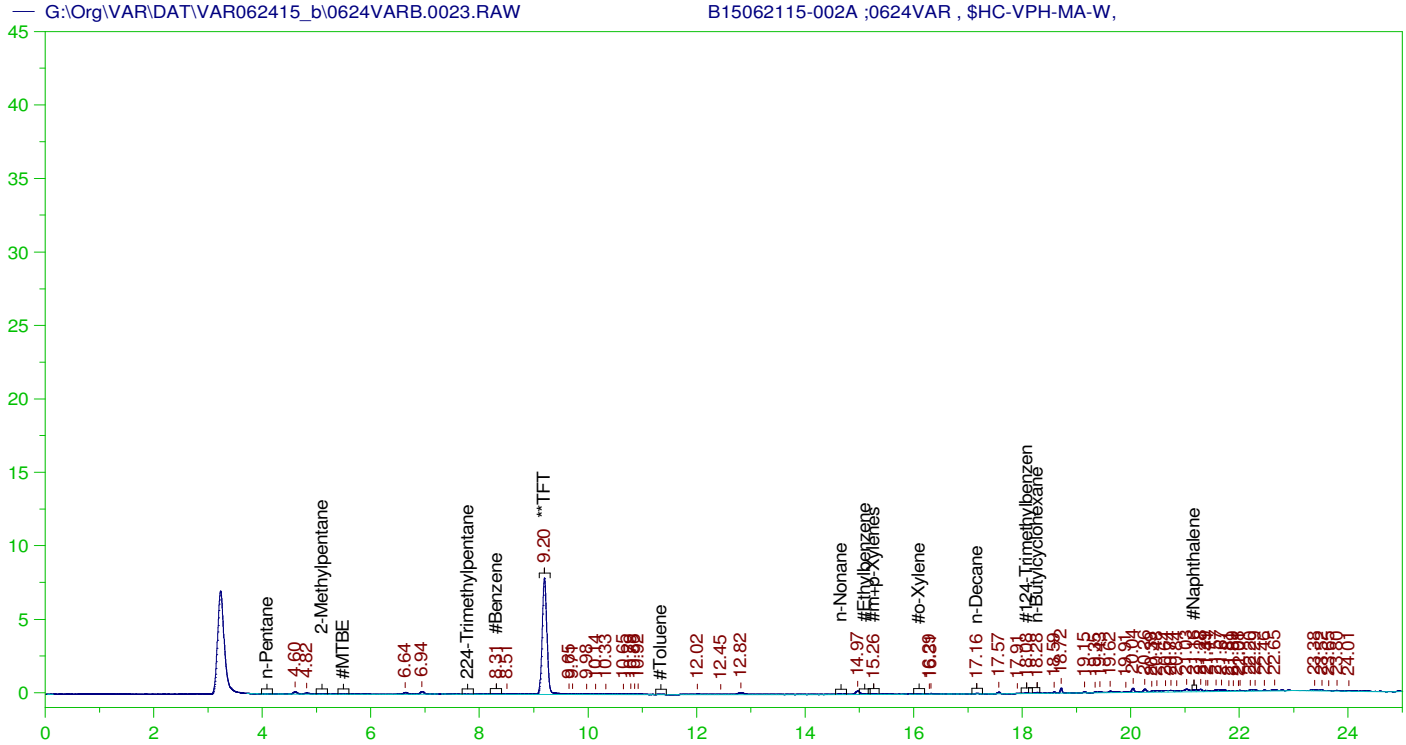


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-002A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0023.RAW
Date & Time Acquired: 6/24/2015 9:07:19 PM
Method File: G:\Org\VAR\Methods\150513M2115-2B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

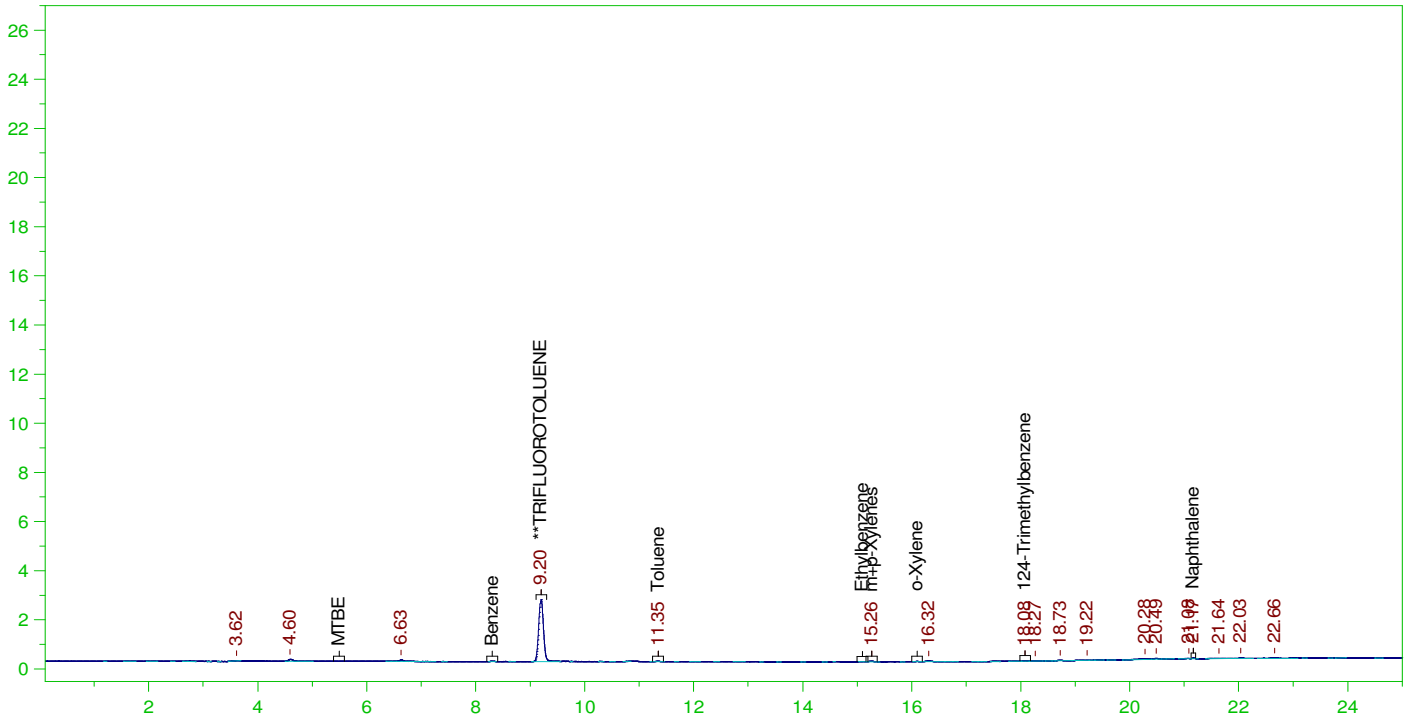
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	20.745	82.98 -

GRO Area:13989.74 GRO Amount: 4.311704
TPH Area:36311.54 TPH Amount: 11.19138

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:12417.22 C5-C8 Amount: 5.21016
C9-C12 Area:15034.49 C9-C12 Amount: 5.864488

EX-57_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0025.RAW B15062115-003A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

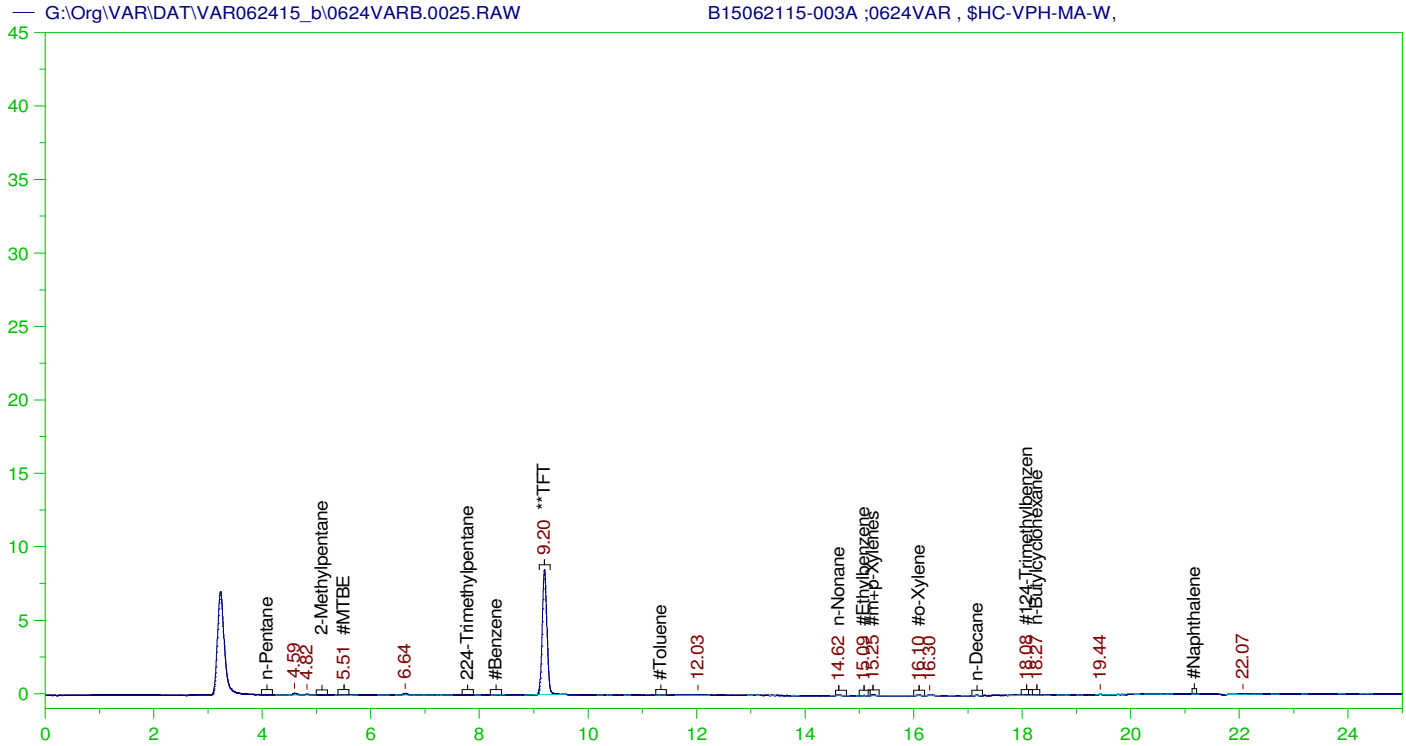
Sample Name: B15062115-003A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0025.RAW
Date & Time Acquired: 6/24/2015 10:14:08 PM
Method File: G:\Org\VAR\Methods\150513M2115-3.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1512.202 C9-C10 Aromatics Amount: 0.8530192

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.35	11.35	11.35	71	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.264	15.264	15.264	126	.5	U
o-Xylene	.	.	.		.5	U
124-Trimethylbenzene	18.08	18.08	18.08	88	.5	U
Naphthalene	21.167	21.167	21.167	78	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.2	25.	20.705	82.82	70-130

EX-57_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-003A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0025.RAW
Date & Time Acquired: 6/24/2015 10:14:08 PM
Method File: G:\Org\VAR\Methods\150513M2115-3B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

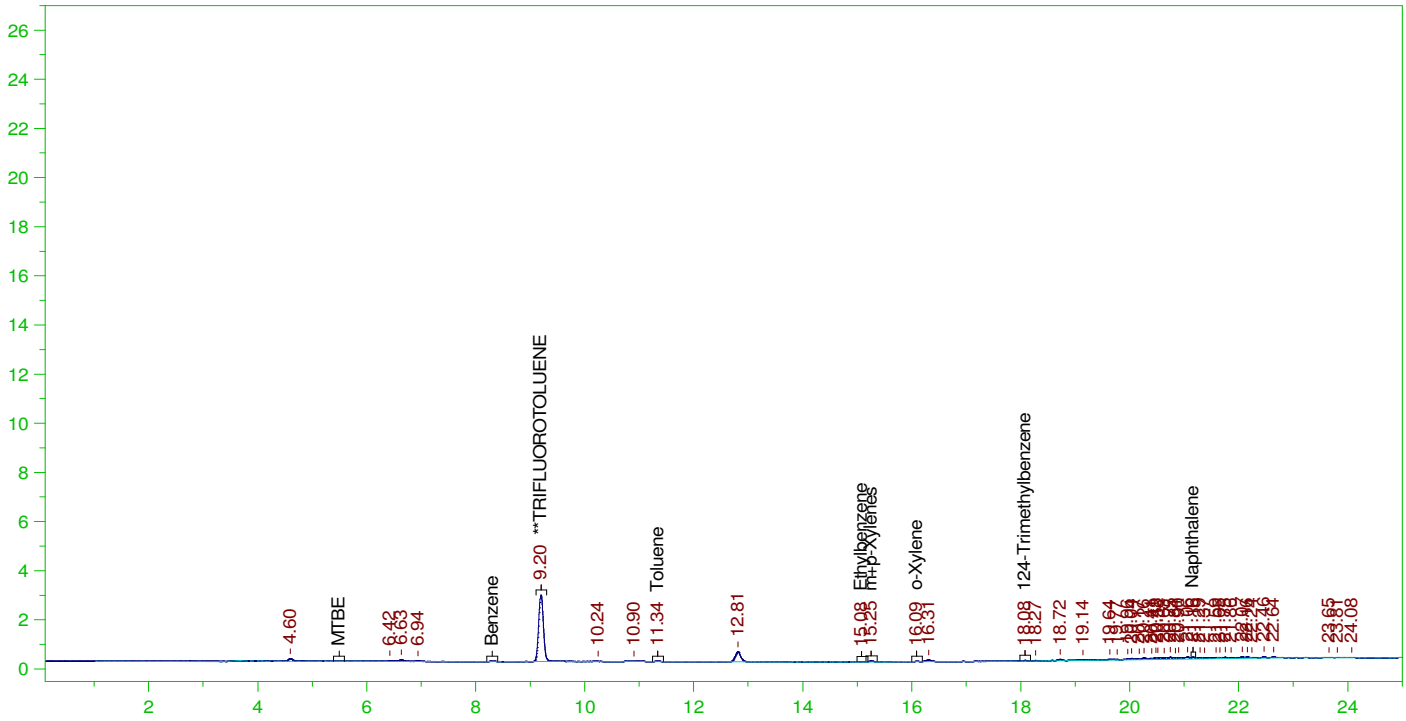
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	22.052	88.21 -

GRO Area:3421.82 GRO Amount: 1.054621
TPH Area:6182.512 TPH Amount: 1.905479

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:2906.422 C5-C8 Amount: 1.21951
C9-C12 Area:2694.988 C9-C12 Amount: 1.051231

HRO-22_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0027.RAW B15062115-004A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-004A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0027.RAW
Date & Time Acquired: 6/24/2015 11:21:05 PM
Method File: G:\Org\VAR\Methods\150513M2115-4.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

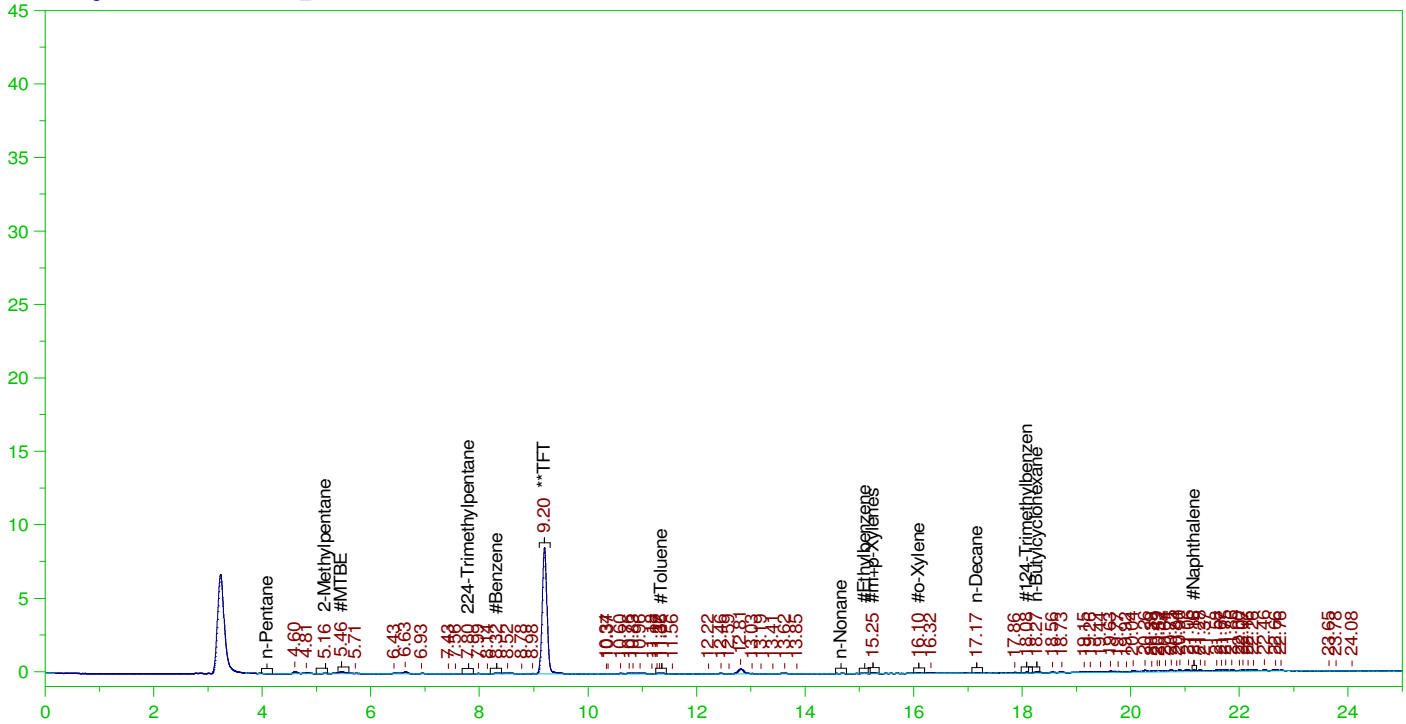
Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:5507.91 C9-C10 Aromatics Amount: 3.106961

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.34	11.34	11.34	85	.5	U
Ethylbenzene	15.081	15.081	15.081	69	.5	U
m+p-Xylenes	15.251	15.251	15.251	164	.5	U
o-Xylene	16.09	16.09	16.09	82	.5	U
124-Trimethylbenzene	18.078	18.078	18.078	99	.5	U
Naphthalene	21.162	21.162	21.162	339	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.198	25.	22.279	89.12	70-130

HRO-22_061815

G:\Org\VAR\DAT\VAR062415_b\0624VARB.0027.RAW B15062115-004A ;0624VAR , $HC-VPH-MA-W,



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-004A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0027.RAW
Date & Time Acquired: 6/24/2015 11:21:05 PM
Method File: G:\Org\VAR\Methods\150513M2115-4B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

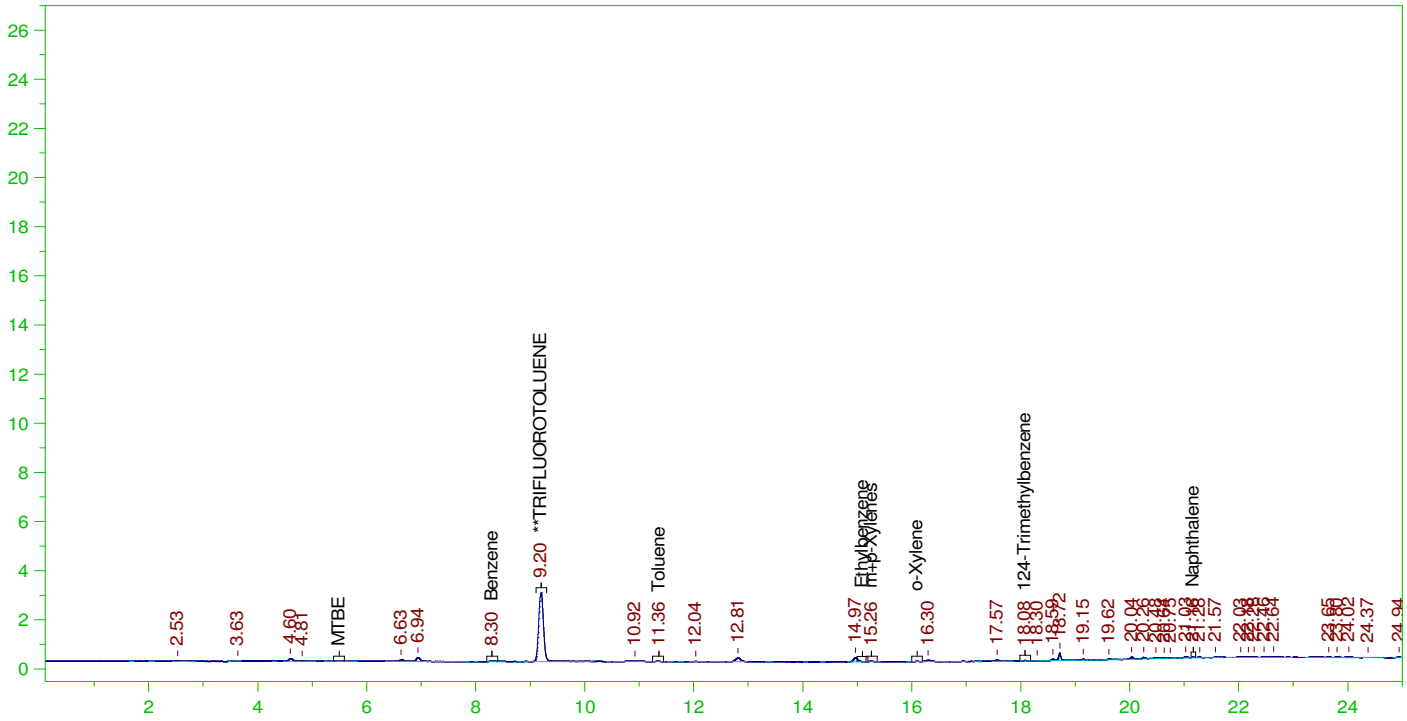
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.2	25.	22.766	91.07 -

GRO Area:17604.55 GRO Amount: 5.425805
TPH Area:35570.51 TPH Amount: 10.963

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:16711 C5-C8 Amount: 7.011794
C9-C12 Area:11434.43 C9-C12 Amount: 4.460217

EX-22_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0029.RAW B15062115-005A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-005A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0029.RAW
Date & Time Acquired: 6/25/2015 12:27:33 AM
Method File: G:\Org\VAR\Methods\150513M2115-5.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:4013.605 C9-C10 Aromatics Amount: 2.264038

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.301	8.301	8.301	85	.5	U
Toluene	11.363	11.363	11.363	67	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.259	15.259	15.259	125	.5	U
o-Xylene	.	.	.		.5	U
124-Trimethylbenzene	18.077	18.077	18.077	83	.5	U
Naphthalene	21.164	21.164	21.164	110	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.199	25.	22.973	91.89	70-130

EX-22_061815

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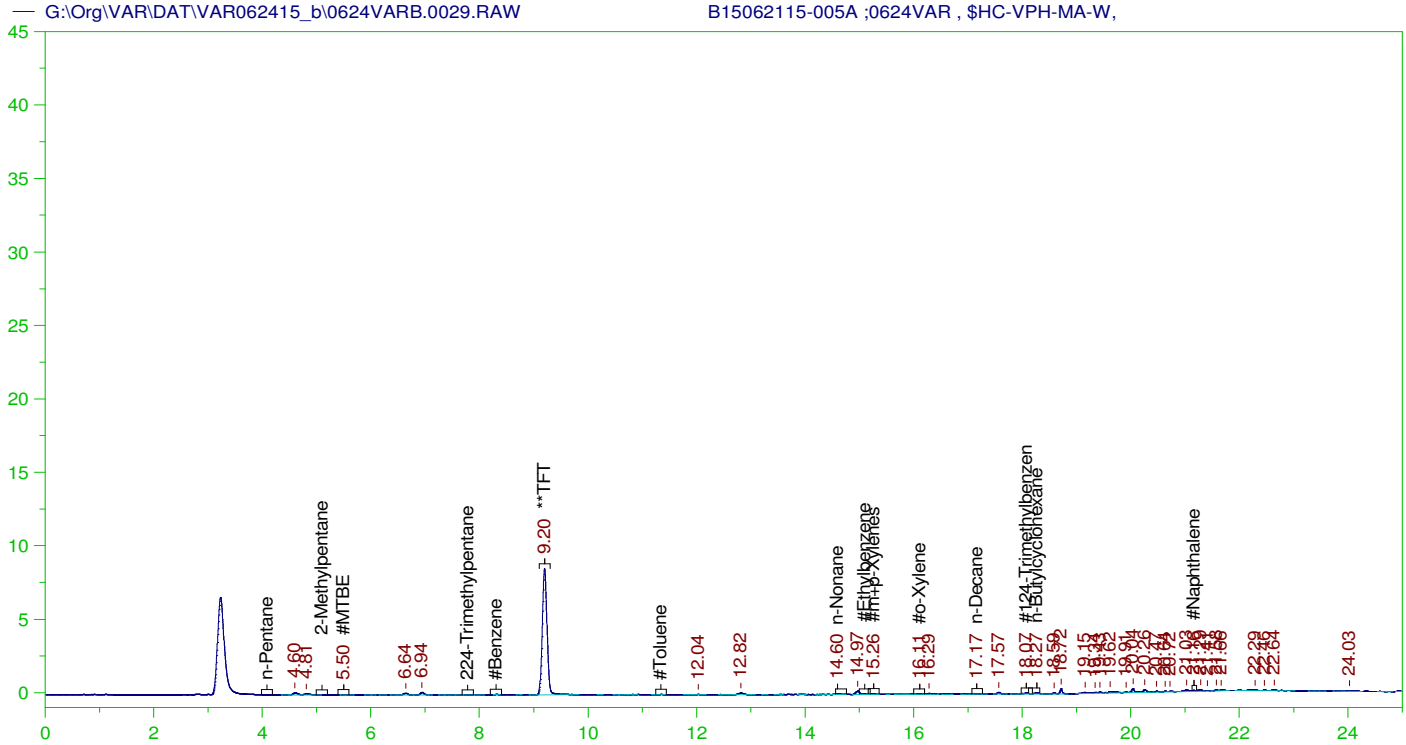


VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-005A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0029.RAW
Date & Time Acquired: 6/25/2015 12:27:33 AM
Method File: G:\Org\VAR\Methods\150513M2115-5B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

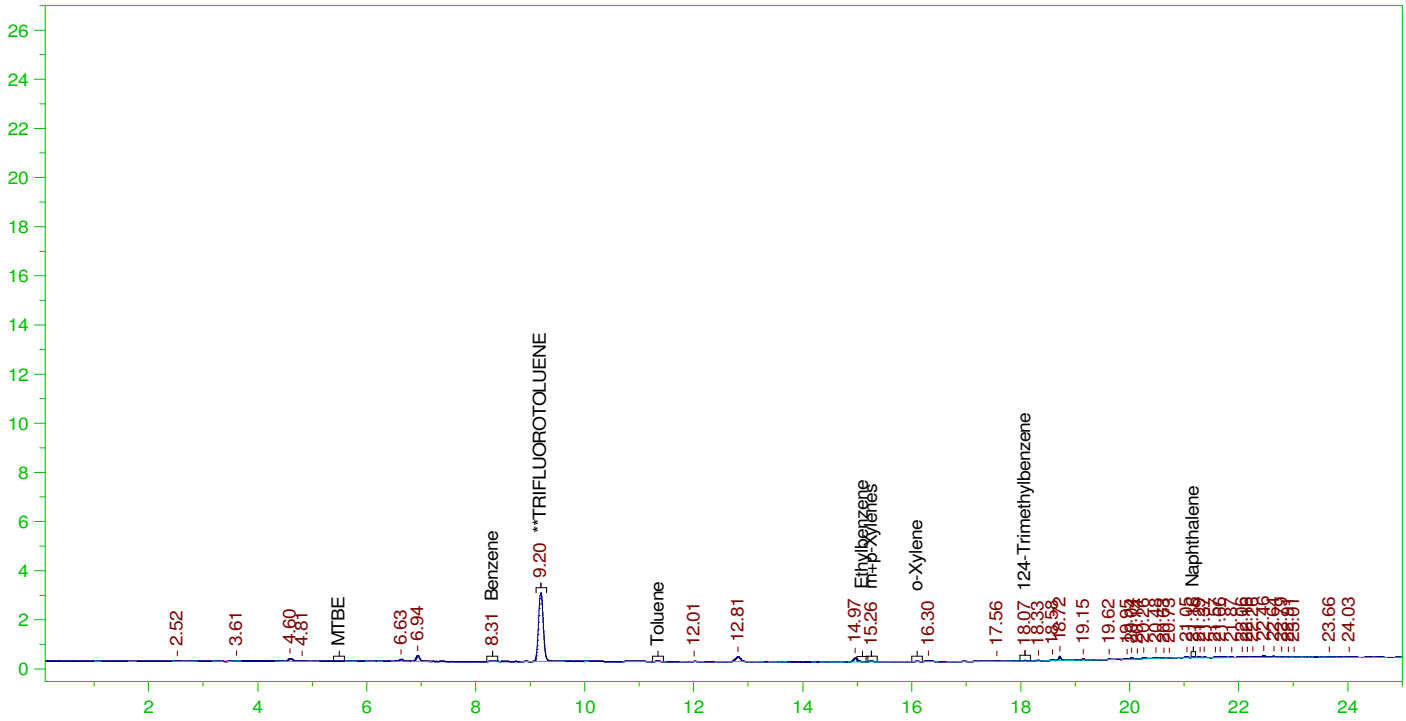
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.201	25.	22.334	89.34 -

GRO Area:7026.504 GRO Amount: 2.165601
TPH Area:20649.16 TPH Amount: 6.364168

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:5663.305 C5-C8 Amount: 2.376275
C9-C12 Area:10975.09 C9-C12 Amount: 4.281042

EX-64_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0031.RAW B15062115-006A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

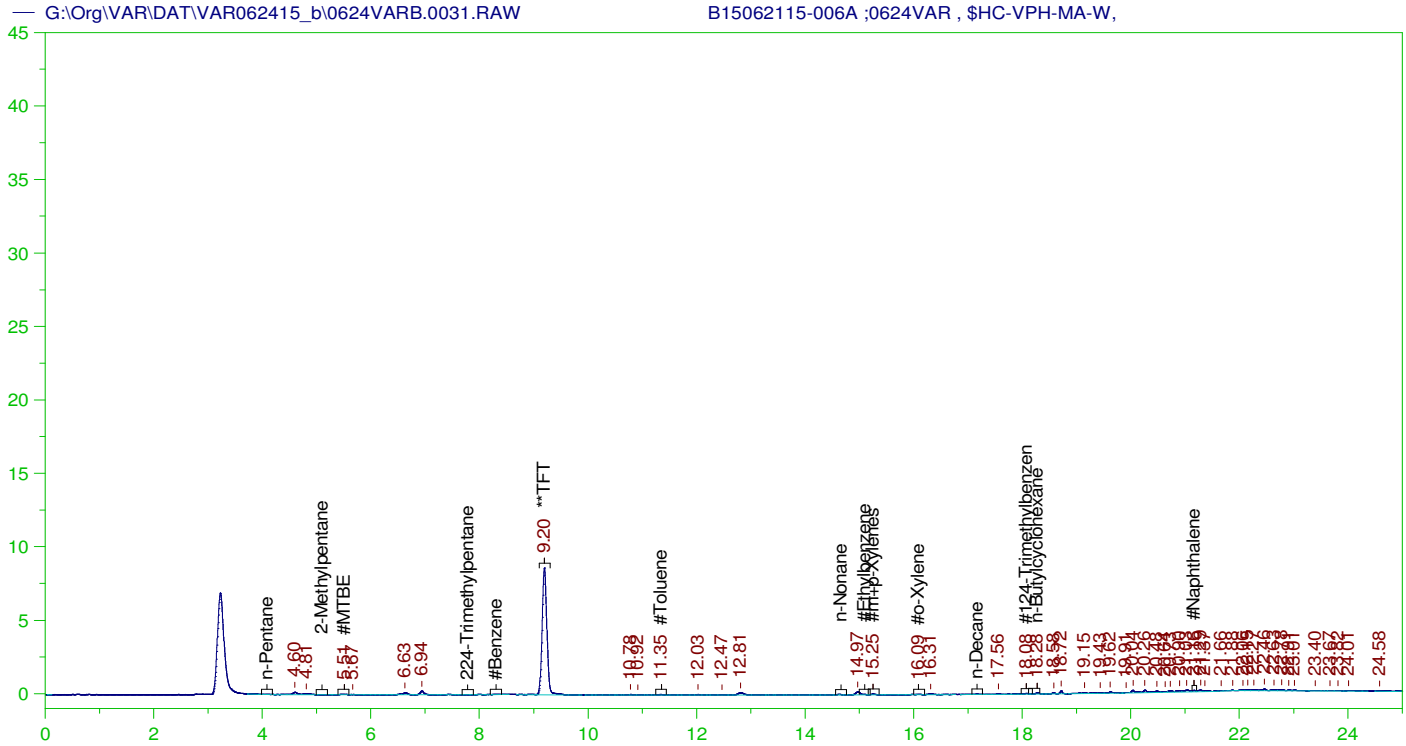
Sample Name: B15062115-006A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0031.RAW
Date & Time Acquired: 6/25/2015 1:34:00 AM
Method File: G:\Org\VAR\Methods\150513M2115-6.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:3273.787 C9-C10 Aromatics Amount: 1.846713

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	8.309	8.309	8.309	69	.5	U
Toluene	.	.	.		.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.257	15.257	15.257	142	.5	U
o-Xylene	.	.	.		.5	U
124-Trimethylbenzene	18.074	18.074	18.074	107	.5	U
Naphthalene	21.162	21.162	21.162	126	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.196	25.	22.945	91.78	70-130

EX-64_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-006A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0031.RAW
Date & Time Acquired: 6/25/2015 1:34:00 AM
Method File: G:\Org\VAR\Methods\150513M2115-6B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

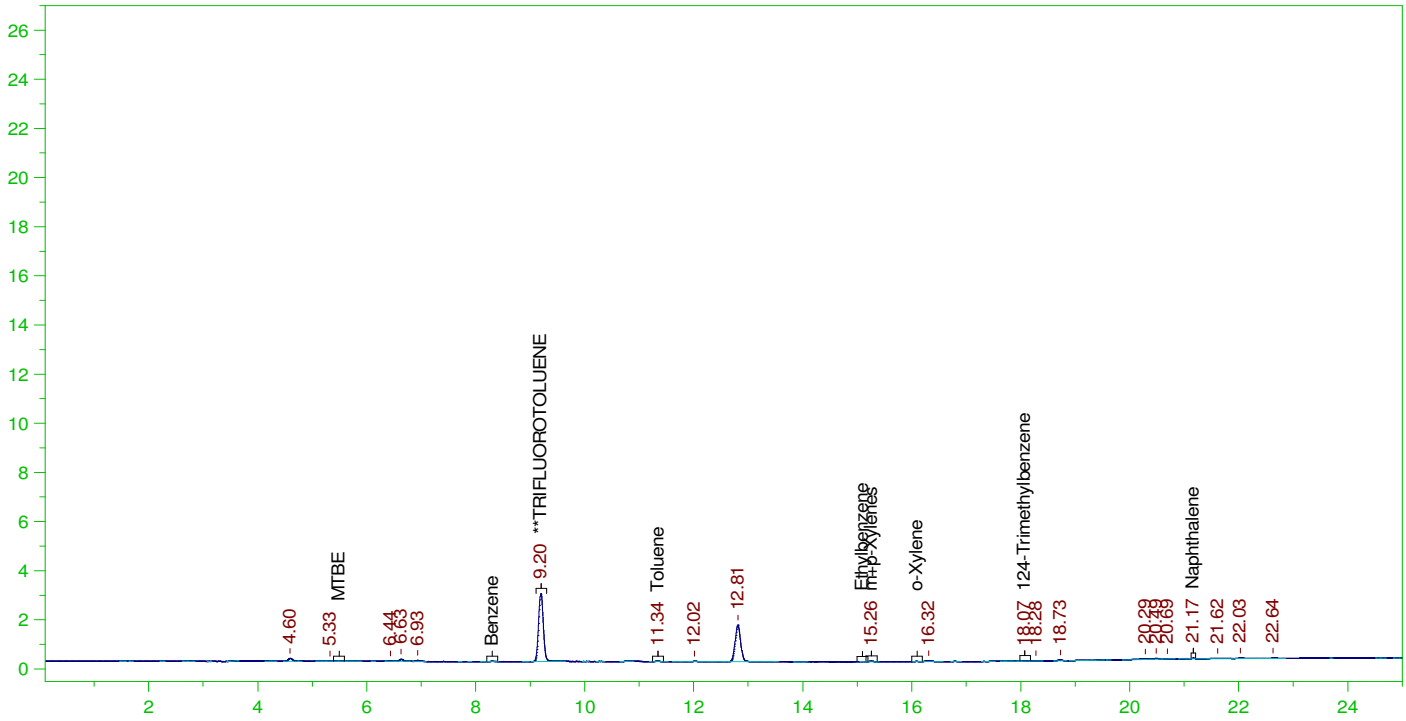
SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.198	25.	22.608	90.43 -

GRO Area:10760.23 GRO Amount: 3.316354
TPH Area:28138.22 TPH Amount: 8.67233

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:9507.25 C5-C8 Amount: 3.989162
C9-C12 Area:11081.14 C9-C12 Amount: 4.322409

EX-34_061815

G:\Org\VAR\DAT\VAR062415_b\0624VAR.0033.RAW B15062115-007A ;0624VAR , $HC-VPH-MA-W,



VPH AROMATICS PHOTOIONIZATION DETECTOR CHROMATOGRAM REPORT

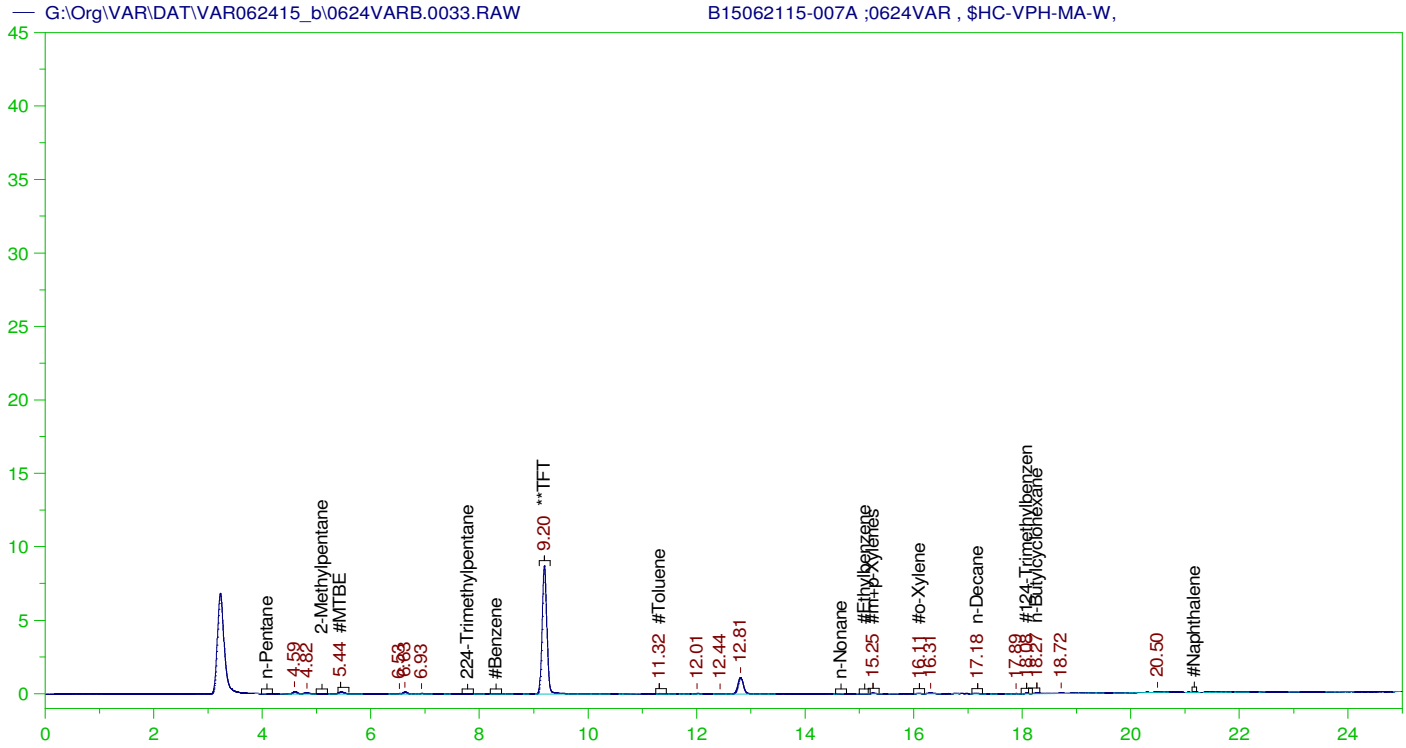
Sample Name: B15062115-007A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VAR.0033.RAW
Date & Time Acquired: 6/25/2015 2:41:04 AM
Method File: G:\Org\VAR\Methods\150513M2115-7.MET
Calibration File: G:\Org\VAR\Cals\150513MAS.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C9 to C10 Aromatic Hydrocarbons: 354.5529
Rt range for C9 to C10 Aromatics: 16.19865 to 21.12857
Aromatic Hydrocarbon Range Area and Quantitation:
C9-C10 Aromatics Area:1462.119 C9-C10 Aromatics Amount: 0.8247675

TARGET ANALYTES	RT	CAL RRT	RRT	AREA	AMOUNT	FLAG
MTBE	.	.	.		1.	U
Benzene	.	.	.		.5	U
Toluene	11.342	11.342	11.342	89	.5	U
Ethylbenzene	.	.	.		.5	U
m+p-Xylenes	15.259	15.259	15.259	130	.5	U
o-Xylene	.	.	.		.5	U
124-Trimethylbenzene	18.074	18.074	18.074	91	.5	U
Naphthalene	21.166	21.166	21.166	92	1.	U

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC	QC LIMITS
**TRIFLUOROTOLUENE	9.197	25.	22.686	90.74	70-130

EX-34_061815



VPH ALIPHATICS FLAME IONIZATION DETECTOR CHROMATOGRAM REPORT

Sample Name: B15062115-007A ;0624VAR , $HC-VPH-MA-W,
Raw File: G:\Org\VAR\DAT\VAR062415_b\0624VARB.0033.RAW
Date & Time Acquired: 6/25/2015 2:41:04 AM
Method File: G:\Org\VAR\Methods\150513M2115-7B.MET
Calibration File: G:\Org\VAR\Cals\150513MASB.CAL
Sample Weight: 5 Dilution: 1 S.A.: 1

Mean RF for C5 to C8 Aliphatic Hydrocarbons: 476.6541
Mean RF for C9 to C12 Aliphatic Hydrocarbons: 512.73
Mean RF for all calibrated compounds: 648.9195
Rt range for Gasoline Range Organics: 4.997074 to 17.26849
Rt range for C5 to C8 Aliphatic Hydrocarbons: 3.983728 to 14.5651
Rt range for C9 to C12 Aliphatic Hydrocarbons: 14.6151 to 21.12942

SURROGATE COMPOUND	RT	ACTUAL	MEASURED	%REC
**TFT	9.199	25.	22.684	90.73 -

GRO Area:13530.38 GRO Amount: 4.170125
TPH Area:18184.51 TPH Amount: 5.60455

Aliphatic Hydrocarbon Areas and Quantitations uncorrected for Aromatics:
C5-C8 Area:13745.06 C5-C8 Amount: 5.767312
C9-C12 Area:3678.325 C9-C12 Amount: 1.4348

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/02/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Batch: 90932
Lab ID: LCS-90932	Laboratory Control Sample				Run: GCFID-HP3-B_150629E				07/01/15 08:26
Total Extractable Hydrocarbons	5350	ug/L	300	86	60	140			
Surr: o-Terphenyl				89	40	140			
Lab ID: MB-90932	Method Blank				Run: GCFID-HP3-B_150629E				07/01/15 09:09
Total Extractable Hydrocarbons	ND	ug/L	300						
Surr: o-Terphenyl				83	40	140			
Lab ID: B15062098-002BMS	Sample Matrix Spike				Run: GCFID-HP3-B_150629E				07/01/15 10:37
Total Extractable Hydrocarbons	10000	ug/L	570	85	60	140			
Surr: o-Terphenyl				89	40	140			
Lab ID: B15062098-002BMSD	Sample Matrix Spike Duplicate				Run: GCFID-HP3-B_150629E				07/01/15 11:21
Total Extractable Hydrocarbons	10400	ug/L	570	88	60	140	3.6	20	
Surr: o-Terphenyl				88	40	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/02/15
Project: BNSF Livingston Shop Complex - Task-G
Work Order: B15062115

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8015M									Analytical Run: R245474
Lab ID: CCV_0701HP301r-W	Continuing Calibration Verification Standard								07/01/15 12:48
n-Nonane	198	ug/L		99	75	125			
n-Decane	194	ug/L		97	75	125			
n-Dodecane	192	ug/L		96	75	125			
n-Tetradecane	186	ug/L		93	75	125			
n-Hexadecane	191	ug/L		96	75	125			
n-Octadecane	192	ug/L		96	75	125			
n-Nonadecane	194	ug/L		97	75	125			
n-Eicosane	191	ug/L		96	75	125			
n-Docosane	191	ug/L		96	75	125			
n-Tetracosane	192	ug/L		96	75	125			
n-Hexacosane	190	ug/L		95	75	125			
n-Octacosane	191	ug/L		96	75	125			
n-Triacontane	194	ug/L		97	75	125			
n-Hexatriacontane	192	ug/L		96	75	125			
Surr: o-Terphenyl				95	75	125			
Lab ID: CCV_0701HP312r-W	Continuing Calibration Verification Standard								07/01/15 20:51
n-Nonane	202	ug/L		101	75	125			
n-Decane	199	ug/L		99	75	125			
n-Dodecane	197	ug/L		98	75	125			
n-Tetradecane	191	ug/L		95	75	125			
n-Hexadecane	196	ug/L		98	75	125			
n-Octadecane	196	ug/L		98	75	125			
n-Nonadecane	198	ug/L		99	75	125			
n-Eicosane	196	ug/L		98	75	125			
n-Docosane	196	ug/L		98	75	125			
n-Tetracosane	197	ug/L		99	75	125			
n-Hexacosane	195	ug/L		98	75	125			
n-Octacosane	196	ug/L		98	75	125			
n-Triacontane	200	ug/L		100	75	125			
n-Hexatriacontane	199	ug/L		99	75	125			
Surr: o-Terphenyl				97	75	125			

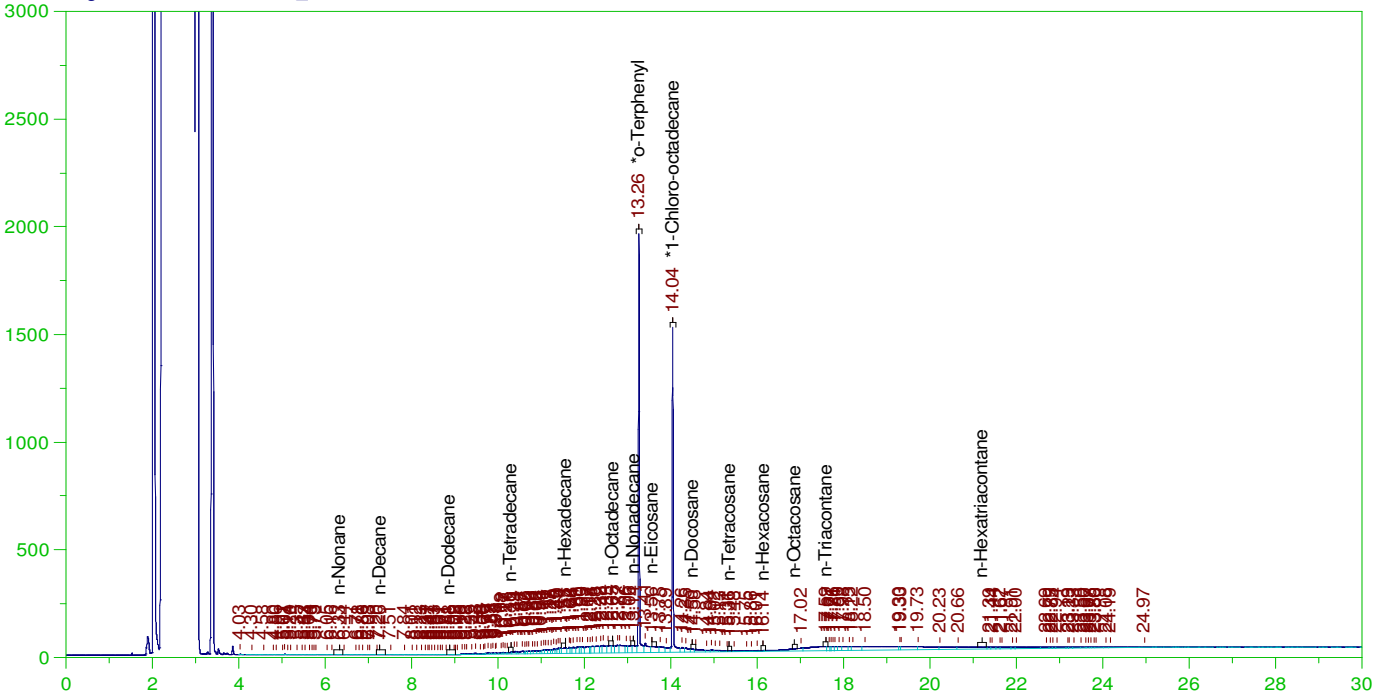
Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

D2_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0010.RAW B15062115-002C ;0701HP3 , $HC-EPH-SCRN-W, V10



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062115-002C ;0701HP3 , $HC-EPH-SCRN-W, V10
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0010.RAW
Date & Time Acquired: 7/1/2015 7:24:16 PM
Method File: g:\org\HP3\Methods\SR_SCN-070110-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

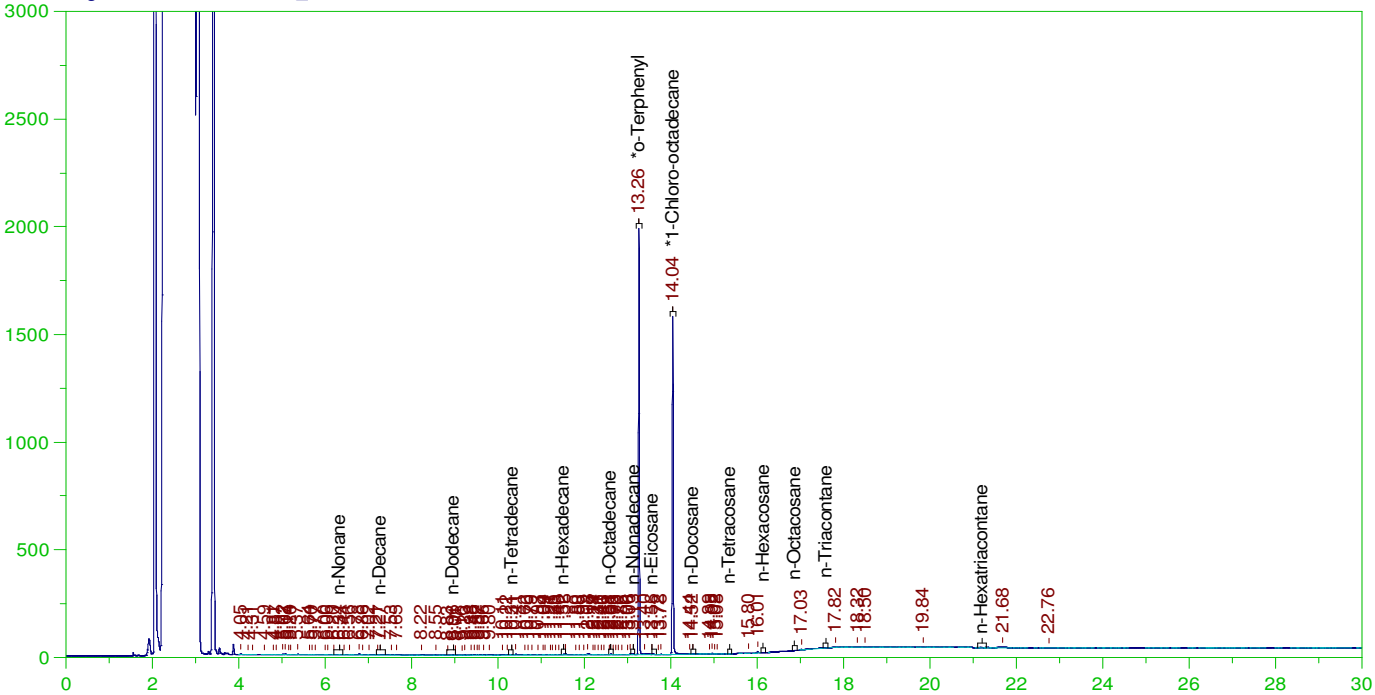
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.26	3362973	190.476	185.43	97.35	-
*1-Chloro-octadecane	14.043	2803303	190.476	201.831	105.96	-

DRO Area:6992532 DRO Amount: 429.8268
TEH Area:1.116035E+07 TEH Amount: 686.0203
C9-C18 Area:4324199 C9-C18 Amount: 265.871
C19-C36 Area:5758100 C19-C36 Amount: 353.8603

EX-57_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0011.RAW B15062115-003B ;0701HP3 , $HC-EPH-SCRN-W, V11



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062115-003B ;0701HP3 , $HC-EPH-SCRN-W, V11
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0011.RAW
Date & Time Acquired: 7/1/2015 8:07:54 PM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

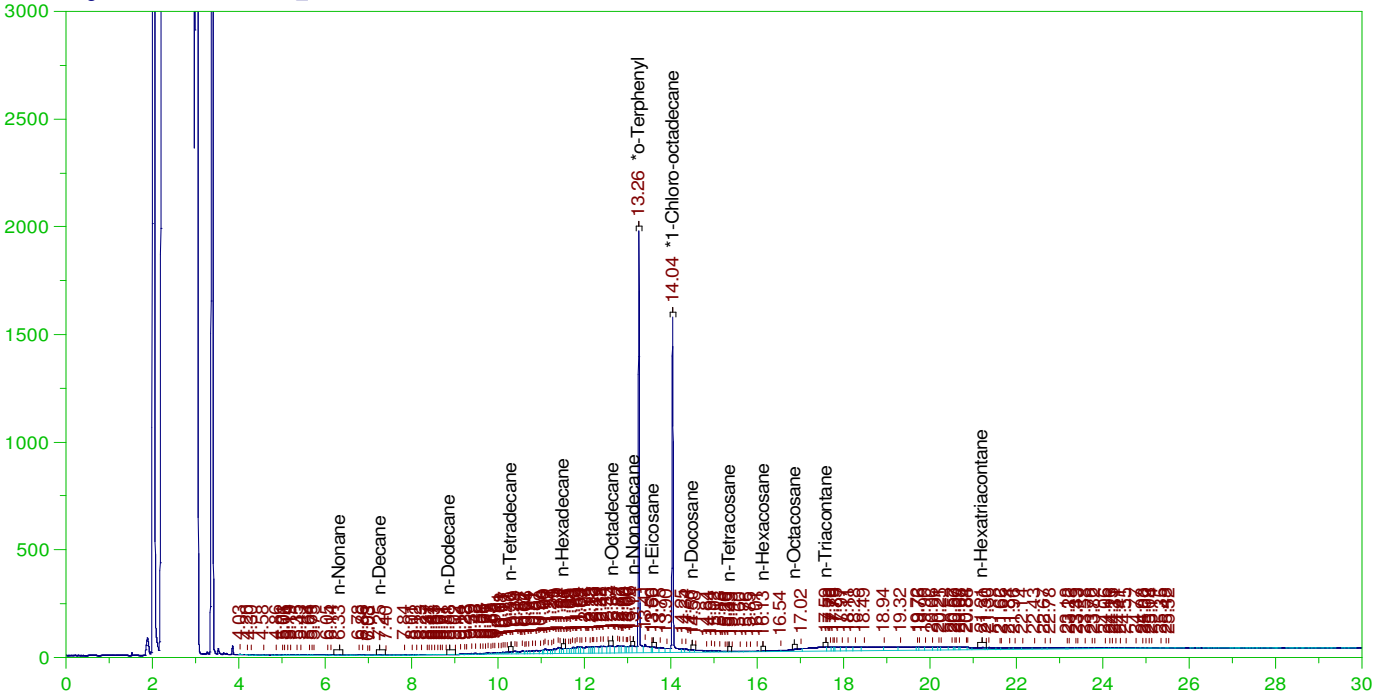
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.26	3195860	190.476	176.216	92.51	-
*1-Chloro-octadecane	14.044	2792341	190.476	201.042	105.55	-

DRO Area:247260.5 DRO Amount: 15.19895
TEH Area:430266.5 TEH Amount: 26.44822
C9-C18 Area:219110.6 C9-C18 Amount: 13.4719
C19-C36 Area:129842 C19-C36 Amount: 7.979356

HRO-22_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0014.RAW B15062115-004B ;0701HP3 , $HC-EPH-SCRN-W, V14



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062115-004B ;0701HP3 , $HC-EPH-SCRN-W, V14
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0014.RAW
Date & Time Acquired: 7/1/2015 10:18:00 PM
Method File: g:\org\HP3\Methods\SR_SCN-070114-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

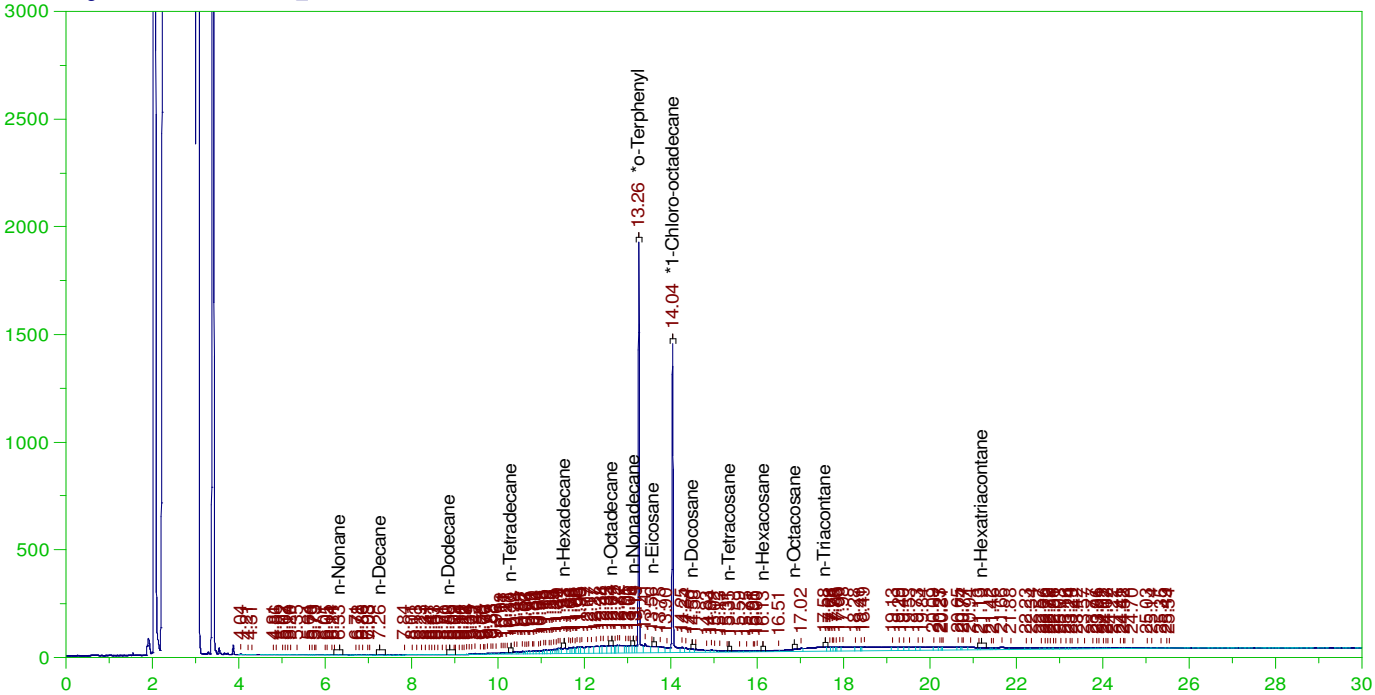
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.258	3385105	190.476	186.65	97.99	-
*1-Chloro-octadecane	14.041	2943767	190.476	211.944	111.27	-

DRO Area:6822963 DRO Amount: 419.4034
TEH Area:1.112487E+07 TEH Amount: 683.8389
C9-C18 Area:4456522 C9-C18 Amount: 274.0068
C19-C36 Area:5456220 C19-C36 Amount: 335.3085

EX-22_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0015.RAW B15062115-005C ;0701HP3 , $HC-EPH-SCRN-W, V15



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062115-005C ;0701HP3 , $HC-EPH-SCRN-W, V15
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0015.RAW
Date & Time Acquired: 7/1/2015 11:01:11 PM
Method File: g:\org\HP3\Methods\SR_SCN-070115-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

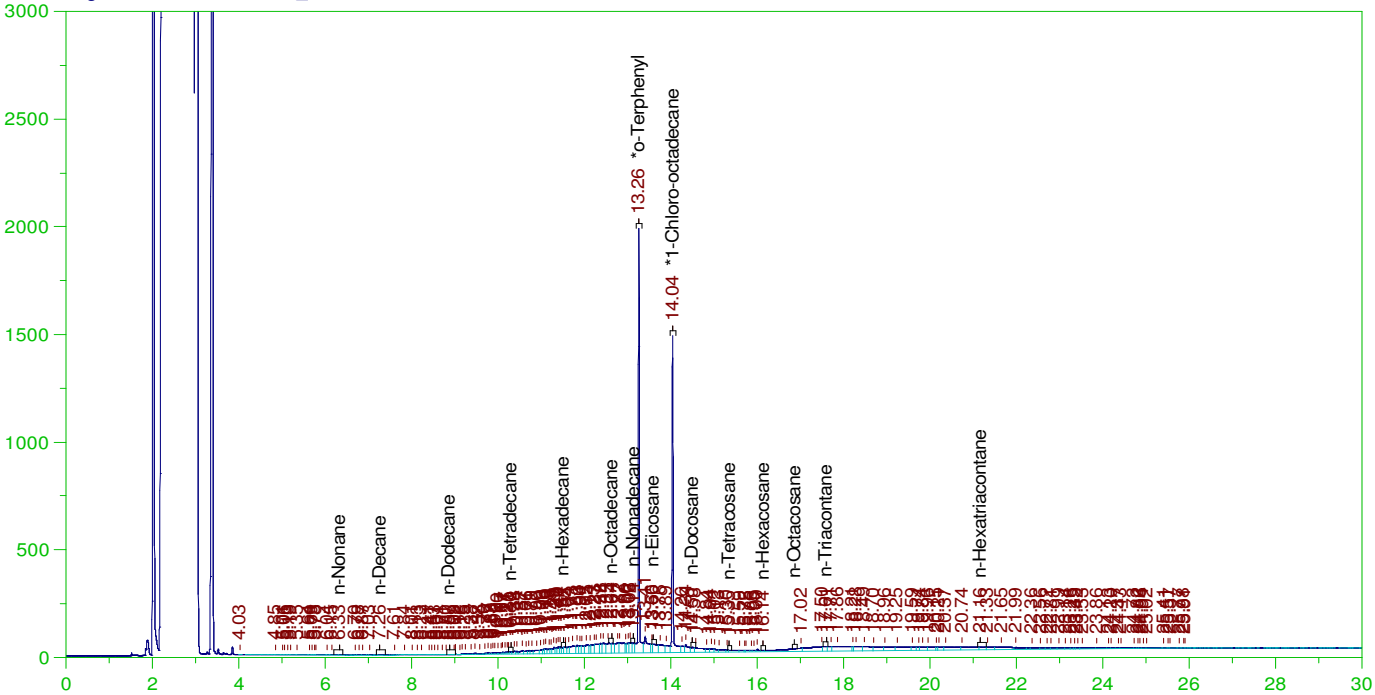
Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.256	3351447	190.476	184.794	97.02	-
*1-Chloro-octadecane	14.04	2722462	190.476	196.01	102.91	-

DRO Area:7286965 DRO Amount: 447.9254
TEH Area:1.180798E+07 TEH Amount: 725.8292
C9-C18 Area:4390397 C9-C18 Amount: 269.9412
C19-C36 Area:6109855 C19-C36 Amount: 375.4772

EX-64_061815 Batch ID: 90932

G:\org\HP3\DAT\HP3070115_b\0701HP3.0016.RAW B15062115-006B ;0701HP3 , $HC-EPH-SCRN-W, V16



EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062115-006B ;0701HP3 , $HC-EPH-SCRN-W, V16
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0016.RAW
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Method File: g:\org\HP3\Methods\SR_SCN-070115-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.257	3577555	190.476	197.262	103.56	-
*1-Chloro-octadecane	14.04	2917442	190.476	210.049	110.28	-

DRO Area:9493418 DRO Amount: 583.5547
TEH Area:1.407964E+07 TEH Amount: 865.467
C9-C18 Area:5516795 C9-C18 Amount: 339.1971
C19-C36 Area:7208381 C19-C36 Amount: 442.9863

EX-34_061815 Batch ID: 90932

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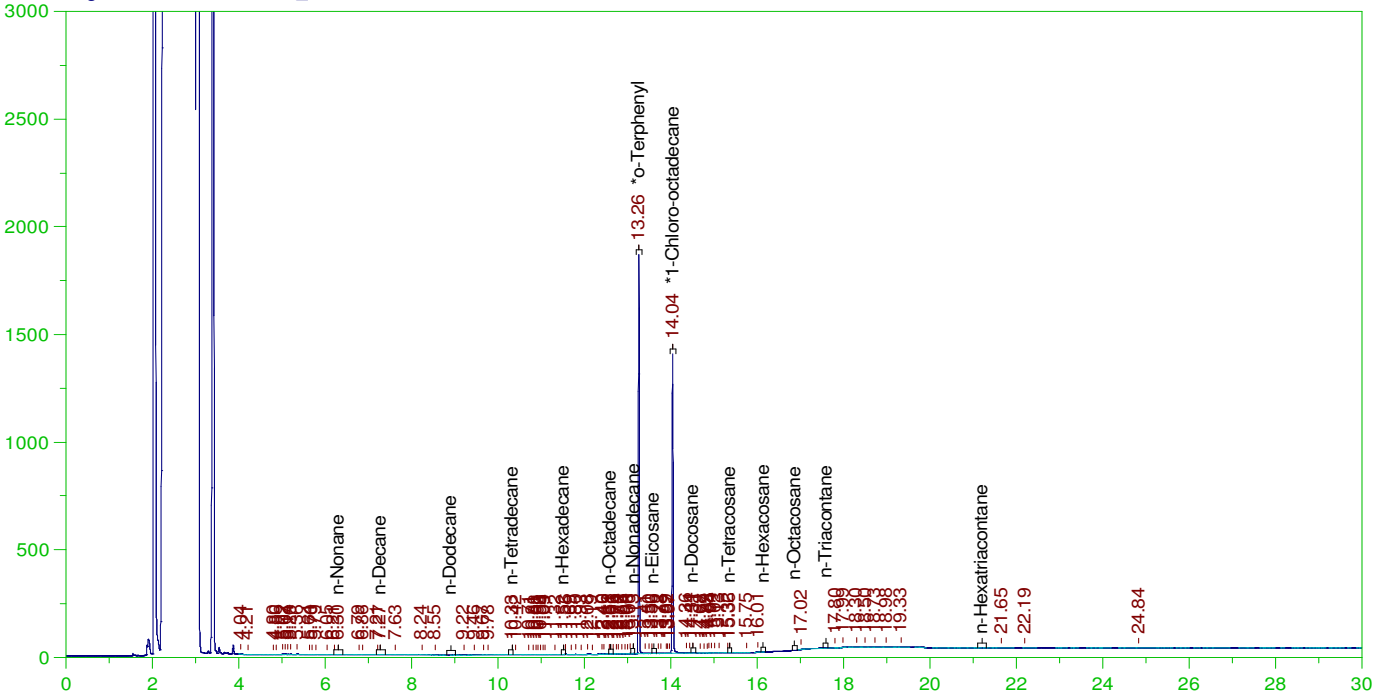

EXTRACTABLE PETROLEUM HYDROCARBONS (EPH) SCREENING ANALYSIS CHROMATOGRAM

Sample Name: B15062115-007B ;0701HP3 , $HC-EPH-SCRN-W, V17
Raw File: G:\org\HP3\DAT\HP3070115_b\0701HP3.0017.RAW
Date & Time Acquired: 7/2/2015 12:27:21 AM
Method File: g:\org\HP3\Methods\SR_SCN-NC-L%.met
Calibration File: G:\Org\HP3\Cals\SC140226NC.CAL
Sample Weight: 1.05 Dilution: 2 S.A.: 1

Mean RF for C9 to C18 Hydrocarbons: 30979.57
Mean RF for C19 to C36 Hydrocarbons: 30994.75
Mean RF for Total Extractable Hydrocarbons: 30987.16
Rt range for Diesel Range Organics: 7.187 to 17.634
Rt range for C9 to C18 Hydrocarbons: 6.202 to 13.197
Rt range for C19 to C36 Hydrocarbons: 13.232 to 21.307

SURROGATE COMPOUND	RT	AREA	ACTUAL	MEASURED	%REC	
*o-Terphenyl	13.258	3031874	190.476	167.174	87.77	-
*1-Chloro-octadecane	14.041	2490082	190.476	179.28	94.12	-

DRO Area:194709.5 DRO Amount: 11.96868
TEH Area:318285 TEH Amount: 19.56479
C9-C18 Area:90422.85 C9-C18 Amount: 5.559599
C19-C36 Area:171783.5 C19-C36 Amount: 10.55684

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15062115

Login completed by:	Tabitha Edwards	Date Received:	6/23/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/23/2015	Carrier name:	Return-UPS Ground N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temperature Blank temperature for Cooler 1 was 0.5°C, Cooler 3 was 0.4°C, and Cooler 4 was 0.5°C. Container temperature for Cooler 2 was 3.4°C.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - Task-G**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: EPH screen [followed by EPH fract. by MADEP Method and PAHs by EPA Method 8270 with selective ion monitoring (SIM) if screening level of 1,000 micrograms per liter (µg/L) or 1 milligram per liter (mg/L) is exceeded]

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 0.5°C TB 2: 3.4°C 3: 0.4°C TB 4: 0.5°C TB
Receipt Temp: SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	VPH (MADEP VPH)	MBTEXN	EPH Screen	NAP	Total Potassium	Total Nitrogen (TKN,Nitrate, Nitrite)	Total Phosphorous		SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	TB1_061815	6/18/15	1330	1 - W		X	X								X			B506211 5-001
2	D2_061815	6/18/15	0800	8 - W	X	X		X							X			002
3	EX-57_061815	6/18/15	1505	5 - W		X	X	X							X			003
4	HRO-22_061815	6/18/15	1635	5 -W		X	X	X							X			004
5	EX-22_061815	6/18/15	1750	8 - W	X	X		X							X			005
6	EX-64_061815	6/18/15	1905	5 - W		X	X	X							X			006
7	EX-34_061815	6/18/15	1955	5 - W		X	X	X							X			007
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LaROSE	6/22/15 1430	[signature]	SEALED for SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: KYLE LARSEN	Date/Time: 23 JUN 2015 9:00am	Signature: [signature]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Task I

Basement VOC Gas Investigation and Removal

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

TASK I: BASEMENT VOC GAS INVESTIGATION AND REMOVAL

WORK PERFORMED

Supplemental Investigation

BNSF was not required by DEQ to conduct work this reporting period under Task I. The *Task I Supplemental Investigation Report* (Task I SI Report) was submitted to DEQ on 12 June 2009 for review and approval. DEQ provided comments to the Task I SI Report via email on 17 March 2015, with instructions to submit a revised report following completion of additional indoor air sampling being conducted by WET.

WET, on behalf of the LRG, conducted additional indoor air/soil gas sampling in Livingston in March 2015. Since the required sampling was not completed by WET in March 2015, further sampling will be conducted by WET during fall 2015/winter 2016. Activities performed by WET are not part of the Spring 2005 SOW and are being reported to DEQ under separate cover. The *Additional Soil Vapor & Vapor Intrusion Sampling Report* prepared by WET, summarizing the March 2015 indoor air/soil gas sampling, was submitted to DEQ for review and approval on 22 July 2015.

Mitigation

None.

FIELD LOGS (ATTACHED)

None.

ANALYTICAL DATA (ATTACHED)

None.

OTHER DATA OBTAINED IN FIELD

None.

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UNUSUAL/UNANTICIPATED RESULTS

None.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

POTENTIAL IMPACTS TO SCHEDULE

Task I is currently on hold pending additional sampling to be conducted by WET in fall 2015/winter 2016. Data collected as part of the additional sampling will be compiled and incorporated into a Revised Task I SI Report.

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Task J

Surface Soil PAH and Surface Soil Petroleum Investigation

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

TASK J: SURFACE SOIL PAH AND SURFACE SOIL PETROLEUM INVESTIGATION

WORK PERFORMED

The *Task J Remedial Action Report for Surface Soil* was submitted to DEQ on 7 May 2014 for review and approval. No comments were received from DEQ this reporting period.

FIELD LOGS (ATTACHED)

None.

ANALYTICAL DATA (ATTACHED)

None

OTHER DATA OBTAINED IN FIELD

None.

UNUSUAL/UNANTICIPATED RESULTS

None.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

POTENTIAL IMPACTS TO SCHEDULE

None.

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Task L

Investigation of VOCs in Bedrock Aquifer(s)

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

TASK L: INVESTIGATION OF VOCS IN BEDROCK AQUIFER(S)

WORK PERFORMED

The *Task L Supplemental Investigation Report for Bedrock Aquifer(s)* (Task L SI Report) was submitted to DEQ on 23 April 2015 for review and approval. No comments were received from DEQ this reporting period.

Based on the findings presented in the Task L SI Report, a bedrock technical discussion session was held in Helena, Montana on 16 July 2015, between BNSF, Kennedy/Jenks Consultants, WET, Dr. Bernie Kueper, and DEQ and its consultant CDM Smith. The technical discussion included reviewing the Conceptual Site Model (CSM) presented in the Task L SI Report, identifying potential data gaps, and developing a path forward for remediation decision making. The following three data gaps were identified during the technical discussion session:

- The magnitude PCE impacts in the shallow bedrock at existing bedrock well locations 10-2 and 13-9 is not known
- The hydraulic conductivity of the shallow bedrock in the vicinity of existing bedrock wells 10-2 and 13-9 is not known.
- The feasibility of conducting injections into the shallow bedrock is not known, including the potential for retention of injected fluids in the shallow bedrock and migration of fluids into the overlying alluvial aquifer.

A *Bedrock Hydraulic Testing Work Plan* was prepared by Kennedy/Jenks Consultants to address the agreed upon data gaps and submitted to DEQ on 3 August 2015 for review and approval (next reporting period).

Quarterly groundwater sampling of new Task L alluvial aquifer and bedrock wells (14-series wells) was conducted in June 2015 as part of DEQ's GWMD-2R (see **Groundwater Monitoring)**.

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Pressure Transducers

In January 2015, DEQ approved modifications to the transducer monitoring program (see Quarterly Status Report No. 38). The revised transducer monitoring program is summarized below.

Bedrock Well	Alluvial Aquifer Well	Transducer Installation Date	Comment
10-1	ISCO-24R	June 2013	10 feet apart
10-2	ISCO-1 and ISCO-2	June 2013	37 feet northeast of well 10-2 (ISCO-1) and 14 feet southwest of well 10-2 (ISCO-2)
13-8	13-1	January 2014	8 feet apart
13-9	E-7	January 2014	7 feet apart
13-10	13-5	January 2014	6 feet apart
14-2	ISCO-7	January 2015	7 feet apart
14-3	13-4	January 2015	23 feet apart
14-4	14-5	January 2015	7.5 feet apart
14-6	89-3	January 2015	14 feet apart

Per *Revised Addendum No. 4 to DEQ Version of Task L Supplemental Investigation Work Plan for Bedrock Aquifer(s)* dated November 2014, transducers data will be collected from the 14-series well pairs for a period of at least 1 year. Download events during this reporting period occurred on 4 and 26 May, 30 June, and 29 July 2015. In May 2015, BNSF received DEQ's verbal approval to reduce the download events from twice a month to one a month. The transducer data are periodically provided to DEQ under separate cover.

FIELD LOGS (ATTACHED)

See **Groundwater Monitoring** for Groundwater Purge and Sample Forms for groundwater samples collected from Task L wells in June 2015.

ANALYTICAL DATA (ATTACHED)

See **Groundwater Monitoring** for groundwater samples collected from Task L wells in June 2015.

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OTHER DATA OBTAINED IN FIELD

None.

Transducer data are being provided to DEQ under separate cover.

UNUSUAL/UNANTICIPATED RESULTS

None.

As noted below, the pH and geochemistry at well 14-2 will be monitored over time to identify any trend in this data set.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

Groundwater chemistry and pH of the groundwater sample collected from well 14-2 in January 2015 suggested the cement grout used in the well construction may be influencing the groundwater analytical results (see Quarterly Status Report No. 38). Following the initial development of this low yield well in December 2014, additional well development was conducted in January, February, and March 2015 (see Quarterly Status Report No. 39). The anomalous groundwater geochemistry from well 14-2 continues to be monitored during purging events for groundwater sampling. During the June 2015 sampling event, a continued decrease in total dissolved solids, alkalinity, and hardness was observed; however, the pH remains high (see Table L-1). The well pH and geochemistry will continue to be monitored over time to identify any trend in this data set.

It is recommended that additional periodic development of well 14-2 be conducted over the next few quarters to mitigate the potential effects of the cement grout.

POTENTIAL IMPACTS TO SCHEDULE

None.

The next quarterly groundwater monitoring event for the 14-series wells is scheduled for September 2015 (next reporting period), unless otherwise directed by DEQ.

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TABLE L-1

WELL 14-2 WATER CHEMISTRY AND pH
Burlington Northern Livingston Shop Complex

WELL 14-2 Date	Initial Development	GWMD-2R 8-Jan-15	Redevelopment 13-Feb-15	 14-Feb-15	 4-Mar-15	GWMD-2R 17-Mar-15	GWMD-2R 9-Jun-15
Physical Properties (mg/L)							
Solids, Total Dissolved TDS @ 180 C	--	**1,650**	--	--	--	**889**	**586**
Inorganics (mg/L)							
Alkalinity, Total as CaCO3	--	**2,260**	--	--	--	**881**	**483**
Bicarbonate as HCO3	--	<4	--	--	--	<4	<4
Carbonate as CO3	--	**545**	--	--	--	**41**	**51**
Chloride	--	**8**	--	--	--	**23**	**19**
Sulfate	--	**8**	--	--	--	**28**	**34**
Hardness as CaCO3	--	**1,830**	--	--	--	**711**	**407**
Nutrients (mg/L)							
Nitrogen, Nitrate+Nitrite as N	--	**0.25**	--	--	--	**0.60**	**0.53**
Metals, Dissolved (mg/L)							
Calcium	--	**734**	--	--	--	**285**	**163**
Iron	--	<0.04	--	--	--	<0.03	<0.03
Magnesium	--	<1	--	--	--	<1	<1
Potassium	--	**34**	--	--	--	**8**	**7**
Sodium	--	**79**	--	--	--	**74**	**64**
pH (field measurement)	**13.03**	**13.24**	**11.66**	**11.56**	**12.00**	**12.58**	**12.62**

Notes:
"--" denotes not analyzed.
mg/L - milligrams per liter.
Reported values shown in bold.

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Groundwater Monitoring

DEQ's Revised Groundwater Monitoring Program Directive No. 2

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

GROUNDWATER MONITORING

WORK PERFORMED

In December 2012, DEQ combined the Task F (alluvial) and Task L (bedrock) groundwater monitoring programs under DEQ's Groundwater Monitoring Program Directive No. 1 (GWMD-1). GWMD-1 included both quarterly and semiannual sampling requirements. Upon completion of four quarters of sampling in September 2013 under GWMD-1, Kennedy/Jenks Consultants requested a modification to GWMD-1 in November 2013. DEQ issued GWMD-2 in a letter to BNSF dated 16 December 2013. Upon completion of four quarters of sampling in September 2014 under GWMD-2, Kennedy/Jenks Consultants submitted *Groundwater Monitoring Program Directive No. 2 – Request for Modification of Groundwater Sampling Frequency and Analyses, Burlington Northern Livingston Shop Complex, Livingston, Montana* (Proposal) dated 3 December 2014 to DEQ for review and approval. DEQ provided its verbal approval to modify the groundwater sampling program on 9 December 2014 and provided a formal approval in its letter to BNSF dated 23 December 2014. A summary of the revised groundwater monitoring program (GWMD-2R) is attached.

Quarterly/Semiannual Groundwater Monitoring

Quarterly groundwater sampling of new 14-series alluvial aquifer and bedrock wells and semiannual sampling of other Facility alluvial aquifer and bedrock wells were conducted between 3 and 18 June 2015 in accordance with DEQ's GWMD-2R (see Table GW-1 attached). During the June 20015 groundwater sampling event, a groundwater sample was also collected from well ISCO-7 located adjacent to new bedrock well 14-2.

Groundwater samples were submitted to Energy under chain-of-custody protocol for analysis of VOCs and general water chemistry parameters in accordance with DEQ's GWMD-2R.

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Purge water was contained at the wellhead and transferred to the Task D/E GWTP sump. Water from the sump will be transferred to an influent holding tank pending sampling (pre-treatment, if warranted) and a no longer-contained-in determination for DEQ. Upon receipt of DEQ's no longer contained-in determination, water in the holding tank will be batch treated by passing it through the plant's GAC vessels prior to discharge to the Yellowstone River under an MPDES permit. Note: As water in the influent holding tank was sampled prior to the start of the June 2015 groundwater sampling activities and a no longer contained-in determination from DEQ was pending, purge water from the June 2015 groundwater sampling activities was not added to the influent holding tank until after receipt of DEQ's no longer contained-in determination and treatment and discharge of the water already contained in the tank occurred (see **Offsite Disposal Notifications, Offsite Disposal Information, and No Longer Contained-In Decisions**).

FIELD LOGS (ATTACHED)

The following field forms/logs are attached to this section:

- DEQ's GWMD-2R - Groundwater Purge and Sample Forms (June 2015).

ANALYTICAL DATA (ATTACHED)

The following analytical laboratory reports are attached to this section:

- DEQ's GWMD-2R – Quarterly/semiannual groundwater samples (June 2015).

Preliminary groundwater sample analytical results are summarized in Table GW-1. (Note: Data validations have not been performed on the preliminary analytical results.)

As required by DEQ, the copy of the quarterly status report submitted to DEQ contains hard copies of the analytical laboratory reports. Also as required by DEQ, the CD in DEQ's copy contains EDDs of the analytical results, when provided by the analytical laboratory.

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UNUSUAL/UNANTICIPATED RESULTS

Dissolved PCE was reported in the groundwater sample collected from well E-7 at a concentration of 1,790 micrograms per liter (µg/L) during the June 2015 groundwater sampling event. The concentration was higher than expected. The concentrations of dissolved PCE reported in groundwater samples collected from well E-7 have been variable since construction of the nearby bedrock well 13-9 in December 2013. Data from well E-7 [constructed and sampled as part of the in situ chemical oxidation (ISCO) pilot testing] collected prior to December 2013 recorded dissolved PCE concentrations ranging from 24 to 185 µg/L. However, the reported concentration of dissolved PCE in the groundwater sample collected from well E-7 in February 2014 was 1,000 µg/L. The concentrations then declined in subsequent monitoring events between April 2014 and March 2015 to between 306 and 650 µg/L. Well E-7 was resampled on 16 July 2015. Dissolved PCE was reported at a concentration of 500 µg/L in the July groundwater sample, which is consistent with previous analytical data for this well. The groundwater purge and sample form and analytical laboratory report for the resampling event are attached. Future sampling events will be used to monitor variations in dissolved PCE concentrations at this well.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

POTENTIAL IMPACTS TO SCHEDULE

None.

The next groundwater sampling event (quarterly) required by DEQ's GWMD-2R is currently scheduled to be conducted in September 2015 (next reporting period), unless otherwise directed by DEQ. The quarterly sampling event will include the Task L 14-series wells.

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GWMD-2R: QUARTERLY/SEMIANNUAL PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well ID/Sample ID	ROD Cleanup Level (µg/L) [a]	DEQ-7 Standard (µg/L) [b]	10-1	ISCO-24R	10-2	ISCO-2	D1_061515	10-3	12-7	10-4	12-8	10-5	L-88-13	10-7	12-9	10-8	92-2	11-1	07-1
			Co-located Well Pair		Co-located Well Pair			Co-located Well Pair		Co-located Well Pair				Co-located Well Pair				Co-located Well Pair	
Alluvial/Bedrock Well			Bedrock	Alluvial	Bedrock	Alluvial	(duplicate of ISCO-2)	Bedrock	Alluvial	Bedrock	Alluvial	Bedrock	Alluvial	Bedrock	Alluvial	Bedrock	Alluvial	Bedrock	Alluvial
Date Sampled			12-Jun-15	11-Jun-15	12-Jun-15	15-Jun-15	15-Jun-15	4-Jun-15	4-Jun-15	10-Jun-15	15-Jun-15	10-Jun-15	3-Jun-15	4-Jun-15	4-Jun-15	11-Jun-15	11-Jun-15	8-Jun-15	9-Jun-15
VOLATILE ORGANIC COMPOUNDS (VOCs) (µg/L) [c]																			
Benzene	-- [d]	5	<0.50[e]	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromobenzene	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	--	80	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	--	10	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	100		<0.50	<0.50	<5.0	<0.50	<0.50	**0.76**	**0.84**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	--	70	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	--	30	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<0.30	<0.30	<3.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2-Chlorotoluene	--	--	<0.50	<0.50	**3.4J**[f]	<0.50	<0.50	<0.50	**0.39J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromomethane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	<0.50	<0.50	<5.0	<0.50	<0.50	**0.47J**	**0.15J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	<0.50	<0.50	<5.0	<0.50	<0.50	**0.12J**	**0.65**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		<0.50	<0.50	<5.0	<0.50	<0.50	**0.61**	**2.2**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	--	7	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		**0.11J**	<0.50	**5.4**	<0.50	<0.50	**7.2**	**9.1**	**0.35J**	<0.50	**0.17J**	**0.20J**	**1.5**	**2.2**	<0.50	**0.12J**	<0.50	<0.50
trans-1,2-Dichloroethene	--	100	<0.50	<0.50	**1.6J**	<0.50	<0.50	**0.16J**	**0.14J**	<0.50	<0.50	<0.50	<0.50	**0.26J**	**0.36J**	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<0.30	<0.30	<3.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene chloride	--	5	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	--	100	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		**25**	**126**	**8,240**	**128**	**114**	**36**	**4.7**	**38**	**33**	<0.50	**2.2**	**22**	**22**	**0.15J**	**4.4**	<0.50	<0.50
Toluene	--	1,000	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5.0		**1.9**	**0.56**	**286**	**0.56**	**0.55**	**4.9**	**2.4**	**2.1**	**0.62**	<0.50	**0.72**	**2.0**	**2.3**	<0.50	**0.27J**	<0.50	<0.50
Trichlorofluoromethane	--	10,000	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.15 [g]		<0.40	<0.40	<4.0	<0.40	<0.40	<0.40	**0.13J**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
WATER CHEMISTRY																			
Physical Properties (mg/L) [h]																			
Solids, Total Dissolved TDS @ 180 C	--	--	NR[i]	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Inorganics (mg/L) [j]																			
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bicarbonate as HCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbonate as CO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chloride	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hardness as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nutrients (mg/L) [k]																			
Nitrogen, Nitrate+Nitrite as N	--	10	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals, Dissolved (mg/L) [l]																			
Calcium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Magnesium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Potassium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sodium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

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GWMD-2R: QUARTERLY/SEMIANNUAL PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well ID/Sample ID	ROD Cleanup Level (µg/L) [a]	DEQ-7 Standard (µg/L) [b]	12-1 Port 1 (42-50')	12-1 Port 2 (54-59')	12-1 Port 3 (64-69')	12-1 Port 4 (72-77')	12-1 Port 5 (89-94')	12-10	12-5	07-11	12-2	12-3	12-4	D2_061115	12-6	10-6	13-8	13-1
			Co-located Well Pair						Co-located Well Pair								Co-located Well Pair	
Alluvial/Bedrock Well			Bedrock	Bedrock	Bedrock	Bedrock	Bedrock	Alluvial	Bedrock	Alluvial	Bedrock	Bedrock	Bedrock	(duplicate of 12-4)	Bedrock	Bedrock	Bedrock	Alluvial
Date Sampled			12-Jun-15	12-Jun-15	12-Jun-15	12-Jun-15	12-Jun-15	12-Jun-15	11-Jun-15	4-Jun-15	10-Jun-15	10-Jun-15	11-Jun-15	11-Jun-15	Jun-15	15-Jun-15	11-Jun-15	11-Jun-15
VOLATILE ORGANIC COMPOUNDS (VOCs) (µg/L) [c]																		
Benzene	-- [d]	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access [m]	<0.50	<0.50	<0.50
Bromobenzene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.41J**	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Bromoform	--	80	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Bromomethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Chlorobenzene	100		**3.3**	**1.4**	**3.6**	**0.31J**	<0.50	**1.9**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Chloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Chloroform	--	70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.30J**	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Chloromethane	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	no access	<0.30	<0.30	<0.30
2-Chlorotoluene	--	--	**0.50J**	**0.28J**	**0.27J**	<0.50	<0.50	**0.98**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Dibromomethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	**0.16J**	**0.16J**	**0.20J**	<0.50	<0.50	**0.16J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	**0.15J**	**0.16J**	**0.27J**	<0.50	<0.50	**0.25J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		**1.1**	**1.1**	**2.1**	<0.50	<0.50	**2.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1-Dichloroethene	--	7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		**2.4**	**1.9**	**2.4**	**1.9**	**1.3**	**2.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	--	100	**1.6**	**1.2**	**1.9**	**1.0**	**0.26J**	**0.43J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	no access	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Methylene chloride	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.19J**	no access	<0.50	<0.50	<0.50
Naphthalene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Styrene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		**15**	**15**	**19**	**17**	**31**	**19**	<0.50	**1.0**	<0.50	<0.50	<0.50	<0.50	no access	**11**	<0.50	<0.50
Toluene	--	1,000	<0.50	<0.50	<0.50	**0.17J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Trichloroethene	5.0		**4.0**	**2.9**	**3.8**	**3.5**	**2.5**	**2.0**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	**0.35J**	<0.50	<0.50
Trichlorofluoromethane	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Vinyl chloride	0.15 [g]		**0.41**	**0.13J**	**0.28J**	<0.40	<0.40	**0.26J**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	no access	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	no access	<0.50	<0.50	<0.50
WATER CHEMISTRY																		
Physical Properties (mg/L) [h]																		
Solids, Total Dissolved TDS @ 180 C	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Inorganics (mg/L) [i]																		
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bicarbonate as HCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbonate as CO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chloride	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hardness as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nutrients (mg/L) [k]																		
Nitrogen, Nitrate+Nitrite as N	--	10	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals, Dissolved (mg/L) [l]																		
Calcium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Magnesium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Potassium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sodium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

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GWMD-2R: QUARTERLY/SEMIANNUAL PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well ID/Sample ID	ROD Cleanup Level (µg/L) [a]	DEQ-7 Standard (µg/L) [b]	13-9	D1_060815	E-7		13-3	D3_061115	13-10	13-5	13-2	13-6	13-7	14-2	ISCO-7	14-3	13-4	14-4	14-5
			Co-located Well Pair (E-7) and Nearby Well (13-3)						Co-located Well Pair					Co-located Well Pair		Co-located Well Pair		Co-located Well Pair	
Alluvial/Bedrock Well			Bedrock	(duplicate of 13-9)	Alluvial		Alluvial	(duplicate of 13-3)	Bedrock	Alluvial	Alluvial	Alluvial	Alluvial	Shallow Bedrock	Alluvial	Bedrock	Alluvial	Shallow Bedrock	Alluvial
Date Sampled			8-Jun-15	8-Jun-15	15-Jun-15	16-Jul-15	11-Jun-15	11-Jun-15	12-Jun-15	12-Jun-15	11-Jun-15	12-Jun-15	12-Jun-15	9-Jun-15	10-Jun-15	12-Jun-15	12-Jun-15	12-Jun-15	12-Jun-15
VOLATILE ORGANIC COMPOUNDS (VOCs) (µg/L) [c]																			
Benzene	-- [d]	5	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.11J**	<0.50	<0.50	<0.50	<0.50	<0.50
Bromobenzene	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	--	80	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	--	10	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	100		<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.10J**	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	--	70	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	--	30	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.11J**	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<6.0	<6.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2-Chlorotoluene	--	--	**12**	**11**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromomethane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	--	7	**2.8J**	**3.2J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		**2.4J**	**2.2J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.35J**	**0.22J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	--	100	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<6.0	<6.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene chloride	--	5	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	--	100	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		**37,800**	**35,800**	**1,790**	**500**	**638**	**670**	<0.50	**15**	**1.1**	**27**	**23**	**0.11J**	<0.50	**4.6**	**19**	**2.5**	**30**
Toluene	--	1,000	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.36J**	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5.0		**119**	**115**	**2.2**	**0.46J**	**2.6**	**2.6**	<0.50	**0.19J**	<0.50	**0.31J**	**0.62**	<0.50	<0.50	<0.50	**0.27J**	<0.50	**0.51**
Trichlorofluoromethane	--	10,000	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.15 [g]		<8.0	<8.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.10J**	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.11J**	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.22J**	<0.50	<0.50	<0.50	<0.50	<0.50
WATER CHEMISTRY																			
Physical Properties (mg/L) [h]																			
Solids, Total Dissolved TDS @ 180 C	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**586**	**377**	**431**	NR	**309**	**394**
Inorganics (mg/L) [i]																			
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**483**	**227**	**235**	NR	**190**	**245**
Bicarbonate as HCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<4	**277**	**287**	NR	**232**	**299**
Carbonate as CO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**51**	<4	<4	NR	<4	<4
Chloride	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**19**	**19**	**18**	NR	**17**	**17**
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**34**	**72**	**112**	NR	**70**	**67**
Hardness as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**407**	**249**	**290**	NR	**167**	**256**
Nutrients (mg/L) [k]																			
Nitrogen, Nitrate+Nitrite as N	--	10	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**0.53**	**3.04**	**1.20**	NR	**0.19**	**2.54**
Metals, Dissolved (mg/L) [l]																			
Calcium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**163**	**72**	**82**	NR	**48**	**74**
Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<0.03	<0.02	**0.15**	NR	**6.91**	<0.03
Magnesium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	<1	**17**	**21**	NR	**11**	**17**
Potassium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**7**	**2**	**3**	NR	**3**	**2**
Sodium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**64**	**38**	**40**	NR	**51**	**38**

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GWMD-2R: QUARTERLY/SEMIANNUAL PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well ID/Sample ID	ROD Cleanup Level (µg/L) [a]	DEQ-7 Standard (µg/L) [b]	14-6	89-3	D1_060915	Passive Diffusion Bag Samples[n]			#3	#5	#6	#11	89-1	89-2	89-6	89-8	89-9	90-2B	90-3	92-4
				Co-located Well Pair																
Alluvial/Bedrock Well			Shallow Bedrock	Alluvial	(duplicate of 89-3)	89-3-PDB-19.6	89-3-PDB-25.3	89-3-PDB-30.9	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
Date Sampled			9-Jun-15	9-Jun-15	9-Jun-15	9-Jun-15	9-Jun-15	9-Jun-15	18-Jun-15	5-Jun-15	5-Jun-15	15-Jun-15	11-Jun-15	11-Jun-15	4-Jun-15	8-Jun-15	10-Jun-15	15-Jun-15	11-Jun-15	4-Jun-15
VOLATILE ORGANIC COMPOUNDS (VOCs) (µg/L) [c]																				
Benzene	-- [d]	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromobenzene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	--	80	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	100		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	--	70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.22J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromomethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	--	7	**0.40J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		**54**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.15J**	**2.1**	**0.60**	<0.50
trans-1,2-Dichloroethene	--	100	**0.56**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene chloride	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		**834**	**43**	**41**	**34**	**33**	**130**	<0.50	<0.50	**1.2**	<0.50	**1.0**	<0.50	**6.4**	<0.50	**18**	**10**	**15**	**12**
Toluene	--	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5.0		**113**	**0.45J**	**0.48J**	**0.27J**	**0.28J**	**6.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.50**	**2.0**	**1.0**	**1.4**
Trichlorofluoromethane	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.15 [g]		**0.18J**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
WATER CHEMISTRY																				
Physical Properties (mg/L) [h]																				
Solids, Total Dissolved TDS @ 180 C	--	--	**346**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Inorganics (mg/L) [i]																				
Alkalinity, Total as CaCO3	--	--	**259**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Bicarbonate as HCO3	--	--	**316**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Carbonate as CO3	--	--	<4	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Chloride	--	--	**15**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Sulfate	--	--	**60**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Hardness as CaCO3	--	--	**150**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Nutrients (mg/L) [k]																				
Nitrogen, Nitrate+Nitrite as N	--	10	<0.01	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Metals, Dissolved (mg/L) [l]																				
Calcium	--	--	**43**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Iron	--	--	**0.08**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Magnesium	--	--	**10**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Potassium	--	--	**2**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR
Sodium	--	--	**76**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NS	NR	NR

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GWMD-2R: QUARTERLY/SEMIANNUAL PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well ID/Sample ID	ROD Cleanup Level (µg/L) [a]	DEQ-7 Standard (µg/L) [b]	94-1	94-2	L-87-2	D1_061215	L-87-5	LS-11	MW-5RR	D1_061115	MW-10	EX-22	D2_061815	EX-24	EX-28	EX-58	07-2A	07-5A
Alluvial/Bedrock Well			Alluvial	Alluvial	Alluvial	(duplicate of L-87-2)	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	(duplicate of EX-22)	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
Date Sampled			4-Jun-15	4-Jun-15	12-Jun-15	12-Jun-15	8-Jun-15	4-Jun-15	11-Jun-15	11-Jun-15	10-Jun-15	18-Jun-15	18-Jun-15	16-Jun-15	17-Jun-15	18-Jun-15	8-Jun-15	8-Jun-15
VOLATILE ORGANIC COMPOUNDS (VOCs) (µg/L) [c]																		
Benzene	-- [d]	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromobenzene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.45J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	--	80	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	100		<0.50	<0.50	**2.4**	**2.2**	<0.50	**0.15J**	**0.12J**	**0.12J**	<0.50	**0.41J**	**0.42J**	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.12J**	<0.50
Chloroform	--	70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**1.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2-Chlorotoluene	--	--	<0.50	<0.50	**20**	**21**	<0.50	<0.50	<0.50	<0.50	<0.50	**0.16J**	**0.13J**	<0.50	<0.50	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromomethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	<0.50	<0.50	**0.44J**	**0.43J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	<0.50	<0.50	**0.60**	**0.61**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		<0.50	<0.50	**2.5**	**2.5**	<0.50	**0.52**	<0.50	<0.50	<0.50	**0.46J**	**0.40J**	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	--	7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		<0.50	<0.50	**3.9**	**3.7**	**0.25J**	**1.4**	**1.1**	**1.1**	<0.50	**0.65**	**0.67**	<0.50	<0.50	<0.50	**0.16J**	<0.50
trans-1,2-Dichloroethene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	**0.13J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene chloride	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.22J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		**0.82**	<0.50	<0.50	<0.50	**18**	**13**	**7.5**	**6.2**	**0.66**	**1.3**	**1.2**	**0.55**	**1.5**	<0.50	**3.0**	**1.2**
Toluene	--	1,000	<0.50	<0.50	**0.23J**	**0.22J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5.0		<0.50	<0.50	**0.44J**	**0.42J**	**0.67**	**2.1**	**1.7**	**1.5**	<0.50	**1.0**	**1.0**	**0.23J**	**0.27J**	<0.50	**0.29J**	<0.50
Trichlorofluoromethane	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.15 [g]		<0.40	<0.40	**0.62**	**0.62**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<0.50	<0.50	**0.49J**	**0.47J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	**0.49J**	**0.47J**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
WATER CHEMISTRY																		
Physical Properties (mg/L) [h]																		
Solids, Total Dissolved TDS @ 180 C	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Inorganics (mg/L) [i]																		
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Bicarbonate as HCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Carbonate as CO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chloride	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Hardness as CaCO3	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nutrients (mg/L) [k]																		
Nitrogen, Nitrate+Nitrite as N	--	10	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Metals, Dissolved (mg/L) [l]																		
Calcium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Iron	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Magnesium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Potassium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Sodium	--	--	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

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GWMD-2R: QUARTERLY/SEMIANNUAL PRELIMINARY GROUNDWATER ANALYTICAL RESULTS (JUNE 2015)
Burlington Northern Livingston Shop Complex

Well ID/Sample ID	ROD Cleanup Level (µg/L) [a]	DEQ-7 Standard (µg/L) [b]	07-6	07-7	07-8	07-9	D1_060515	07-12
Alluvial/Bedrock Well			Alluvial	Alluvial	Alluvial	Alluvial	(duplicate of 07-9)	Alluvial
Date Sampled			4-Jun-15	4-Jun-15	5-Jun-15	5-Jun-15	5-Jun-15	4-Jun-15
VOLATILE ORGANIC COMPOUNDS (VOCs) (µg/L) [c]								
Benzene	-- [d]	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromobenzene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromochloromethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	--	80	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	--	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	100		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane	--	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	--	70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane	--	0.004	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
2-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
4-Chlorotoluene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromomethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	--	600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	--	600	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	75		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	--	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	--	7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	70		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2,2-Dichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloropropene	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	--	4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	--	2	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	--	700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl ether (MTBE)	--	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene chloride	--	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Naphthalene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	--	100	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	--	2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5.0		<0.50	**0.25J**	**1.4**	**24**	**25**	**0.49J**
Toluene	--	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	--	200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	--	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5.0		<0.50	<0.50	**0.23J**	**0.63**	**0.66**	<0.50
Trichlorofluoromethane	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,3-Trichloropropane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	0.15 [g]		<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
m+p-Xylenes	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes, Total	--	10,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
WATER CHEMISTRY								
Physical Properties (mg/L) [h]								
Solids, Total Dissolved TDS @ 180 C	--	--	NR	NR	NR	NR	NR	NR
Inorganics (mg/L) [j]								
Alkalinity, Total as CaCO3	--	--	NR	NR	NR	NR	NR	NR
Bicarbonate as HCO3	--	--	NR	NR	NR	NR	NR	NR
Carbonate as CO3	--	--	NR	NR	NR	NR	NR	NR
Chloride	--	--	NR	NR	NR	NR	NR	NR
Sulfate	--	--	NR	NR	NR	NR	NR	NR
Hardness as CaCO3	--	--	NR	NR	NR	NR	NR	NR
Nutrients (mg/L) [k]								
Nitrogen, Nitrate+Nitrite as N	--	10	NR	NR	NR	NR	NR	NR
Metals, Dissolved (mg/L) [l]								
Calcium	--	--	NR	NR	NR	NR	NR	NR
Iron	--	--	NR	NR	NR	NR	NR	NR
Magnesium	--	--	NR	NR	NR	NR	NR	NR
Potassium	--	--	NR	NR	NR	NR	NR	NR
Sodium	--	--	NR	NR	NR	NR	NR	NR

Notes:
(a) Cleanup levels from Record of Decision (ROD) [Montana Department of Environmental Quality (DEQ) 2001]. ROD cleanup levels based on Circular WQB-7, Montana Numeric Water Quality Standards (WQB-7 standards) dated September 1999, now called DEQ-7 standards.
(b) DEQ-7 standards dated October 2012.
(c) Samples analyzed for volatile organic compounds (VOCs) using EPA Method 8260.
(d) "--" denotes ROD cleanup level/DEQ-7 standard not established.
(e) "<" denotes analyte was not detected at the indicated method reporting limit.
(f) "J" indicates estimated value. The analyte is present but at a concentration less than the limit of quantitation.
(g) DEQ's required reporting limit of 0.4 µg/L will be used for vinyl chloride during remedial design/remedial action (RD/RA) groundwater monitoring program.
(h) Samples analyzed for total dissolved solids (TDS) at 180 C using Standard Method (SM) A2540C.
(i) "NR" denotes analysis not required per DEQ's Revised Groundwater Monitoring Program Directive No. 2 (GWMD-2R) dated December 2014.
(j) Samples analyzed for inorganic parameters as follows:
- Alkalinity Total as CaCO3, Bicarbonate as HCO3, Carbonate as CO3 using SM A2320B
- Chloride using EPA Method 300.0
- Sulfate using EPA Method 300.0
- Hardness as CaCO3 using SM A2340B.
(k) Samples analyzed for nitrogen, nitrate+nitrite as N using EPA Method 353.2.
(l) Samples analyzed for dissolved metals using EPA Method 6010. Samples were field filtered using an 0.45 micron in-line filter.
(m) Well 12-6 could not be accessed for the duration of the sampling event . Vehicle parked over well; vehicle owner could not be located.
(n) Passive diffusion bag (PDB) samples. PDB placed in well approximately 2 weeks prior to sample collection.

BEDROCK WELL

Reported values are shown in bold.
µg/L - micrograms per liter
mg/L - milligrams per liter

PRELIMINARY ANALYTICAL DATA HAVE NOT BEEN VALIDATED.

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DEQ’S REVISED GROUNDWATER MONITORING PROGRAM DIRECTIVE NO. 2

REVISED GROUNDWATER MONITORING PROGRAM NO. 2 (APPROVED BY DEQ ON 23 DECEMBER 2014)
Burlington Northern Livingston Shop Complex

Well ID	Sampling Frequency	Water Elevation	Field Parameters	VOCs	General Water Chemistry Parameters												
					Total Dissolved Solids	Alkalinity, Total as CaCO3	Bicarbonate as HCO3	Carbonate as CO3	Hardness as CaCO3	Chloride	Sulfate	Nitrogen, Nitrate+Nitrite as N	Calcium	Iron (total)	Magnesium	Potassium	Sodium
Bedrock Wells / Alluvial Well Pairs																	
10-1	SA	X(1)	X	X													
10-2	SA	X(1,2)	X	X													
10-3	SA	X	X	X													
10-4	SA	X	X	X													
10-5	SA	X	X	X													
10-6	SA	X	X	X													
10-7	SA	X	X	X													
10-8	SA	X	X	X													
11-1	SA	X	X	X													
12-1 (all ports)	SA	X	X	X													
12-2	SA	X	X	X													
12-3	SA	X	X	X													
12-4	SA	X	X	X													
12-5	SA	X	X	X													
12-6	SA	X	X	X													
13-8	SA	X(1)	X	X													
13-9	SA	X(1,2)	X	X													
13-10	SA	X(1)	X	X													
14-2 (new Task L well)	Q	X(1,3)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14-3 (new Task L well)	Q	X(1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14-4 (new Task L well)	Q	X(1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14-6 (new Task L well)	Q	X(1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Alluvial Wells																	
ISCO-2	SA	X(1)	X	X													
ISCO-24R	SA	X(1)	X	X													
89-8	SA	X	X	X													
EX-58	SA	X	X	X													
12-7	SA	X	X	X													
12-8	SA	X	X	X													
12-9	SA	X	X	X													
12-10	SA	X	X	X													
13-1	SA	X(1)	X	X													
13-2	SA	X	X	X													
13-3	SA	X	X	X													
13-4	SA	X(1)	X	X													
13-5	SA	X(1)	X	X													
13-6	SA	X	X	X													
13-7	SA	X	X	X													
14-5 (new Task L well)	Q	X(1)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
#3	SA	X	X	X													
#5	SA	X	X	X													
#6	SA	X	X	X													
#11	SA	X	X	X													
89-1	SA	X	X	X													
89-2	SA	X	X	X													
89-3 (standard sample)	SA	X(1)	X	X													
89-3 (PDB)	SA			X													
89-6	SA	X	X	X													
89-9	SA	X	X	X													
90-2B	SA	X	X	X													
90-3	SA	X	X	X													
92-2	SA	X	X	X													
92-4	SA	X	X	X													
94-1	SA	X	X	X													
94-2	SA	X	X	X													

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REVISED GROUNDWATER MONITORING PROGRAM NO. 2 (APPROVED BY DEQ ON 23 DECEMBER 2014)
Burlington Northern Livingston Shop Complex

Well ID	Sampling Frequency	Water Elevation	Field Parameters	VOCs	General Water Chemistry Parameters												
					Total Dissolved Solids	Alkalinity, Total as CaCO3	Bicarbonate as HCO3	Carbonate as CO3	Hardness as CaCO3	Chloride	Sulfate	Nitrogen, Nitrate+Nitrite as N	Calcium	Iron (total)	Magnesium	Potassium	Sodium
E-7	SA	X(1)	X	X													
L-87-2	SA	X	X	X													
L-87-5	SA	X	X	X													
L-88-13	SA	X	X	X													
LS-11	SA	X	X	X													
MW-5RR	SA	X	X	X													
MW-10	SA	X	X	X													
EX-22	SA	X	X	X													
EX-24	SA	X	X	X													
EX-28	SA	X	X	X													
07-1	SA	X	X	X													
07-2A	SA	X	X	X													
07-5A	SA	X	X	X													
07-6	SA	X	X	X													
07-7	SA	X	X	X													
07-8	SA	X	X	X													
07-9	SA	X	X	X													
07-11	SA	X	X	X													
07-12	SA	X	X	X													

Notes:
(1) = Transducer currently in well. (Revised with DEQ approval January 2015.)
(2) = Check bottom of well for dense non-aqueous phase liquid.
(3) = Transducer also in nearby well ISCO-7.
Q = Sample well on quarterly basis (February/March, June, September, and December).
SA = Sample well on semiannual basis (Fenruary/March and June).

New Task L well installed in December 2014 in accordance with Revised Addendum No. 4 to DEQ Version of Task L Supplemental Investigation Work Plan for Bedrock Aquifer(s).

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DEQ'S REVISED GROUNDWATER MONITORING PROGRAM DIRECTIVE NO. 2
JUNE 2015
Groundwater Purge and Sample Forms

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 3/9/15 Sampled: 6/12/15

Project Name: BN Livingston Shop Complex

Project Number: 1596021*16

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 1005

Total Discharge (gal): Purge: 20 gal Sample: 0.3

Water Disposal: GWTP

Weather: Sunny - 75°F

Well Number: **10-1**

Monument Type: Stickup: _____ (ft PVC) Flush: -0.4

Well Diameter (in): 4

Well Condition: Good

Total Casing Depth (ft): 53.6

Screened Interval (ft): 48.6 - 53.6

Purge Depth (ft): 51.3

Depth to Groundwater (ft): Purged: 18.54 Sampled: 23.38

Depth to LNAPL (ft): —

Water Column (ft): Purged: 35.06 Sampled: 30.22

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
10-1_061215	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 10-1_Date ie; mmddyy							

Time	1306	1309	1312	1315				0958	1003
Parameter (every 5 min)		3 min	~~3~~ 6 min	~~3~~ 9 min	min	min	min	min	5 min
Flow Rate (L/min)		7.6	7.6	7.6					0.2
Volume Purged (Liters)		22.8	22.8	22.8					1.0
Water Depth (ft)		27.70	35.50	42.2					24.11
Temperature (°C), (± 0.2)		10.89	10.78	10.82					12.22
pH, (± 0.1)		8.37	8.34	8.35					8.58
Sp. Conductance (uS/cm),(± 3%)		451	450	450					508
DO (mg/L), (± 10% or 10% of 0.2mg/l)		3.64	3.55	3.53					3.21
ORP (mV), (± 10%)		42.7	36.8	30.8					-1.9
Turbidity (NTU), (± 10% or 3 <10 NTUs)		17.59	9.53	6.85					5.51
Color		V. LT GRY →							CLEAR
Odor/Evidence of LNAPL		NONE →							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters Stopped dewatering at 1316.

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

ISCO-24R: DTW = 18.49

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/11/15 Sampled: 6/12/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 0945

Total Discharge (gal): Purge: 18 Sample: 0.4

Water Disposal: GWTP

Weather: Sunny - 75°F

Well Number: **10-2**

Monument Type: Stickup: _____ (ft PVC) Flush: -0.5

Well Diameter (in): 4

Well Condition: Good

Total Casing Depth (ft): **49.0**

Screened Interval (ft): **44 - 49**

Purge Depth (ft): **46.6**

Depth to Groundwater (ft): Purged: 20.29 Sampled: 20.29

Depth to LNAPL (ft): —

Water Column (ft): Purged: 28.71 Sampled: 28.71

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
10-2_ 061215	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 10-2_Date ie; mmddyy

Time	1201	1204	1207	1210				0936	0941
Parameter (every 5 min)		3 min	6 min	9 min	min	min	min	min	5 min
Flow Rate (L/min)		6.8	6.8	6.8					0.3
Volume Purged (Liters)		20.5	20.5	20.5					1.5
Water Depth (ft)		29.30	35.70	42.50					21.13
Temperature (°C), (± 0.2)		11.49	11.47	11.49					12.22
pH, (± 0.1)		10.43	10.32	10.21					8.47
Sp. Conductance (uS/cm),(± 3%)		905	903	895					612
DO (mg/L), (± 10% or 10% of 0.2mg/l)		1.21	0.58	0.65					3.50
ORP (mV), (± 10%)		-21.7	-26.1	-33.2					19.8
Turbidity (NTU), (± 10% or 3 <10 NTUs)		55.55	53.24	42.53					453.2
Color		LT GRAY →							GRY
Odor/Evidence of LNAPL		NONE →							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters TANK START: 10 GAL TANK STOP: ~~15~~ 28 GAL

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

ISCO-1: DTW = 20.68 **ISCO-2: DTW =** 20.51 **DNAPL Test:** 20.72 TOC - NO DNAPL DISCOVERED DURING TEST

STOPPED DEWATERING AT 1214

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**10-3**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.09 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**58.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**53.6 - 58.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**56.1**
Sampling Time:	1045	Depth to Groundwater (ft):	23.52
Total Discharge (gal):	~1	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	35.08
Weather:	Sunny - 63°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15	TRIP BLANK	TB2_060415	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
10-3_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 10-3_Date ie; mmddyy							

1010 Time	1015	1020	1025	1030	1035	1040		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1		
Volume Purged (Liters)	0.5	1.0	1.5	2.0	2.5	3.0		
Water Depth (ft)	23.64	23.66	23.67	23.67	23.67	23.67		
Temperature (°C), (± 0.2)	14.73	14.34	14.24	14.18	14.08	14.15		
pH, (± 0.1)	7.49	7.19	7.16	7.16	7.16	7.17		
Sp. Conductance (uS/cm),(± 3%)	659	670	671	672	672	671		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.00	1.92	1.40	1.14	1.16	1.30		
ORP (mV), (± 10%)	161.5	148.7	130.1	114.7	98.3	90.1		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.84	2.36	2.38	2.89	2.38	1.42		
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

12-7: DTW = 23.15

Note: Typically purged at 0.15-L/min.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/9/15 Sampled: 6/10/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 1250

Total Discharge (gal): PURGE: 19

Water Disposal: GWTP

Weather: Sunny - 85°F

Well Number: **10-4**

Monument Type: Stickup: 2.65 (ft PVC) Flush: ____

Well Diameter (in): 4

Well Condition: Good.

Total Casing Depth (ft): **60.2**

Screened Interval (ft): **55.2 - 60.2**

Purge Depth (ft): **57.3**

Depth to Groundwater (ft): Purged: 25.12 Sampled: 34.67

Depth to LNAPL (ft): —

Reference: **TOC**

Water Column (ft): Purged: 35.08 Sampled: 25.33

Water Quality Meter(s)	Model	Calibration Date/Time
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15
Turbidity:	Micro TPW	3/9/15
Other:		

QA/QC Samples		
Type	Sample ID	Time

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
10-4_ 061015	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 10-4_Date ie; mmddyy

Time	1332	1337	1340	1343				1243	1248
Parameter (every 5 min)		5 min	8 min	11 min	min	min	min	min	5 min
Flow Rate (L/min)									0.1
Volume Purged (Liters)									0.5
Water Depth (ft)		39.80	46.90	53.90					35.16
Temperature (°C), (± 0.2)		12.30	12.55	12.59					13.93
pH, (± 0.1)		7.96	7.80	7.82					7.83
Sp. Conductance (uS/cm),(± 3%)		673	674	674					724
DO (mg/L), (± 10% or 10% of 0.2mg/l)		4.05	3.91	3.88					3.43
ORP (mV), (± 10%)		21.9	20.8	12.1					90.7
Turbidity (NTU), (± 10% or 3 <10 NTUs)		6.06	4.88	4.98					4.07
Color		CLEAR							CLEAR
Odor/Evidence of LNAPL		NONE							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

Stopped dewatering at 13:44.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/9/15 Sampled: 6/10/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARRIZON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 1325

Total Discharge (gal): During: 50

Water Disposal: GWTP

Weather: Raining - 79°F

Well Number: **10-5**

Monument Type: Stickup: 0.93 (ft PVC) Flush:

Well Diameter (in): 4

Well Condition: Good.

Total Casing Depth (ft): **64.9**

Screened Interval (ft): **59.9 - 64.9**

Purge Depth (ft): **62.9**

Depth to Groundwater (ft): Purged: 22.15 Sampled: 22.04

Depth to LNAPL (ft): —

Water Column (ft): Purged: 42.75 Sampled: 42.86

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
10-5_061015	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 10-5_Date ie; mmddyy							

1549 Time	1554	1559	1604	1609	1619		1317	1322
Parameter (every 5 min)	5 min	10 min	15 min	20 min	30 min	min	min	5 min
Flow Rate (L/min)								0.1
Volume Purged (Liters)								0.5
Water Depth (ft)	32.80	39.60	43.20	45.70	48.65			22.35
Temperature (°C), (± 0.2)	12.24	12.22	12.17	12.24	12.21			13.22
pH, (± 0.1)	8.50	8.47	8.47	8.46	8.50			8.58
Sp. Conductance (uS/cm),(± 3%)	545	536	532	530	531			583
DO (mg/L), (± 10% or 10% of 0.2mg/l)	1.88	1.13	0.73	0.55	0.29			3.64
ORP (mV), (± 10%)	-10.0	-39.1	-54.1	-62.5	-71.9			99.9
Turbidity (NTU), (± 10% or 3 <10 NTUs)	11.16	8.35	7.56	5.98	6.13			8.23
Color	CLEAR							CLEAR
Odor/Evidence of LNAPL	NONE							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters Stopped dewatering at 16:19.

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

L-88-13: DTW = 23.47 (6/3/15)

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/15/15	Well Number:	**10-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.77 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	(good)
Water Level Meter:	Solinst	Total Casing Depth (ft):	**59.3**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**54.3 - 59.3**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**56.8**
Sampling Time:	1135	Depth to Groundwater (ft):	25.51
Total Discharge (gal):	1.1	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	33.79

Reference: TOC

Weather: SUNNY - LT WIND - 70°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/15/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
10-6_ 061515	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 10-6_Date ie; mmddyy

Time	1114	1119	1124	1129	1134			
Parameter (every 5 min)		5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)		0.2	0.2	0.2	0.2				
Volume Purged (Liters)		1.0	2.0	3.0	4.0				
Water Depth (ft)		25.55	25.55	25.55	25.55				
Temperature (°C), (± 0.2)		12.72	12.43	12.36	12.28				
pH, (± 0.1)		7.36	7.25	7.22	7.22				
Sp. Conductance (uS/cm),(± 3%)		713	713	708	706				
DO (mg/L), (± 10% or 10% of 0.2mg/l)		4.38	4.20	4.28	4.38				
ORP (mV), (± 10%)		116.8	111.4	106.1	103.6				
Turbidity (NTU), (± 10% or 3 <10 NTUs)		2.85	3.36	2.93	0.82				
Color		CLEAR →							
Odor/Evidence of LNAPL		NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**10-7**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.23 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**52.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**47.5 - 52.3**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**50.0**
Sampling Time:	1320	Depth to Groundwater (ft):	22.37
Total Discharge (gal):	~2.5	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	30.13
Weather:	Pt Cloudy 70°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
10-7_ 060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 10-7_Date ie; mmddyy							

1245 Time	1250	1255	1300	1305	1310	1315		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	22.37	22.37	22.37	22.37	22.37	22.37		
Temperature (°C), (± 0.2)	12.66	12.50	12.53	12.16	12.31	12.38		
pH, (± 0.1)	7.19	6.99	6.98	6.98	6.97	6.99		
Sp. Conductance (uS/cm),(± 3%)	859	836	832	831	829	828		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.60	1.84	1.70	1.71	1.70	1.74		
ORP (mV), (± 10%)	87.3	82.5	71.2	64.6	60.7	55.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.33	0.69	0.36	0.56	0.22	0.00		
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

12-9: DTW = 22.17

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/10/15 Sampled: 6/11/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 1545

Total Discharge (gal): Purge: 25 Sample: 0.3

Water Disposal: GWTP

Weather: Pt Cloudy - 75°F

Well Number: **10-8**

Monument Type: Stickup: 2.45 (ft PVC) Flush: ____

Well Diameter (in): 4

Well Condition: Good

Total Casing Depth (ft): **48.5**

Screened Interval (ft): **43.5 - 48.5**

Purge Depth (ft): **45.4**

Depth to Groundwater (ft): Purged: 4.60 Sampled: 21.70

Depth to LNAPL (ft): —

Water Column (ft): Purged: 43.90 Sampled: 26.80

Reference: TOC

Water Quality Meter(s)	Model	ion Date/Time
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15
Turbidity:	Micro TPW	3/9/15
Other:		

QA/QC Samples		
Type	Sample ID	Time

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
10-8_ 061115	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 10-8_Date ie; mmddyy

1759 Time	1801	1803	1806	1808	1811		1538	1543
Parameter (every 5 min)	2 min	2 min	3 min	2 min	3 min	min	min	5 min
Flow Rate (L/min)								0.2
Volume Purged (Liters)								1.0
Water Depth (ft)	10.60	18.40	25.80	33.20	40.5			22.33
Temperature (°C), (± 0.2)	9.71	9.32	8.94	9.09	10.24			12.28
pH, (± 0.1)	8.02	7.86	7.84	7.76	7.79			7.94
Sp. Conductance (uS/cm),(± 3%)	547	547	547	547	546			586
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.78	3.17	2.92	2.84	3.40			5.11
ORP (mV), (± 10%)	75.1	79.0	76.2	77.6	75.1			41.0
Turbidity (NTU), (± 10% or 3 <10 NTUs)	~~1.6~~ 1.86	1.20	1.33	1.34	1.38			4.71
Color	CLEAR							CLEAR
Odor/Evidence of LNAPL	NONE							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters Stopped dewatering at 18.12 JH

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

92-2: DTW = 4.92

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**11-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.87 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**56.9**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**51.9 - 56.9**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**54.3**
Sampling Time:	1530	Depth to Groundwater (ft):	20.87
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	36.03

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15 0800	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
11-1_060815	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 11-1_Date ie; mmddyy							

1459 Time	1504	1509	1514	1519	1524	1529		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.4	.4	.4	.4	.4	.4		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	20.91	20.91	20.91	20.91	20.91	20.91		
Temperature (°C), (± 0.2)	12.34	11.86	12.40	12.06	11.93	11.65		
pH, (± 0.1)	8.24	8.20	8.14	8.11	8.12	8.11		
Sp. Conductance (uS/cm),(± 3%)	591	594	592	594	596	599		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.89	4.52	4.84	5.24	4.92	5.50		
ORP (mV), (± 10%)	21.7	9.7	10.8	12.2	12.5	13.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	0.73	5.21	8.40	9.29	9.26	9.47		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

07-1: DTW = 21.13

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**12-1 Port 1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.0 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	FLUTe well completion with 5 sampling ports
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**51.0**
Purging Equipment:	FLUTe valve with	Screened Interval (ft):	**43.0 - 51.0**
Sampling Equipment:	compressed Nitrogen	Purge Depth (ft):	**50.5**
Sampling Time:	0838	Depth to Groundwater (ft):	BTS: 22.39
Total Discharge (gal):	0.78	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	28.61

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0700	Temp	PBI_061215	0730
Turbidity:	Micro TPW	3/9/15	~~QA~~ FIELD	LN_061215	0835
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
12-1 Port 1_061215	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 12-01 Port 1_Date ie; mmddyy

Time	0758	0822						
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)	—	—						
Volume Purged (Liters)	1.5	1.5						
Water Depth (ft)	22.41	22.42						
Temperature (°C), (± 0.2)	12.46	12.04						
pH, (± 0.1)	7.00	6.79						
Sp. Conductance (uS/cm),(± 3%)	862	861						
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.50	1.45						
ORP (mV), (± 10%)	-99.7	-25.1						
Turbidity (NTU), (± 10% or 3 <10 NTUs)	6.45	4.79						
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

12-10: DTW = 24.14 TAG — 11.90

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**12-1 Port 2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.0 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	FLUTe well completion with 5 sampling ports
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**60.0**
Purging Equipment:	FLUTe valve with	Screened Interval (ft):	**55.0 - 60.0**
Sampling Equipment:	compressed Nitrogen	Purge Depth (ft):	**55.5**
Sampling Time:	0843	Depth to Groundwater (ft):	1314: 22.37
Total Discharge (gal):	0.78	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	37.63

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	06/12/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
12-1 Port 2_06/12/15	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 12-01 Port 2_Date ie; mmddyy

Time	0804	0825						
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)	—	—						
Volume Purged (Liters)	1.5	1.5						
Water Depth (ft)	22.40	22.40						
Temperature (°C), (± 0.2)	12.35	12.18						
pH, (± 0.1)	6.89	6.79						
Sp. Conductance (uS/cm),(± 3%)	863	856						
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.41	0.96						
ORP (mV), (± 10%)	-95.7	-88.9						
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.22	4.79						
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	1d12/15	Well Number:	**12-1 Port 3**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.0 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	FLUTe well completion with 5 sampling ports
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**70.0**
Purging Equipment:	FLUTe valve with	Screened Interval (ft):	**65.0 - 70.0**
Sampling Equipment:	compressed Nitrogen	Purge Depth (ft):	**65.5**
Sampling Time:	0846	Depth to Groundwater (ft):	13.16; 22.33
Total Discharge (gal):	0.78	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	47.67

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	1d12/15 0930	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
12-1 Port 3_ 0d12/15	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-01 Port 3_Date ie; mmddyy							

Time	0809	0830						
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)	—	—						
Volume Purged (Liters)	1.5	1.5						
Water Depth (ft)	22.35	22.38						
Temperature (°C), (± 0.2)	12.13	12.24						
pH, (± 0.1)	6.92	6.78						
Sp. Conductance (uS/cm),(± 3%)	869	872						
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.37	0.38						
ORP (mV), (± 10%)	-140.6	-116.7						
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.51	8.04						
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**12-1 Port 4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.0 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	FLUTe well completion with 5 sampling ports
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**78.0**
Purging Equipment:	FLUTe valve with	Screened Interval (ft):	**73.0 - 78.0**
Sampling Equipment:	compressed Nitrogen	Purge Depth (ft):	**73.5**
Sampling Time:	1325	Depth to Groundwater (ft):	1317; 22.37
Total Discharge (gal):	0.52	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	55.63

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0770	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
12-1 Port 4_06/12/15	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-01 Port 4_Date ie; mmddyy							

Time	0813	0900						
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)	—	—						
Volume Purged (Liters)	1.5	1.5						
Water Depth (ft)	22.35	55.34						
Temperature (°C), (± 0.2)	12.08	12.82						
pH, (± 0.1)	6.95	7.15						
Sp. Conductance (uS/cm),(± 3%)	8.72	8.65						
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.40	1.50						
ORP (mV), (± 10%)	-104.5	-89.1						
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.13	9.36						
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**12-1 Port 5**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.0 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	FLUTe well completion with 5 sampling ports
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**95.0**
Purging Equipment:	FLUTe valve with	Screened Interval (ft):	**90.0 - 95.0**
Sampling Equipment:	compressed Nitrogen	Purge Depth (ft):	**89.5**
Sampling Time:	0850	Depth to Groundwater (ft):	13.18; 22.41
Total Discharge (gal):	0.78	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	72.59

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0700	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
12-1 Port 5_061215	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 12-01 Port 5_Date ie; mmddyy

Time	0818	0834						
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)	1.5	1.5						
Water Depth (ft)	22.40	22.43						
Temperature (°C), (± 0.2)	12.09	12.13						
pH, (± 0.1)	7.03	6.95						
Sp. Conductance (uS/cm),(± 3%)	880	877						
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.32	0.32						
ORP (mV), (± 10%)	-47.6	-95.6						
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.78	5.22						
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/9/15 Sampled: 6/10/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON / GL

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: BC ~~1205~~ 1715

Total Discharge (gal): PURGE: 20

Water Disposal: GWTP

Weather: Sunny 85°F

Well Number: **12-2**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 4

Well Condition: Housing gasket needs replacement.

Total Casing Depth (ft): 85.0

Screened Interval (ft): 75.0 - 85.0

Purge Depth (ft): 80.0

Depth to Groundwater (ft): Purged: 52.18 Sampled: BC ~~51.99~~ ~~52.05~~ 51.86

Depth to LNAPL (ft): —

Water Column (ft): Purged: 32.82 Sampled: BC ~~33.01~~ ~~32.95~~ 33.14

Reference:
TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15			
Turbidity:	Micro TPW	3/9/15	BC ~~FBS~~ TRIP BLANK	~~FBS_061015~~	
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
12-2_061015	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 12-2_Date ie; mmddyy

Time	1135	1138	1141	1144	1147			~~1170~~ ~~1195~~	1212 ~~1200~~
Parameter (every 5 min)		3 min	BC ~~3~~ 6 min	BC ~~3~~ 9 min	BC ~~3~~ 12 min	min	min	min	5 min
Flow Rate (L/min)									0.2
Volume Purged (Liters)									1.0
Water Depth (ft)		58.40	63.40	68.30	73.30				52.53
Temperature (°C), (± 0.2)		13.42	13.52	13.56	13.64				16.35
pH, (± 0.1)		7.90	7.55	7.32	7.23				7.90
Sp. Conductance (uS/cm),(± 3%)		461	405	424	441				646
DO (mg/L), (± 10% or 10% of 0.2mg/l)		0.57	0.38	0.33	0.41				7.75
ORP (mV), (± 10%)		-19.6	8.9	15.2	15.1				102.6
Turbidity (NTU), (± 10% or 3 <10 NTUs)		115.8	121.2	112.9	93.87				29.53
Color		LT GRAY							
Odor/Evidence of LNAPL		NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters CPM 4 7/8 - 60 psi

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

Stopped dewatering at 1149.

Issues with dedicated pump. Pulled pump, BC ~~purged~~ sampled w/ sample pro (2ft.).

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged 6/9/15 Sampled: 6/10/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 1220

Total Discharge (gal): Purge: 8

Water Disposal: GWTP

Weather: Sunny - 85°F

Well Number: **12-3**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 4

Well Condition: Good / Housing gasket wearing. TOC too high

Total Casing Depth (ft): 50.0

Screened Interval (ft): 40.0 - 50.0

Purge Depth (ft): 45.0

Depth to Groundwater (ft): Purged: 30.02 Sampled: 29.59

Depth to LNAPL (ft): ←

Water Column (ft): Purged: 19.98 Sampled: 20.41

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15	TRIP BLANK	TB2-061015	~~0800~~
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
12-3_ 061015	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-3_Date ie; mmddyy							

1248 Time	1250	1252					1211	1216
Parameter (every 5 min)	2 min	4 min	min	min	min	min	min	5 min
Flow Rate (L/min)						Bc	~~0.2~~	0.2
Volume Purged (Liters)						Bc	~~1.0~~	1.0
Water Depth (ft)	34.3	38.7						30.15
Temperature (°C), (± 0.2)	13.46	13.62						14.26
pH, (± 0.1)	7.72	7.55						7.57
Sp. Conductance (uS/cm),(± 3%)	571	547						579
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.22	4.63						5.56
ORP (mV), (± 10%)	87.7	62.1						96.5
Turbidity (NTU), (± 10% or 3 <10 NTUs)	11.41	5.72						4.82
Color	CLEAR							CLEAR
Odor/Evidence of LNAPL	NONE							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

Stopped dewatering at 12:53.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**12-4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	* WELL BOX NEED REPLACE
Water Level Meter:	Solinst	Total Casing Depth (ft):	**46.2**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**36.2 - 46.2**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**41.0**
Sampling Time:	1110	Depth to Groundwater (ft):	29.68
Total Discharge (gal):	1.57	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	16.52

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15	**Duplicate**	D2_060115	0800
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
12-4 060115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-4_Date ie; mmddyy							

1046 Time	1051	1056	1101	1106				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	29.68	29.68	29.68	29.68				
Temperature (°C), (± 0.2)	13.06	12.72	12.64	12.74				
pH, (± 0.1)	7.21	7.14	7.13	7.13				
Sp. Conductance (uS/cm),(± 3%)	617	619	619	618				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.20	6.12	5.91	5.90				
ORP (mV), (± 10%)	162.1	144.1	135.6	128.2				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.29	4.16	3.89	2.34				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/10/15 Sampled: 6/11/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. C Dearson

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 1715

Total Discharge (gal): Purge: 55

Water Disposal: GWTP

Well Number: **12-5**

Monument Type: Stickup: ~2 (ft PVC) Flush: ____

Well Diameter (in): 4

Well Condition: Good

Total Casing Depth (ft): **51.5**

Screened Interval (ft): **41.5 - 51.5**

Purge Depth (ft): **47.0**

Depth to Groundwater (ft): Purged: ~~4.93~~ 4.92 Sampled: 4.87

Depth to LNAPL (ft): —

Water Column (ft): Purged: 46.58 Sampled: 46.63

Reference: TOC

Weather: Pt Cloudy - 75°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
12-5_061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-5_Date ie; mmddyy							

1648 Time	1653	1658	1703	1708			1709	1714
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	5 min
Flow Rate (L/min)								0.2
Volume Purged (Liters)								1.0
Water Depth (ft)	16.97	25.90	32.35	36.70				5.46
Temperature (°C), (± 0.2)	8.17	8.26	8.45	8.64				9.41
pH, (± 0.1)	7.70	7.72	7.76	7.80				8.00
Sp. Conductance (uS/cm),(± 3%)	366	366	365	364				370
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.77	0.50	0.49	0.54				2.09
ORP (mV), (± 10%)	94.8	83.4	71.7	60.8				330
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.99	1.98	0.79	0.31				2.15
Color	CLEAR							CLEAR
Odor/Evidence of LNAPL	NONE							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters Stopped dewatering at 1712.

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

07-11: DTW = 6.37

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 6/12/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel:

Water Level Meter: Solinst

Purging Equipment: Ded. Bladder

Sampling Equipment: Ded. Bladder

Sampling Time: —

Total Discharge (gal):

Water Disposal: GWTP

Weather:

Well Number: **12-6**

Monument Type: Stickup: (ft PVC) Flush: X

Well Diameter (in): 4

Well Condition:

Total Casing Depth (ft): **62.7**

Screened Interval (ft): **52.7 - 62.7**

Purge Depth (ft): **58.0**

Depth to Groundwater (ft):

Depth to LNAPL (ft):

Water Column (ft):

Reference: **TOC**

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
12-6_	3	VOA	HCL	40ml	N	VOC 8260	
NOT SAMPLED CAR PARKED ON WELL							
COMPLETE SAMPLE ID: 12-6_Date ie; mmddyy							

Time								
Parameter (every 5 min)	min	min	min	min	min	min	min	min
Flow Rate (L/min)								
Volume Purged (Liters)								
Water Depth (ft)								
Temperature (°C), (± 0.2)								
pH, (± 0.1)								
Sp. Conductance (uS/cm),(± 3%)								
DO (mg/L), (± 10% or 10% of 0.2mg/l)								
ORP (mV), (± 10%)								
Turbidity (NTU), (± 10% or 3 <10 NTUs)								
Color								
Odor/Evidence of LNAPL								

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Note: Purge at 0.10-L/min.

6/5/15 - CAR PARKED ON TOP OF WELL

6/15/15 - CAR PARKED ON TOP OF WELL. NO ANSWER AT NEIGHBORING HOUSE.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**13-8**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**48.7**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**43.7 - 48.7**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**46.0**
Sampling Time:	1335	Depth to Groundwater (ft):	20.43
Total Discharge (gal):	1.57	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	28.27

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0935	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
13-8_061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-8_Date ie; mmddyy							

1302 Time	1307	1312	1317	1322	1327	1332		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.2	.2	.2	.2	.2	.2		
Volume Purged (Liters)	1	2	3	4	5	6		
Water Depth (ft)	20.44	20.44	20.44	20.44	20.45	20.45		
Temperature (°C), (± 0.2)	13.03	13.03	13.25	13.40	13.46	13.60		
pH, (± 0.1)	7.29	7.23	7.23	7.24	7.22	7.23		
Sp. Conductance (uS/cm),(± 3%)	705	702	702	702	703	704		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.48	6.64	6.80	6.38	7.26	6.46		
ORP (mV), (± 10%)	161.1	141.5	132.0	123.7	126.3	116.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	5.55	5.65	5.68	6.44	7.05	5.57		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**13-9**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	
Sampling Personnel:	B. CARRON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	53.7
Purging Equipment:	Ded Bladder	Screened Interval (ft):	53.5 - 48.5
Sampling Equipment:	Ded Bladder	Purge Depth (ft):	51.0
Sampling Time:	1335	Depth to Groundwater (ft):	21.31
Total Discharge (gal):	1.1	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	32.39
Weather:	Sunny - 82°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15			
Turbidity:	Micro TPW	3/9/15	Duplicate	D1_060815	0800
Other:		BC	~~TB2~~ Trip Blank	TB2_060815	0800

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
13-9_060815	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-9_Date ie; mmddyy							

Time	1303	1308	1313	1318	1323	1328	1333		
Parameter (every 5 min)		5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)		0.2	0.2	BC ~~0.2~~ 0.1	0.1	0.1	0.1		
Volume Purged (Liters)		1.0	2.0	BC ~~3.0~~ 2.5	3.0	3.5	4.0		
Water Depth (ft)		21.39	21.41	21.38	21.38	21.38	21.38		
Temperature (°C), (± 0.2)		14.48	13.68	14.13	13.92	14.03	13.65		
pH, (± 0.1)		7.58	7.35	7.36	7.38	7.38	7.38		
Sp. Conductance (uS/cm),(± 3%)		759	754	752	753	751	750		
DO (mg/L), (± 10% or 10% of 0.2mg/l)		1.55	0.56	0.53	0.52	0.50	0.57		
ORP (mV), (± 10%)		81.4	54.0	39.8	32.6	24.2	13.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)		8.12	7.27	8.80	5.89	6.17	6.87		
Color		Clear							
Odor/Evidence of LNAPL		None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

DNAPL Test: 21.31 FT ~~0.25~~ 1 TOC - 6/9/15

DNAPL TEST: NEG.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/11/15 Sampled: 6/12/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Submersible Pump

Sampling Equipment: Ded. Bladder.

Sampling Time: 0925

Total Discharge (gal): Purge: 23 Sample: 0.1

Water Disposal: GWTP

Weather: Sunny - 70°F

Well Number: **13-10**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in):

Well Condition: Good

Total Casing Depth (ft): **58.3**

Screened Interval (ft): **53.0 - 58.0**

Purge Depth (ft): **55.0**

Depth to Groundwater (ft): Purged: 20.53 Sampled: 20.54

Depth to LNAPL (ft): —

Water Column (ft): Purged: 37.77 Sampled: 37.76

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
13-10_061215	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 13-10_Date ie; mmddyy

Time	1003	1007	1012	1015				0915	0920
Parameter (every 5 min)		4 min	9 min	12 min	min	min	min	min	5 min
Flow Rate (L/min)		6.2	6.2	6.2					0.1
Volume Purged (Liters)		24.8	~~24.8~~ 31 BC	~~24.8~~ 18.6 BC					0.5
Water Depth (ft)		30.30	43.40	49.70					20.76
Temperature (°C), (± 0.2)		11.74	11.77	11.83					16.43
pH, (± 0.1)		8.72	8.62	8.62					8.08
Sp. Conductance (uS/cm),(± 3%)		432	432	432					234
DO (mg/L), (± 10% or 10% of 0.2mg/l)		1.96	1.72	1.68					7.14
ORP (mV), (± 10%)		7.5	2.0	-1.9					33.3
Turbidity (NTU), (± 10% or 3 <10 NTUs)		12.33	6.06	7.87					14.79
Color		CLEAR	→						CLEAR
Odor/Evidence of LNAPL		NONE	→						NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters Stopped dewatering at 10:17

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/8/15 Sampled: 6/9/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: CL

Water Level Meter: Solinst

Purging Equipment: Ded. Bladder

Sampling Equipment: Ded. Bladder

Sampling Time: 1525

Total Discharge (gal): 2.63

Water Disposal: GWTP

Well Number: **14-2**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Well Condition: Good

Total Casing Depth (ft): **38.5**

Screened Interval (ft): **33.5 - 38.5**

Purge Depth (ft): **35.0**

Depth to Groundwater (ft): Purged: 19.33 Sampled: 21.57

Depth to LNAPL (ft): —

Water Column (ft): Purged: 19.17 Sampled: 16.93

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15, 6/9/15 0930			
Turbidity:	Micro TPW	3/19/15	FIELD BLANK	LIV_060915	1520
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
14-2_060915	3	VOA	HCL	40ml	N	VOC 8260	
14-2_	1	PL	HNO3	250ml	Y	Diss. Fe, K, Na, Ca, Mg, Total Hardness	Field Filtered
14-2_	1	PL	H2SO4	250ml	N	Nitrate+Nitrite	
14-2_	1	PL	None	1Liter	N	TDS, Alkalinity, Sulfate, & Chloride	
COMPLETE SAMPLE ID: 14-2_Date ie; mmddyy							

1122 Time	1127	1132	1137				1517	1522
Parameter (every 5 min)	5 min	10 min	15 min	min	min	min	min	5 min
Flow Rate (L/min)	.6	.6	.6					.2
Volume Purged (Liters)	3	6	9					1
Water Depth (ft)	24.88	28.55	33.0					26.35
Temperature (°C), (± 0.2)	11.29	11.16	11.23					11.82
pH, (± 0.1)	12.62	12.64	12.66					12.62
Sp. Conductance (uS/cm),(± 3%)	2221	2158	2090					2624
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.71	0.40	0.68					0.98
ORP (mV), (± 10%)	-118.2	-136.6	-130.9					-100.8
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.16	3.72	3.05					6.03
Color	CLEAR							CLEAR
Odor/Evidence of LNAPL	NONE	NOTICED						NONE NOTICED

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

ISCO-7: DTW = 19.57

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/10/15	Well Number:	**ISCO-7**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	32.5
Purging Equipment:	SAMPLE PRO	Screened Interval (ft):	27.5-32.5
Sampling Equipment:	SAMPLE PRO	Purge Depth (ft):	30.0
Sampling Time:	1350	Depth to Groundwater (ft):	19.50
Total Discharge (gal):	1.97	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	13.00

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15 0730	RINSE BLANK	RX_061015	1315
Turbidity:	Micro TPW	3/9/15	CLEAR TRIP	TB1_061015	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
ISCO-7_061015	3	VOA	HCL	40ml	N	VOC 8260	
ISCO-7_061015	1	PL	HNO3	250ml	Y	Diss. Fe, K, Na, Ca, Mg, Total Hardness	Field Filtered
ISCO-7_061015	1	PL	H2SO4	250ml	N	Nitrate+Nitrite	
ISCO-7_061015	1	PL	None	1Liter	N	TDS, Alkalinity, Sulfate, & Chloride	
COMPLETE SAMPLE ID: ISCO-7_Date ie; mmddyy							

1321 Time	1326	1331	1336	1341	1346			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3			
Volume Purged (Liters)	1.5	3	4.5	6	7.5			
Water Depth (ft)	19.50	19.51	19.51	19.51	19.51			
Temperature (°C), (± 0.2)	12.19	11.83	11.55	11.43	11.33			
pH, (± 0.1)	8.17	7.98	7.86	7.77	7.67			
Sp. Conductance (uS/cm),(± 3%)	661	647	~~653~~ 646	646	646			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	7.41	6.74	6.53	6.54	6.36			
ORP (mV), (± 10%)	113.3	96.4	90.7	88.8	88.9			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.05	4.20	3.77	2.56	2.65			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

14-2: DTW = 19.33

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/11/15 Sampled: 6/12/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: Sub. Pump

Sampling Equipment: Ded. Bladder

Sampling Time: 0815

Total Discharge (gal): PURGE: 6

Water Disposal: GWTP

Weather: Sunny - 70°F

Well Number: **14-3**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Well Condition: GOOD

Total Casing Depth (ft): **49.5**

Screened Interval (ft): **44.5 - 49.5**

Purge Depth (ft): **46.0**

Depth to Groundwater (ft): Purged: 22.49 Sampled: 22.61

Depth to LNAPL (ft): —

Water Column (ft): Purged: 27.01 Sampled:

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
14-3_ 061215	3	VOA	HCL	40ml	N	VOC 8260	
14-3_ 061215	1	PL	HNO3	250ml	Y	Diss. Fe, K, Na, Ca, Mg, Total Hardness	Field Filtered
14-3_ 061215	1	PL	H2SO4	250ml	N	Nitrate+Nitrite	
14-3_ 061215	1	PL	None	1Liter	N	TDS, Alkalinity, Sulfate, & Chloride	
COMPLETE SAMPLE ID: 14-3_Date ie; mmddyy							

Time	0921	0923	0926	0929				0839	0844
Parameter (every 5 min)	2 min	5 min	8 min	min	min	min	min		5 min
Flow Rate (L/min)	2.3	2.3	2.3						0.2
Volume Purged (Liters)	4.6	~~6.89~~ 6.9	6.9						1.0
Water Depth (ft)	27.10	29.60	39.5						22.81
Temperature (°C), (± 0.2)	12.80	13.13	12.12						12.80
pH, (± 0.1)	7.40	7.24	7.19						7.38
Sp. Conductance (uS/cm),(± 3%)	720	718	714						724
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.37	1.78	1.89						4.86
ORP (mV), (± 10%)	-21.4	-9.9	2.9						-6.7
Turbidity (NTU), (± 10% or 3 <10 NTUs)	32.11	~~29.60~~ 9.77	21.39						47.27
Color	V. LIGHT	GRAY	→						LT GRY
Odor/Evidence of LNAPL	NONE								NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

TANK START: 62 GAL TANK END: 68

STOPPED DEWATERING AT 0931

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purged: 6/11/15 Sampled: 6/12/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: BC ~~Ded. Bladder~~ Sub. Pump.

Sampling Equipment: Ded. Bladder

Sampling Time: 0815

Total Discharge (gal): Purge: 5 Sample: 0.1

Water Disposal: GWTP

Weather: Sunny BC 70°F

Well Number: **14-4**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Well Condition: Good

Total Casing Depth (ft): 40.5

Screened Interval (ft): 35.5 - 40.5

Purge Depth (ft): 37.0

Depth to Groundwater (ft): Purged: 21.54 Sampled: 27.41

Depth to LNAPL (ft): —

Water Column (ft): Purged: 18.96 Sampled:

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15			
Turbidity:	Micro TPW	3/9/15	TRIP BLANK	TB2_061215	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
14-4_061215	3	VOA	HCL	40ml	N	VOC 8260	
14-4_061215	1	PL	HNO3	250ml	Y	Diss. Fe, K, Na, Ca, Mg, Total Hardness	Field Filtered
14-4_061215	1	PL	H2SO4	250ml	N	Nitrate+Nitrite	
14-4_061215	1	PL	None	1Liter	N	TDS, Alkalinity, Sulfate, & Chloride	
COMPLETE SAMPLE ID: 14-4_Date ie; mmddyy							

Time	0838	0840	0842					0807	0812
Parameter (every 5 min)		2 min	4 min	min	min	min	min	min	5 min
Flow Rate (L/min)		4.8	4.8						0.1
Volume Purged (Liters)	BC	~~3~~ 9.6	9.6						0.5
Water Depth (ft)	BC	~~34.00~~ 31.00	35.50						28.30
Temperature (°C), (± 0.2)		11.82	12.33						12.80
pH, (± 0.1)		7.32	6.99						7.11
Sp. Conductance (uS/cm),(± 3%)		575	616						606
DO (mg/L), (± 10% or 10% of 0.2mg/l)		3.11	1.24						3.14
ORP (mV), (± 10%)		-75.6	-107.6						-76.9
Turbidity (NTU), (± 10% or 3 <10 NTUs)		67.49	84.60						177.4
Color		V. LIGHT	TAN						TAN
Odor/Evidence of LNAPL		NONE →							NONE

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters stopped dewatering at 08:42

Note: Well will not sustain Low/Flow min. purge rate of 0.1-L/min., purged with sub. pump to top of scrn. int., allow recovery.

Removed j-plug - lots of build up pressure from recovery of water column.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: Purge: 6/8/15 Sample: 6/9/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: C. LAROSE

Water Level Meter: Solinst

Purging Equipment: ~~Ded. Bladder~~ Submersible

Sampling Equipment: Ded. Bladder

Sampling Time: 1340

Total Discharge (gal):

Water Disposal: GWTP

Weather: Sunny - 90°F

Well Number: **14-6**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 2

Well Condition: Good

Total Casing Depth (ft): **39.0**

Screened Interval (ft): **34.0 - 39.0**

Purge Depth (ft): **36.0**

Depth to Groundwater (ft): 18.32/18.27

Depth to LNAPL (ft):

Water Column (ft): 20.73

Reference: **TOC**

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/9/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
14-6_ 060915	3	VOA	HCL	40ml	N	VOC 8260	
14-6_	1	PL	HNO3	250ml	Y	Diss. Fe, K, Na, Ca, Mg, Total Hardness	Field Filtered
14-6_	1	PL	H2SO4	250ml	N	Nitrate+Nitrite	
14-6_	1	PL	None	1Liter	N	TDS, Alkalinity, Sulfate, & Chloride	
COMPLETE SAMPLE ID: 14-6_Date ie; mmddyy							

1720 Time	1722	1724					1332	1337
Parameter (every 5 min)	2 min	4 min	min	min	min	min	min	5 min
Flow Rate (L/min) Gal/min	0.8	0.8					L/min	0.2
Volume Purged (Liters) GAL	1.6	3.2					L/min	1
Water Depth (ft)	27.00	34.00						18.84
Temperature (°C), (± 0.2)	11.11	11.20						11.53
pH, (± 0.1)	8.03	7.96						8.17
Sp. Conductance (uS/cm),(± 3%)	580	580						571
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.48	3.06						1.54
ORP (mV), (± 10%)	-42.8	-92.8						-16.8
Turbidity (NTU), (± 10% or 3 <10 NTUs)	188.0	331.8						45.35
Color	DK GREY	/ LT GREY						
Odor/Evidence of LNAPL	NONE	/ SULFUR LIKE ODORS						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters Attempted to purge at 0.1 L/min, minimum req'd drawdown did not sustain. Attempted to dewater with dedicated bladder, could not reach top of screen. Let recover, attempted to sample again at 0.1 L/min, min. req'd drawdown did not sustain.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/15/15	Well Number:	**ISCO-2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.4
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**31.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**26.6-31.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**29.0**
Sampling Time:	1245	Depth to Groundwater (ft):	20.61
Total Discharge (gal):	1.2	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.99

Reference: TOC

Weather: PT CLOUDY - 25mph WIND - 65°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15	Duplicate	DI_061515	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
ISCO-2_061515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: ISCO-2_Date ie; mmddyy							

Time	1225	1230	1235	1240					
Parameter (every 5 min)		5 min	10 min	15 min	min	min	min	min	min
Flow Rate (L/min)		0.3	0.3	0.3					
Volume Purged (Liters)		1.5	3.0	4.5					
Water Depth (ft)		20.61	20.61	20.61					
Temperature (°C), (± 0.2)		12.07	11.93	12.06					
pH, (± 0.1)		7.36	7.29	7.27					
Sp. Conductance (uS/cm),(± 3%)		679	680	680					
DO (mg/L), (± 10% or 10% of 0.2mg/l)		4.99	5.13	5.14					
ORP (mV), (± 10%)		112.8	103.1	95.7					
Turbidity (NTU), (± 10% or 3 <10 NTUs)		3.04	1.89	0.56					
Color		CLEAR →							
Odor/Evidence of LNAPL		NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

10-2: DTW = SEE 10-2 FORM. 20.29

ISCO-1: DTW = SEE 10-2 FORM. 20.68

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**ISCO-24R**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.3
Project Number:	**1596021*16**	Well Diameter (in):	6
Sampling Personnel:	B. CARLSON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**33.7**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**28.7-33.7**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.0**
Sampling Time:	1405	Depth to Groundwater (ft):	18.51
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	15.19

Reference: TOC

Weather: PT CLOUDY - 75°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15	TB2-TRIP BLANK	TB2_061115	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
ISCO-24R_ 061115	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: ISCO-24R_Date ie; mmddyy

1342 Time	1347	1352	1357	1402				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3				
Volume Purged (Liters)	1.5	3.0	4.5	6.0				
Water Depth (ft)	18.52	18.52	18.53	18.53				
Temperature (°C), (± 0.2)	11.21	10.99	10.88	10.93				
pH, (± 0.1)	7.42	7.26	7.24	7.24				
Sp. Conductance (uS/cm),(± 3%)	625	627	627	627				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.39	5.98	5.48	5.57				
ORP (mV), (± 10%)	52.2	53.7	55.1	54.0				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.14	2.14	2.02	1.94				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

10-1: DTW = 18.54

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**89-8**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.5
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**25.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**15.5 - 25.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**23.0**
Sampling Time:	1215	Depth to Groundwater (ft):	18.98
Total Discharge (gal):	2.10	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	6.62

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15 0800	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
89-8_060815	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 89-8_Date ie; mmddyy							

1153 Time	1158	1203	1208	1213				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.4	.4	.4	.4				
Volume Purged (Liters)	2	4	6	8				
Water Depth (ft)	18.98	18.98	18.98	19.98				
Temperature (°C), (± 0.2)	11.36	11.19	11.17	11.15				
pH, (± 0.1)	8.32	8.16	8.14	8.13				
Sp. Conductance (uS/cm),(± 3%)	732	731	730	730				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.88	6.81	6.81	6.77				
ORP (mV), (± 10%)	94.3	77.4	73.4	69.6				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.21	1.26	1.69	1.74				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-58**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**40.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**15.5 - 40.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.0**
Sampling Time:	1655	Depth to Groundwater (ft):	18.88
Total Discharge (gal):	1.6	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	21.62
Weather:	Sunny - 80°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15	TRIP BLANK	TB3_061815	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-58_061815	3	VOA	HCL	40ml	N	VOC 8260	
EX-58_061815	3	VOA	HCL	40ml	N	VPH MADEP	
EX-58_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: EX-58_Date ie; mmddyy							

1633 Time	1638	1643	1648	1653				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3				
Volume Purged (Liters)	1.5	3.0	4.5	6.0				
Water Depth (ft)	18.88	18.88	18.88	18.88				
Temperature (°C), (± 0.2)	11.94	12.06	12.01	11.93				
pH, (± 0.1)	7.46	7.25	7.24	7.22				
Sp. Conductance (uS/cm),(± 3%)	601	593	597	606				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.34	4.06	4.00	3.93				
ORP (mV), (± 10%)	110.5	96.7	86.4	79.8				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	20.79	7.32	4.42	4.40				
Color	V LT TAN/CLEAR							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**12-7**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.6 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**35.1**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**15.1 - 35.1**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**30.0**
Sampling Time:	1120	Depth to Groundwater (ft):	23.15
Total Discharge (gal):	~~BK ~2.5~~ ~2	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.95
Weather:	Sunny 64°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
12-7_0604.15	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-7_Date ie; mmddyy							

1050 Time	1055	1100	1105	1110	1115			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3			
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5			
Water Depth (ft)	23.15	23.15	23.15	23.15	23.15			
Temperature (°C), (± 0.2)	12.95	13.14	12.99	12.84	12.93			
pH, (± 0.1)	6.78	6.75	6.76	6.76	6.77			
Sp. Conductance (uS/cm),(± 3%)	792	794	797	795	794			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.57	0.72	0.70	0.66	0.61			
ORP (mV), (± 10%)	-8.2	-11.3	-17.2	-18.1	-19.3			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	6.91	6.36	2.80	2.40	3.04			
Color	Very lt	tan						
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

10-3: DTW = 23.55

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/15/15	Well Number:	**12-8**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.4 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	CL ~~17.9~~ 37.9
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	17.9 - 37.9
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	32.0
Sampling Time:	1255	Depth to Groundwater (ft):	24.11
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	13.79

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	06/15/15 0800	Type	Sample ID	Time
Turbidity:	Micro TPW	3/a/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
12-8_061515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-8_Date ie; mmddyy							

1220 Time	1225	1230	1235	1240	1245	1250		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.4	.4	.4	.4	.4	.4		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	24.11	24.11	24.11	24.11	24.11	24.11		
Temperature (°C), (± 0.2)	11.68	11.58	11.65	11.74	11.76	11.78		
pH, (± 0.1)	7.01	6.99	6.99	6.99	7.00	7.01		
Sp. Conductance (uS/cm),(± 3%)	709	708	7.08	708	7.08	708		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.07	4.71	4.37	4.74	4.68	4.59		
ORP (mV), (± 10%)	141.8	134.7	127.7	124.2	120.9	117.8		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.57	2.98	3.45	3.14	1.88	—		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**12-9**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.1 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**33.1**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**18.1 - 33.1**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**30.0**
Sampling Time:	1350	Depth to Groundwater (ft):	22.17
Total Discharge (gal):	BC ~~~2.5~~ ~1.5	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.93

Reference: TOC

Weather: Pt Cloudy - 68°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	BC ~~6/~~ /12 6/4/15	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	BC ~~6/4/15~~ 3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
12-9_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 12-9_Date ie; mmddyy							

1325 Time	1330	1335	1340	1345				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3				
Volume Purged (Liters)	1.5	3.0	4.5	6.0				
Water Depth (ft)	22.17	22.17	22.17	22.17				
Temperature (°C), (± 0.2)	12.25	11.88	11.84	11.85				
pH, (± 0.1)	7.08	6.94	6.94	6.93				
Sp. Conductance (uS/cm),(± 3%)	857	850	848	847				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.28	3.35	3.23	3.21				
ORP (mV), (± 10%)	56.8	60.7	61.0	62.2				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	0.00	0.00	0.44	0.00				
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

10-7: DTW = 22.37

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**12-10**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.6 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	CL ~~20.1~~ 30.1
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	20.1 - 30.1
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	30.0
Sampling Time:	CL ~~0935~~ 0945	Depth to Groundwater (ft):	24.14
Total Discharge (gal):	1.31	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	5.96

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0700			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
12-10_ 061215	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 12-10_Date ie; mmddyy

~~0917~~ Time	0922	0927	0932	0937	0942			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.2	.2	.2	.2	.2			
Volume Purged (Liters)	1	2	3	4	5			
Water Depth (ft)	24.15	24.14	24.14	24.14	24.14			
Temperature (°C), (± 0.2)	13.44 13.65a	13.26	13.09	13.13	13.15			
pH, (± 0.1)	7.16 6.91a	6.75	6.71	6.71	6.71			
Sp. Conductance (uS/cm),(± 3%)	846	840	839	836	836			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	1.93	0.79	0.24	0.26	0.26			
ORP (mV), (± 10%)	74.3	62.1	52.0	47.1	44.4			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.85	5.58	2.82	3.59	6.11			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6dul15	Well Number:	**13-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**30.0**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**24.5 - 27.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**26.0**
Sampling Time:	1255	Depth to Groundwater (ft):	20.66
Total Discharge (gal):	1.97	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.34

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	6dul15 0730	Type	Sample ID	Time
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
13-1_06ul15	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 13-1_Date ie; mmddyy

1228 Time	1233	1238	1243	1248	1253			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3			
Volume Purged (Liters)	1.5	3	4.5	6	7.5			
Water Depth (ft)	20.73	20.72	20.72	20.72	20.72			
Temperature (°C), (± 0.2)	12.74 ~~13.78~~	12.43	12.33	12.37	12.34			
pH, (± 0.1)	7.76 ~~6.99~~	7.29	7.22	7.22	7.22			
Sp. Conductance (uS/cm),(± 3%)	694	692	692	686	688			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	8.19	6.81	6.89	6.43	6.21			
ORP (mV), (± 10%)	219.1	202.1	177.7	160.4	147.4			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	0.00	0.53	0.53	0.56	1.45			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**13-2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**29.2**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**26.2 - 29.2**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**28.0**
Sampling Time:	1420	Depth to Groundwater (ft):	20.04
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.16

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0730	Type	Sample ID	Time
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
13-2_061115	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 13-2_Date ie; mmddyy

1347 Time	1352	1357	1402	1407	1412	1417		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	20.09	20.09	20.09	20.09	20.09	20.09		
Temperature (°C), (± 0.2)	12.12	12.42	12.17	12.25	11.99	11.88		
pH, (± 0.1)	7.24	7.25	7.24	7.25	7.24	7.23		
Sp. Conductance (uS/cm),(± 3%)	656	655	654	654	655	653		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.46	6.44	6.38	6.29	6.46	6.21		
ORP (mV), (± 10%)	171.8	141.1	126.0	115.6	112.3	109.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.45	3.29	3.19	2.75	2.65	2.84		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**13-3**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**31.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**28.5 - 31.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**30.0**
Sampling Time:	1635	Depth to Groundwater (ft):	21.56
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.94

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15	**Duplicate**	D3_061115	0800
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
13-3_061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-3_Date ie; mmddyy							

1603 Time	1608	1613	1618	1623	1628	1633		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	21.58	21.58	21.59	21.59	21.59	21.59		
Temperature (°C), (± 0.2)	12.77	12.43	12.30	12.39	12.37	12.15		
pH, (± 0.1)	7.40	7.32	7.31	7.29	7.31	7.29		
Sp. Conductance (uS/cm),(± 3%)	727	720	711	697	692	692		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.98	5.67	5.89	6.13	6.00	6.55		
ORP (mV), (± 10%)	168.3	134.0	109.0	114.5	97.5	93.9		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	23.08	22.02	20.40	10.79	9.07	9.32		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**13-4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**27.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**24.5 - 27.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**26.0**
Sampling Time:	1030	Depth to Groundwater (ft):	21.93
Total Discharge (gal):	1.05	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	5.57

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0900			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
13-4_061215	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-4_Date ie; mmddyy							

1006 Time	1011	1016	1021	1026				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.2	.2	.2	.2				
Volume Purged (Liters)	1	2	3	4				
Water Depth (ft)	21.96	21.96	21.96	21.96				
Temperature (°C), (± 0.2)	12.69	12.44	12.41	12.34				
pH, (± 0.1)	7.32	7.22	7.21	7.19				
Sp. Conductance (uS/cm),(± 3%)	697	697	695	695				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.28	5.99	5.96	6.02				
ORP (mV), (± 10%)	93.0	84.8	82.2	82.1				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	5.10	6.16	7.92	5.72				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**13-5**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**35.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**30.75 - 33.75**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**32.0**
Sampling Time:	1110	Depth to Groundwater (ft):	20.44
Total Discharge (gal):	1.97	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	15.06

Reference: **TOC**

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0700	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
13-5_061215	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-5_Date ie; mmddyy							

1042 Time	1047	1052	1057	1102	1107			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3			
Volume Purged (Liters)	1.5	3	4.5	6	7.5			
Water Depth (ft)	20.48	20.48	20.48	20.48	20.48			
Temperature (°C), (± 0.2)	12.26	12.29	12.32	12.36	12.47			
pH, (± 0.1)	7.25	7.25	7.25	7.24	7.25			
Sp. Conductance (uS/cm),(± 3%)	658	658	657	657	658			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.57	5.35	5.28	5.34	5.27			
ORP (mV), (± 10%)	99.4	89.3	77.7	77.5	75.5			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	7.71	8.09	8.47	9.05	9.32			
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**13-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**33.0**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**30.0 - 33.0**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.5**
Sampling Time:	1205	Depth to Groundwater (ft):	20.26
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.74

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0700	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
13-6_061215	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-6_Date ie; mmddyy							

1132 Time	1137	1142	1147	1152	1157	1202		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	20.29	20.29	20.29	20.29	20.29	20.29		
Temperature (°C), (± 0.2)	13.00	12.95	12.78	12.66	12.70	12.76		
pH, (± 0.1)	7.40	7.31	7.27	7.26	7.25	7.25		
Sp. Conductance (uS/cm),(± 3%)	636	638	635	638	635	634		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.43	4.60	4.44	4.33	4.28	4.28		
ORP (mV), (± 10%)	104.3	84.9	75.8	75.4	73.8	69.7		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	10.34	11.81	11.25	10.63	7.65	5.40		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**13-7**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	GOOD! BOX NEEDS REPLACE.
Water Level Meter:	Solinst	Total Casing Depth (ft):	**32.0**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**29.0 - 32.0**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**30.5**
Sampling Time:	1305	Depth to Groundwater (ft):	20.31
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.69

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	06/12/15 0700	Type	Sample ID	Time
Turbidity:	Micro TPW	3/12/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
13-7_ 061215	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 13-7_Date ie; mmddyy							

1232 Time	1237	1242	1247	1252	1257	1302		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	20.33	20.33	20.33	20.33	20.33	20.33		
Temperature (°C), (± 0.2)	12.31	12.06	11.95	11.98	11.95	11.91		
pH, (± 0.1)	7.32	7.22	7.22	7.21	7.19	7.17		
Sp. Conductance (uS/cm),(± 3%)	627	623	626	627	627	627		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.55	3.20	2.89	2.71	2.48	1.86		
ORP (mV), (± 10%)	112.8	107.9	106.4	104.8	104.5	102.2		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	9.58	9.08	10.01	8.88	10.02	7.95		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**14-5**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**31.0**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**28.0 - 31.0**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**28.5**
Sampling Time:	1415	Depth to Groundwater (ft):	20.99
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.01

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15 0700			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
14-5_ 060215	3	VOA	HCL	40ml	N	VOC 8260	
14-5_ 060215	1	PL	HNO3	250ml	Y	Diss. Fe, K, Na, Ca, Mg, Total Hardness	Field Filtered
14-5_ 060215	1	PL	H2SO4	250ml	N	Nitrate+Nitrite	
14-5_ 060215	1	PL	None	1Liter	N	TDS, Alkalinity, Sulfate, & Chloride	
COMPLETE SAMPLE ID: 14-5_Date ie; mmddyy							

1340 Time	1345	1350	1355	1400	1405	1410		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	21.01	21.01	21.01	21.01	21.01	21.01		
Temperature (°C), (± 0.2)	12.91	12.88	12.87	12.78	12.76	12.74		
pH, (± 0.1)	7.32	7.25	7.22	7.21	7.20	7.20		
Sp. Conductance (uS/cm),(± 3%)	672	669	668	668	667	667		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	1.75	1.58	151	1.69	1.86	1.91		
ORP (mV), (± 10%)	122.4	117.5	112.7	110.5	108.4	107.0		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	5.44	6.73	7.49	7.68	4.72	6.19		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	# 3
Project Name:	BN Livingston Shop Complex	Monument Type:	Stickup: _____ (ft PVC) Flush: -1.1
Project Number:	1596021*16	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	23.6
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	13.6 - 23.6
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	22.0
Sampling Time:	1745	Depth to Groundwater (ft):	17.89
Total Discharge (gal):	~~4~~ 3.9	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	5.71
Weather:	Sunny - 85°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
3_061815	3	VOA	HCL	40ml	N	VOC 8260	
3_061815	3	VOA	HCL	40ml	N	VPH MADEP	
3_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen	

COMPLETE SAMPLE ID: 3_Date ie; mmddyy

1714 Time	1719	1724	1729	1734	1739	1744		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.5	0.5	0.5	0.5	0.5	0.5		
Volume Purged (Liters)	2.5	5.0	7.5	~~9.0~~ 10.0	12.5	15.0		
Water Depth (ft)	17.90	17.91	17.92	17.93	17.93	17.93		
Temperature (°C), (± 0.2)	11.51	11.25	11.16	11.03	10.93	11.00		
pH, (± 0.1)	7.43	7.29	7.28	7.29	7.28	7.33		
Sp. Conductance (uS/cm),(± 3%)	637	636	637	636	636	635		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.90	5.07	5.14	5.21	5.32	5.25		
ORP (mV), (± 10%)	102.8	89.3	81.9	78.5	78.3	75.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	22.29	15.83	10.55	9.56	7.28	6.51		
Color	V. LT GRAY/CLEAR							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/5/15	Well Number:	# 5
Project Name:	BN Livingston Shop Complex	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.6
Project Number:	1596021*16	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good - monument had water in it.
Water Level Meter:	Solinst	Total Casing Depth (ft):	12.7
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	2.7 - 12.7
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	11.0
Sampling Time:	1100	Depth to Groundwater (ft):	3.76
Total Discharge (gal):	3.2	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	8.94
Weather:	Cloudy - 57°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/5/15	FIELD BLANK	LIV_060515	1038
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
5_060515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 5_Date ie; mmddyy							

1025 Time	1030	1035	1040	1045	1050	1055		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.4	0.4	0.4	0.4	0.4	0.4		
Volume Purged (Liters)	2.0	4.0	6.0	8.0	10.0	12.0		
Water Depth (ft)	3.76	3.76	3.76	3.76	3.76	3.76		
Temperature (°C), (± 0.2)	11.02	10.96	10.91	10.89	10.85	10.87		
pH, (± 0.1)	7.36	7.18	7.13	7.15	7.16	7.15		
Sp. Conductance (uS/cm),(± 3%)	525	524	524	524	524	524		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.88	4.44	4.22	4.09	4.02	4.04		
ORP (mV), (± 10%)	147.8	150.0	146.9	142.1	137.8	136.5		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	71.63	50.78	48.92	34.55	24.35	22.11		
Color	LT BRN				VERY LT	BRN		
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/5/15	Well Number:	# 6
Project Name:	BN Livingston Shop Complex	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.9
Project Number:	1596021*16	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good - monument stripped.
Water Level Meter:	Solinst	Total Casing Depth (ft):	12.4
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	2.4 - 12.4
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	10.0
Sampling Time:	1000	Depth to Groundwater (ft):	4.02
Total Discharge (gal):	BC ~2 2.0	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	8.38
Weather:	Cloudy - 66°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/5/15			
Turbidity:	Micro TPW	BC 4 3/9/15	~~FIELD BLANK~~	LTV BC	
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
6_060515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 6_Date ie; mmddyy							

0933 Time	0938	0943	0948	0953	0958			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3			
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5			
Water Depth (ft)	4.02	4.02	4.02	4.02	4.02			
Temperature (°C), (± 0.2)	11.71	11.62	11.56	11.49	11.61			
pH, (± 0.1)	6.97	6.95	7.00	7.02	7.04			
Sp. Conductance (uS/cm),(± 3%)	581	578	575	575	573			
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.15	2.49	2.22	2.13	2.08			
ORP (mV), (± 10%)	187.7	185.6	177.6	171.0	165.4			
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.05	1.41	0.53	0.00	0.00			
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/15/15	Well Number:	# 11
Project Name:	BN Livingston Shop Complex	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.4
Project Number:	1596021*16	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	28.0
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	18.0 - 28.0
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	27.0
Sampling Time:	1200	Depth to Groundwater (ft):	
Total Discharge (gal):	0.78	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/15/15 0800	Field Blank	LN_061515	1135
Turbidity:	Micro TPW	3/9/15	Trip Blank	TB_061515	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
11_061515	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 11_Date ie; mmddyy

1127 Time	1132	1137	1142	1147	1152	1157		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.1	.1	.1	.1	.1	.1		
Volume Purged (Liters)	.5	1	1.5	2	2.5	3		
Water Depth (ft)	—	—	—	—	—	—		
Temperature (°C), (± 0.2)	15.00	15.09	14.84	15.04	15.19	14.91		
pH, (± 0.1)	7.21	7.19	7.15	7.18	7.20	7.21		
Sp. Conductance (uS/cm),(± 3%)	626	628	633	635	640	644		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.27	0.27	0.25	0.26	0.26	0.27		
ORP (mV), (± 10%)	-58.3	-44.1	-23.5	-6.0	9.3	21.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.79	4.32	3.89	4.00	3.50	3.81		
Color	CLEAR W/ MINOR ORGANIC MATTER							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

* UNABLE TO MONITOR GW LEVEL. GW LEVEL BELOW TOP OF PUMP.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**89-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.2 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**32.2**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**22.2 - 32.2**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**27.0**
Sampling Time:	1010	Depth to Groundwater (ft):	3.45
Total Discharge (gal):	1.18	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	28.75

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0930			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
89-1_ 061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 89-1_Date ie; mmddyy							

Time	0952	0957	1002	1007	1012			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	3.45	3.45	3.45					
Temperature (°C), (± 0.2)	11.30	11.26	11.19					
pH, (± 0.1)	7.29	7.26	7.25					
Sp. Conductance (uS/cm),(± 3%)	749	763	765					
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.56	4.26	4.05					
ORP (mV), (± 10%)	153.4	143.7	132.8					
Turbidity (NTU), (± 10% or 3 <10 NTUs)	5.03	6.54	4.17					
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**89-2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 0.8 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**39.8**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**19.8 - 39.8**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**36.0**
Sampling Time:	1155	Depth to Groundwater (ft):	23.48
Total Discharge (gal):	1.57	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	16.32

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0930	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
89-2_ 061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 89-2_Date ie; mmddyy							

1130 Time	1135	1140	1145	1150				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	23.48	23.48	23.48	23.48				
Temperature (°C), (± 0.2)	12.61	12.49	12.52	12.55				
pH, (± 0.1)	7.49	7.37	7.36	7.35				
Sp. Conductance (uS/cm),(± 3%)	562	564	566	565				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.35	6.20	6.29	6.17				
ORP (mV), (± 10%)	141.7	127.0	117.2	111.9				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.90	2.44	3.13	2.40				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/9/15	Well Number:	**89-3**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.7
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	33.3
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	13.3 - 33.3
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	31.0
Sampling Time:	1315	Depth to Groundwater (ft):	17.97
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	15.33

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/9/15 0930	Duplicate	DI_060915	0800
Turbidity:	Micro TPW	3/9/15	PDB-BLANK	PDB_060915	~~1235~~ 1150
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
89-3_060915	3	VOA	HCL	40ml	N	VOC 8260	
89-3-PDB-~~21~~_19.6_	3	VOA	HCL	40ml	N	VOC 8260	1155
89-3-PDB-~~26~~_25.3_	3	VOA	HCL	40ml	N	VOC 8260	1200
89-3-PDB-~~30~~_30.9_	3	VOA	HCL	40ml	N	VOC 8260	1205
COMPLETE SAMPLE ID: 89-3_Date ie; mmddyy							

1242 Time	1247	1252	1257	1302	1307	1312		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	18.01	18.01	18.01	18.01	1801	18.01		
Temperature (°C), (± 0.2)	10.97	10.73	10.68	10.60	10.61	10.64		
pH, (± 0.1)	7.81	7.77	7.75	7.74	7.72	7.71		
Sp. Conductance (uS/cm),(± 3%)	593	590	590	590	590	~~5~~89		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.70	6.57	6.64	6.31	6.57	6.60		
ORP (mV), (± 10%)	164.4	137.2	120.0	110.4	103.6	100.9		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	118.9	105.5	75.03	51.90	41.06	19.41		
Color	BRN	LTBRN						
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**89-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.6 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**39.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**29.6 - 39.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**35.0**
Sampling Time:	1455	Depth to Groundwater (ft):	23.57
Total Discharge (gal):	-2.5	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	16.03

Reference: TOC

Weather: Pt Cloudy - 70°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
89-6_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 89-6_Date ie; mmddyy							

1420 Time	1425	1430	1435	1440	1445	1450		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	23.58	23.58	23.58	23.58	23.58	23.58		
Temperature (°C), (± 0.2)	11.95	11.81	11.28	11.28	11.25	11.23		
pH, (± 0.1)	7.55	7.39	7.32	7.43	7.31	7.32		
Sp. Conductance (uS/cm),(± 3%)	588	583	584	584	584	584		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	8.23	7.80	7.58	7.42	7.50	7.47		
ORP (mV), (± 10%)	91.1	87.9	86.5	86.0	86.4	87.1		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.02	1.66	0.50	0.02	0.00	0.42		
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/10/15	Well Number:	**89-9**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.5
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**33.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**13.5 - 33.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**29.0**
Sampling Time:	1445	Depth to Groundwater (ft):	20.13
Total Discharge (gal):	2.10	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	13.37

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
89-9_ 061015	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 89-9_Date ie; mmddyy							

1420 Time	1425	1430	1435	1440				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.4	.4	.4	.4				
Volume Purged (Liters)	2	4	6	8				
Water Depth (ft)	20.14	20.14	20.14	20.14				
Temperature (°C), (± 0.2)	11.37	10.97	10.93	10.90				
pH, (± 0.1)	7.43	7.37	7.35	7.33				
Sp. Conductance (uS/cm),(± 3%)	616	616	616	617				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.66	5.46	5.39	5.68				
ORP (mV), (± 10%)	116.4	107.1	102.9	99.5				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.26	2.52	1.84	0.48				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/15/15	Well Number:	**90-2B**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.7 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**24.7**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**14.7 - 24.7**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**24.0**
Sampling Time:	1100	Depth to Groundwater (ft):	18.34
Total Discharge (gal):	0.8	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	6.36

Reference: TOC

Weather: Pt Cloudy - LT wind - 70°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/15/15			
Turbidity:	Micro TPW	3/9/15	TRIP BLANK	TB2_061515	0800
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
90-2B_061515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 90-2B_Date ie; mmddyy							

1025 Time	1030	1035	1040	1045	1050	1055		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1		
Volume Purged (Liters)	0.5	1.0	1.5	2.0	2.5	3.0		
Water Depth (ft)	18.34	18.34	18.34	18.34	18.34	18.34		
Temperature (°C), (± 0.2)	13.08	13.16	12.95	12.94	12.79	13.01		
pH, (± 0.1)	7.06	6.90	6.89	6.89	6.90	6.90		
Sp. Conductance (uS/cm),(± 3%)	881	855	851	845	845	842		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.23	2.03	1.52	1.21	1.18	1.09		
ORP (mV), (± 10%)	180.8	169.9	160.5	151.4	144.0	138.2		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.04	4.50	0.66	2.11	2.33	2.44		
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**90-3**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.1 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**18.1**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**8.1 - 18.1**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**16.0**
Sampling Time:	0935	Depth to Groundwater (ft):	6.47
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.63

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	06/11/15 0930			
Turbidity:	Micro TPW	3/4/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
90-3_061115	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 90-3_Date ie; mmddyy

0900 Time	0905	0910	0915	0920	0925	0930		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	6.47	6.47	6.47	6.47	6.47	6.47		
Temperature (°C), (± 0.2)	10.94	10.78	10.75	10.82	10.74	10.81		
pH, (± 0.1)	7.01	6.93	6.92	6.93	6.93	6.93		
Sp. Conductance (uS/cm),(± 3%)	813	815	8.16	816	8.17	816		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.76	0.26	0.20	0.20	0.19	0.19		
ORP (mV), (± 10%)	152.9	146.4	138.0	129.9	126.0	119.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.72	2.40	3.67	2.04	2.41	0.92		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**92-2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.3 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**26.3**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**7.3 - 26.3**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**22.0**
Sampling Time:	1635	Depth to Groundwater (ft):	4.89
Total Discharge (gal):	2.4	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	21.41
Weather:	Sunny - 85°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
92-2_ 061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 92-2_Date ie; mmddyy							

1600 Time	1605	1610	1615	1620	1625	1630		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	BC ~~21.41~~ 4.89	~~21.41~~	~~21.4~~	4.89	4.89	4.89		
Temperature (°C), (± 0.2)	9.67	9.31	9.15	8.93	8.95	8.87		
pH, (± 0.1)	7.32	7.22	7.21	7.22	7.21	7.18		
Sp. Conductance (uS/cm),(± 3%)	618	482	414	382	368	361		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.38	2.14	2.02	1.99	2.02	2.01		
ORP (mV), (± 10%)	50.9	42.2	~~36.2~~ B 34.2	28.5	27.5	27.9		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.31	1.57	1.33	1.10	3.44	0.49		
Color	CLEAR/PRESENCE OF PLANT MATTER							
Odor/Evidence of LNAPL	NONE							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

10-8: DTW = 4.60

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	BC ~~060415~~ 6/4/15	Well Number:	**92-4**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.2
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARLSON	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**34.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**24.6 - 34.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.0**
Sampling Time:	1540	Depth to Groundwater (ft):	21.01
Total Discharge (gal):	~1.5	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	13.59
Weather:	Lt Rain - 70°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
92-4_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 92-4_Date ie; mmddyy							

1515 Time	1520	1525	1530	1535				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3				
Volume Purged (Liters)	1.5	3.0	4.5	6.0				
Water Depth (ft)	21.01	21.01	21.01	21.01				
Temperature (°C), (± 0.2)	11.91	11.86	11.81	11.75				
pH, (± 0.1)	7.23	7.10	7.07	7.07				
Sp. Conductance (uS/cm),(± 3%)	717	708	706	705				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.60	5.76	5.75	5.73				
ORP (mV), (± 10%)	107.3	108.7	108.7	108.7				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.12	0.01	1.45	0.00				
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**94-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.8 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**37.8**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**27.8 - 37.8**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**33.0**
Sampling Time:	1125	Depth to Groundwater (ft):	7.91
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	29.89

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0730			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
94-1_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 94-1_Date ie; mmddyy							

1051 Time	1056	1101	1106	1111	1116	1121		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	7.91	7.91	7.91	7.91	7.91	7.91		
Temperature (°C), (± 0.2)	9.98	9.65	9.85	9.77	9.66	9.98		
pH, (± 0.1)	7.98	8.06	7.97	7.99	7.96	7.94		
Sp. Conductance (uS/cm),(± 3%)	336	337	334	335	336	334		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.65	2.26	2.08	2.02	1.94	2.12		
ORP (mV), (± 10%)	64.5	22.0	-0.1	-9.9	-12.9	-14.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.85	2.08	1.86	1.12	1.03	0.90		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**94-2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.7 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**39.2**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**29.2 - 39.2**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**34.0**
Sampling Time:	1405	Depth to Groundwater (ft):	4.49
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	34.71

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/2/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
94-2_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 94-2_Date ie; mmddyy							

1331 Time	1336	1341	1346	1351	1356	1401		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	4.49	4.49	4.49	4.49	4.49	4.49		
Temperature (°C), (± 0.2)	10.94	10.98	10.85	10.71	10.71	10.74		
pH, (± 0.1)	7.84	7.81	7.72	7.69	7.70	7.73		
Sp. Conductance (uS/cm),(± 3%)	380	369	368	368	368	369		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.56	3.20	3.05	3.07	3.07	2.98		
ORP (mV), (± 10%)	83.4	36.3	18.8	14.6	12.6	9.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.02	0.86	0.00	1.06	1.35	1.40		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/15/15	Well Number:	**E-7**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: X
Project Number:	**1596021*16**	Well Diameter (in):	6
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	
Purging Equipment:	DED. BLADDER	Screened Interval (ft):	
Sampling Equipment:	DED. BLADDER	Purge Depth (ft):	
Sampling Time:	1215	Depth to Groundwater (ft):	21.13
Total Discharge (gal):		Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	

Reference: TOC

Weather: PT CLOUDY - LT WIND - 65°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/15/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
E-7_ 061515	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: E-7_Date ie; mmddyy

1156 Time	1201	~~10~~ 1206	1211					
Parameter (every 5 min)	5 min	6 min	15 min	min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3					
Volume Purged (Liters)	1.5	3.0	4.5					
Water Depth (ft)	21.13	21.13	21.13					
Temperature (°C), (± 0.2)	11.94	12.04	12.00					
pH, (± 0.1)	7.28	7.25	7.24					
Sp. Conductance (uS/cm),(± 3%)	753	753	749					
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.27	4.26	4.35					
ORP (mV), (± 10%)	116.4	111.5	107.0					
Turbidity (NTU), (± 10% or 3 <10 NTUs)	6.82	7.07	4.34					
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/12/15	Well Number:	**L-87-2**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.5 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**32.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**22.5 - 32.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.0**
Sampling Time:	1105	Depth to Groundwater (ft):	24.28
Total Discharge (gal):	0.8	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	8.22
Weather:	Sunny - 75°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/12/15			
Turbidity:	Micro TPW	3/9/15	Duplicate	D1_061215	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
L-87-2_ 061215	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: L-87-2_Date ie; mmddyy

1034 Time	1039	1044	1049	1054	1059	1104		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1		
Volume Purged (Liters)	0.5	BC 1.0 ~~1.5~~	~~2.~~ 1.5	2.0	2.5	3.0		
Water Depth (ft)	24.28	24.28	24.28	24.28	24.28	24.28		
Temperature (°C), (± 0.2)	15.70	15.15	15.24	15.06	15.02	14.83		
pH, (± 0.1)	6.87	6.79	6.76	6.79	6.78	6.77		
Sp. Conductance (uS/cm),(± 3%)	919	942	941	936	942	934		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.78	0.66	0.34	0.27	0.18	0.12		
ORP (mV), (± 10%)	-7.8	-11.2	-34.4	-41.7	-45.6	-56.0		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.83	5.24	4.82	5.66	4.89	3.95		
Color	LT TAN →							
Odor/Evidence of LNAPL	SLIGHT	BC ~~PETROL~~	ODOR (ORGANIC)					

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**L-87-5**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.2 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**28.2**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**18.2 - 28.2**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**27.0**
Sampling Time:	1110	Depth to Groundwater (ft):	23.75
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	4.45

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15 0800	TRIP BLANK	TBI_060815	0800
Turbidity:	Micro TPW	3/9/15	FIELD BLANK	LIV_060815	1045
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
L-87-5_060815	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: L-87-5_Date ie; mmddyy

1036 Time	1041	1046	1051	1056	1101	1106		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.4	.4	.4	.4	.4	.4		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	23.75	23.75	23.75	23.75	23.75	23.75		
Temperature (°C), (± 0.2)	12.17	11.98	11.94	11.91	11.88	11.88		
pH, (± 0.1)	8.16	8.15	8.09	8.04	7.90	7.82		
Sp. Conductance (uS/cm),(± 3%)	595	589	591	594	594	594		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	5.05	5.09	5.20	5.13	5.09	5.08		
ORP (mV), (± 10%)	30.0	9.9	8.9	9.1	14.1	17.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.46	1.91	2.52	2.32	2.52	—		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/3/15	Well Number:	**L-88-13**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 1.1 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL/BC	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**42.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**32.6 - 42.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**34.7**
Sampling Time:	1010	Depth to Groundwater (ft):	23.47
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	19.13

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/3/15 0830	TRIP BLANK	TBI_060315	0800
Turbidity:	Micro TPW	3/9/15	FIELD BLANK	LIV_060315	0942
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
L-88-13_060315	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: L-88-13_Date ie; mmddyy							

0935 Time	0940	0945	0950	0955	1000	1005		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	23.47	23.47	23.47	23.47	23.47	23.47		
Temperature (°C), (± 0.2)	11.80	11.81	11.93	11.92	12.14	12.28		
pH, (± 0.1)	6.25	6.37	6.34	6.31	6.22	6.07		
Sp. Conductance (uS/cm),(± 3%)	671	669	667	667	667	668		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.90	0.65	0.56	0.49	0.43	0.37		
ORP (mV), (± 10%)	153.8 ~~-44.7~~	152.9 ~~-50.3~~	108.4	74.7	45.8	32.4		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.76	4.94	3.29	2.82	2.74	3.24		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

10-5: DTW = 22.12

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**LS-11**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**16.0**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**5.8 - 15.8**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**14.0**
Sampling Time:	1515	Depth to Groundwater (ft):	4.84
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.16

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0730	Type	Sample ID	Time
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
LS-11_060415	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: LS-11_Date ie; mmddyy

1441 Time	1446	1451	1456	1501	1506	1511		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.4	.4	.4	.4	.4	.4		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	4.84	4.84	4.84	4.84	4.84	4.84		
Temperature (°C), (± 0.2)	11.64	11.44	11.38	11.33	11.33	11.33		
pH, (± 0.1)	7.31	7.31	7.33	7.35	7.38	7.40		
Sp. Conductance (uS/cm),(± 3%)	780	780	776	775	774	775		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.44	0.31	0.19	0.22	0.19	0.15		
ORP (mV), (± 10%)	87.8	55.8	31.0	11.2	-0.7	-1.9		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.38	1.99	1.66	1.55	0.87	1.01		
Color	CLEAR W/ MINOR ORGANIC MATTER							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/11/15	Well Number:	**MW-5RR**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.3
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**14.03**
Purging Equipment:	SAMPLE PRO	Screened Interval (ft):	**4.03 - 14.03**
Sampling Equipment:	SAMPLE PRO	Purge Depth (ft):	**9.0**
Sampling Time:	0840	Depth to Groundwater (ft):	2.87
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.16
Weather:			

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/11/15 0730			
Turbidity:	Micro TPW	3/9/15	RINSE	RX_061115	0800
Other:			DUPLICATE	DX_061115	0800

Sample ID	Sample Containers				Field Filtered	Analysis Requested	MS/MSD & Comments
	No.	Type	Pres.	Vol.			
MW-5RR_061115	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: MW-5RR_Date ie; mmddyy							

0808 Time	0813	0818	0823	0828	0833	0838		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	2.90	2.90	2.90	2.90	2.90	2.90		
Temperature (°C), (± 0.2)	11.87	11.71	11.70	11.68	11.66	11.67		
pH, (± 0.1)	6.93	6.89	6.90	6.90	6.90	6.89		
Sp. Conductance (uS/cm),(± 3%)	806	808	8.10	811	811	812		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.52	0.21	0.26	0.22	0.17	0.14		
ORP (mV), (± 10%)	149.2	156.3	147.6	140.2	133.8	128.6		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	6.21	4.47	3.27	2.84	3.12	1.70		
Color	LT GRAY							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/10/15	Well Number:	**MW-10**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.5
Project Number:	**1596021*16**	Well Diameter (in):	2
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**14.5**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**4.5 - 14.5**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**14.0**
Sampling Time:	1630	Depth to Groundwater (ft):	4.92
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.58

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/10/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
MW-10_061015	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: MW-10_Date ie; mmddyy

1553 Time	1558	1603	1608	1613	1618	1623		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.4	.4	.4	.4	.4	.4		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	4.92	4.92	4.92	4.92	4.92	4.92		
Temperature (°C), (± 0.2)	10.78	10.47	10.33	10.28	10.24	10.21		
pH, (± 0.1)	7.68	7.31	7.25	7.24	7.24	7.23		
Sp. Conductance (uS/cm),(± 3%)	597	592	591	593	590	589		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	3.53	2.79	2.85	2.99	2.90	2.87		
ORP (mV), (± 10%)	141.7	122.3	107.5	93.7	76.4	70.3		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	11.90	3.47	3.19	1.54	1.57	0.81		
Color	LT BRN W/ MINOR ORGANIC MATTER							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/18/15	Well Number:	**EX-22**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.2
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**34.8**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**19.8 - 34.8**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**29.0**
Sampling Time:	1750	Depth to Groundwater (ft):	22.39
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	12.41

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/18/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15	**Duplicate**	D2_061815	0800
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
EX-22_061815	3	VOA	HCL	40ml	N	VOC 8260	
EX-22_061815	3	VOA	HCL	40ml	N	VPH MADEP	
EX-22_061815	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: EX-22 Date ie; mmddyy							

1715 Time	1720	1725	1730	1735	1740	1745		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	22.42	22.43	22.43	22.43	22.43	22.43		
Temperature (°C), (± 0.2)	12.59	12.36	12.37	12.19	12.29	12.28		
pH, (± 0.1)	6.95	6.92	6.92	6.91	6.92	6.93		
Sp. Conductance (uS/cm),(± 3%)	776	774	774	775	773	774		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.35	0.20	0.19	0.08	0.20	0.19		
ORP (mV), (± 10%)	160.5	146.4	137.7	130.9	124.8	119.5		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.68	1.81	2.73	3.01	3.28	4.09		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/16/15	Well Number:	**EX-24**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.6
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**24.4**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**9.4 - 24.4**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**22.0**
Sampling Time:	1820	Depth to Groundwater (ft):	15.23
Total Discharge (gal):	2.4	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	9.17
Weather:	P+ Cloudy - 65°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/16/15	TRIP	TB6_061615	0800
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
EX-24_061615	3	VOA	HCL	40ml	N	VOC 8260	
EX-24_061615	3	VOA	HCL	40ml	N	VPH MADEP	
EX-24_061615	2	Glass	H2SO4	1-Liter	N	EPH Screen	
COMPLETE SAMPLE ID: EX-24_Date ie; mmddyy							

1745 Time	1750	1755	1800	1805	1810	1815		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	15.23	15.23	15.23	15.23	15.23	15.23		
Temperature (°C), (± 0.2)	12.69	12.38	12.51	12.46	12.39	12.33		
pH, (± 0.1)	7.10	6.95	6.92	6.91	6.92	6.93		
Sp. Conductance (uS/cm),(± 3%)	672	683	686	689	688	688		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.17	0.52	0.30	0.22	0.19	0.16		
ORP (mV), (± 10%)	77.6	60.4	54.5	49.2	44.9	42.8		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.33	2.00	1.24	1.12	0.33	2.37		
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/17/15	Well Number:	**EX-28**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.2 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**20.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**5.6 - 20.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**14.0**
Sampling Time:	1650	Depth to Groundwater (ft):	6.04
Total Discharge (gal):	1.18	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	14.56

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/17/15 0730	Trip	TB4_061715	1500
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
EX-28_061715	3	VOA	HCL	40ml	N	VOC 8260	
EX-28_061715	3	VOA	HCL	40ml	N	VPH MADEP	
EX-28_061715	2	Glass	H2SO4	1-Liter	N	EPH Screen	

COMPLETE SAMPLE ID: EX-28_Date ie; mmddyy

1630 Time	1635	1640	1645	~~1650~~ CL			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	min	min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	6.06	6.06	6.06					
Temperature (°C), (± 0.2)	11.63	11.51	11.63					
pH, (± 0.1)	7.13	7.09	7.06					
Sp. Conductance (uS/cm),(± 3%)	683	682	683					
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.14	0.11	0.13					
ORP (mV), (± 10%)	176.5	161.9	152.2					
Turbidity (NTU), (± 10% or 3 <10 NTUs)	7.51	4.39	1.87					
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/9	Well Number:	**07-1**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.1 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	
Water Level Meter:	Solinst	Total Casing Depth (ft):	**33.1**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**23.1 - 33.1**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**30.0**
Sampling Time:	1135	Depth to Groundwater (ft):	21.11 ~~21.83~~ 11 cc
Total Discharge (gal):	1.57	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	11.99

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556				
Turbidity:	Micro TPW				
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
07-1_ 060915	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-1_Date ie; mmddyy							

1110 Time	1115	1120	1125	1130				
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3				
Volume Purged (Liters)	1.5	3	4.5	6				
Water Depth (ft)	21.11	21.11	21.11	21.11				
Temperature (°C), (± 0.2)	12.42	11.84	11.83	11.79				
pH, (± 0.1)	7.88	7.80	7.78	7.79				
Sp. Conductance (uS/cm),(± 3%)	598	595	598	599				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.96	6.38	6.21	6.35				
ORP (mV), (± 10%)	116.1	80.0	72.3	69.1				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	3.18	2.97	3.24	0.83				
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

11-1: DTW = 20.87 (6/8/15)

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**07-2A**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.6
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**24.4**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**14.4 - 24.4**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**24.0**
Sampling Time:	1620	Depth to Groundwater (ft):	BC ~~17.78~~ 17.68
Total Discharge (gal):	0.8	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	6.72

Reference: TOC

Weather: Sunny -90°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
07-2A_ 060815	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-2A_Date ie; mmddyy							

1545 Time	1550	1555	1600	1605	1610	1615		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.1	0.1	0.1	0.1	0.1	0.1		
Volume Purged (Liters)	0.5	1.0	1.5	2.0	2.5	3.0		
Water Depth (ft)	17.70	17.70	17.70	17.70	17.70	17.70		
Temperature (°C), (± 0.2)	10.76	BC ~~10.8~~ 10.86	10.70	10.58	10.51	10.52		
pH, (± 0.1)	7.37	7.30	7.26	7.24	7.23	7.20		
Sp. Conductance (uS/cm),(± 3%)	597	597	597	597	597	595		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.90	6.60	6.44	6.40	6.29	6.72		
ORP (mV), (± 10%)	45.9	50.8	54.8	58.9	60.1	65.2		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	18.80	10.16	11.59	5.66	5.69	4.81		
Color	TAN	LT TAN →		CLEAR	→			
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Note: Typically purged at 0.2-L/min.

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/8/15	Well Number:	**07-5A**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.3
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**14.7**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**4.7 - 14.7**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**13.0**
Sampling Time:	1430	Depth to Groundwater (ft):	4.52
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	10.18

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/8/15 0800	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers** No.	Type	Pres.	Vol.	**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
07-5A_060815	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-5A_Date ie; mmddyy							

1355 Time	1400	1405	1410	1415	1420	1425		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	4.52	4.52	4.52	4.52	4.52	4.52		
Temperature (°C), (± 0.2)	11.22	10.98	10.91	11.02	11.05	11.12		
pH, (± 0.1)	8.96	8.93	8.91	8.83	8.69	8.51		
Sp. Conductance (uS/cm),(± 3%)	585	581	580	580	579	580		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	2.60	2.28	2.23	2.22	2.21	2.19		
ORP (mV), (± 10%)	23.4	-3.1	-13.5	-19.5	-19.6	-19.8		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.33	1.82	1.19	0.48	1.18	—		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**07-6**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.9 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**21.9**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**6.9 - 21.9**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**16.0**
Sampling Time:	1315	Depth to Groundwater (ft):	6.77
Total Discharge (gal):	3.15	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	15.13

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0730			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
07-6_060415	3	VOA	HCL	40ml	N	VOC 8260	

COMPLETE SAMPLE ID: 07-6_Date ie; mmddyy

1243 Time	1248	1253	1258	1303	1308	1313		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.4	.4	.4	.4	.4	.4		
Volume Purged (Liters)	2	4	6	8	10	12		
Water Depth (ft)	6.77	6.77	6.77	6.77	6.77	6.77		
Temperature (°C), (± 0.2)	CL ~~16.57~~ 10.86	10.48	10.59	10.61	10.46	10.51		
pH, (± 0.1)	CL ~~6.803~~	7.70	7.63	7.66	7.56	7.50		
Sp. Conductance (uS/cm),(± 3%)	322	312	308	308	307	306		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.88	5.01	4.61	4.40	4.17	4.11		
ORP (mV), (± 10%)	136.6	100.7	62.8	43.5	36.2	29.0		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	1.06	0.99	3.35	1.00	1.28	2.30		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**07-7**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.4 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**22.4**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**7.4 - 22.4**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**15.0**
Sampling Time:	1215	Depth to Groundwater (ft):	7.99
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	14.41

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0930	Type	Sample ID	Time
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
07-7_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-7_Date ie; mmddyy							

1140 Time	1145	1150	1155	1200	1205	1210		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	8.01	8.01	8.01	8.01	8.01	8.01		
Temperature (°C), (± 0.2)	10.08	9.92	9.83	9.84	9.93	9.91		
pH, (± 0.1)	7.54	7.54	7.52	7.60	7.66	7.71		
Sp. Conductance (uS/cm),(± 3%)	378	378	378	378	378	378		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	4.44	4.10	3.70	3.64	3.75	3.75		
ORP (mV), (± 10%)	112.1	74.6	50.7	41.0	32.7	30.7		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.28	4.25	2.10	2.33	2.21	1.73		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/5/15	Well Number:	**07-8**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.4
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. Carrizon	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**37.6**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**22.6 - 37.6**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**31.0**
Sampling Time:	1225	Depth to Groundwater (ft):	22.62
Total Discharge (gal):		Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	14.98

Reference: TOC

Weather: P.Cloudy - 64°F

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
			Type	**Sample ID**	**Time**
Temp/pH/SC/ORP/DO:	YSI 556	6/5/15			
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
07-8_060515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-8_Date ie; mmddyy							

1207 Time	1212	1217	1222					
Parameter (every 5 min)	5 min	10 min	15 min	min	min	min	min	min
Flow Rate (L/min)	0.3	0.3	0.3					
Volume Purged (Liters)	1.5	3.0	4.5					
Water Depth (ft)	22.64	22.64	22.64					
Temperature (°C), (± 0.2)	12.36	12.42	12.25					
pH, (± 0.1)	7.39	7.29	7.29					
Sp. Conductance (uS/cm),(± 3%)	654	649	651					
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.94	7.08	6.92					
ORP (mV), (± 10%)	133.7	129.5	124.9					
Turbidity (NTU), (± 10% or 3 <10 NTUs)	0.09	0.00	0.00					
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/5/15	Well Number:	**07-9**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: _____ (ft PVC) Flush: -0.7
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	B. CARREON	Well Condition:	GOOD
Water Level Meter:	Solinst	Total Casing Depth (ft):	**34.3**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**19.3 - 34.3**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**32.0**
Sampling Time:	1145	Depth to Groundwater (ft):	23.54
Total Discharge (gal):	~~BC 1145~~ 2.1	Depth to LNAPL (ft):	–
Water Disposal:	GWTP	Water Column (ft):	10.76
Weather:	Pt Cloudy ~ 61°F		

Reference: TOC

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/5/15			
Turbidity:	Micro TPW	3/9/15	Duplicate	D1_060515	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
07-9_060515	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-9_Date ie; mmddyy							

1120 Time	1125	1130	1135	1140	1145			
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	min	min	min
Flow Rate (L/min)	0.4	0.4	0.4	0.4	0.4			
Volume Purged (Liters)	2.0	4.0	6.0	8.0	10.0 BC			
Water Depth (ft)	23.55	23.55	23.55	23.55				
Temperature (°C), (± 0.2)	11.58	11.48	11.45	11.54				
pH, (± 0.1)	7.36	7.09	7.07	7.08				
Sp. Conductance (uS/cm),(± 3%)	694	694	695	694				
DO (mg/L), (± 10% or 10% of 0.2mg/l)	7.15	7.00	6.84	7.02				
ORP (mV), (± 10%)	152.6	165.3	150.4	144.8				
Turbidity (NTU), (± 10% or 3 <10 NTUs)	7.19	1.29	0.00	0.00				
Color	Clear							
Odor/Evidence of LNAPL	None							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**07-11**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 3.1 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**22.1**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**7.1 - 22.1**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**16.0**
Sampling Time:	0940	Depth to Groundwater (ft):	6.37
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	15.73

Reference: TOC

Weather:

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0930	FIELD BLANK	LIV_060415	0915
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
07-11_ 060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-11_Date ie; mmddyy							

0907 Time	0912	0917	0922	0927	0932	0937		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	6.37	6.37	6.37	6.37	6.37	6.37		
Temperature (°C), (± 0.2)	8.11	8.05	8.08	7.99	7.87	7.97		
pH, (± 0.1)	7.14	7.19	7.20	7.33	7.58	7.59		
Sp. Conductance (uS/cm),(± 3%)	287	283	283	283	283	282		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.57	0.44	0.39	0.37	0.31	0.33		
ORP (mV), (± 10%)	34.3	1.3	-19.6	-32.5	-40.2	-43.5		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	2.03	0.42	1.99	1.77	2.39	2.53		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE NOTICED							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

12-5: DTW = 4.93

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date:	6/4/15	Well Number:	**07-12**
Project Name:	**BN Livingston Shop Complex**	Monument Type:	Stickup: 2.4 (ft PVC) Flush:
Project Number:	**1596021*16**	Well Diameter (in):	4
Sampling Personnel:	CL	Well Condition:	Good
Water Level Meter:	Solinst	Total Casing Depth (ft):	**21.9**
Purging Equipment:	Ded. Bladder	Screened Interval (ft):	**6.4 - 21.9**
Sampling Equipment:	Ded. Bladder	Purge Depth (ft):	**15.0**
Sampling Time:	1030	Depth to Groundwater (ft):	5.48
Total Discharge (gal):	2.36	Depth to LNAPL (ft):	—
Water Disposal:	GWTP	Water Column (ft):	16.42

Reference: TOC

Weather:

Water Quality Meter(s)	**Model**	**Calibration Date/Time**	**QA/QC Samples**		
Temp/pH/SC/ORP/DO:	YSI 556	6/4/15 0730	**Type**	**Sample ID**	**Time**
Turbidity:	Micro TPW	3/9/15			
Other:					

Sample ID	**Sample Containers**				**Field Filtered**	**Analysis Requested**	**MS/MSD & Comments**
	No.	**Type**	**Pres.**	**Vol.**			
07-12_060415	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: 07-12_Date ie; mmddyy							

0956 Time	1004	1009	1014	1019	1024	1029		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	.3	.3	.3	.3	.3	.3		
Volume Purged (Liters)	1.5	3	4.5	6	7.5	9		
Water Depth (ft)	5.48	5.48	5.48	5.48	5.48	5.48		
Temperature (°C), (± 0.2)	9.29	9.30	9.51	9.57	9.29	9.34		
pH, (± 0.1)	7.72	7.71	7.72	7.77	7.80	7.79		
Sp. Conductance (uS/cm),(± 3%)	299	296	292	292	292	292		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	0.96	0.84	0.89	0.92	0.88	0.87		
ORP (mV), (± 10%)	25.1	7.7	-4.1	-11.8	-13.8	-15.1		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	4.54	3.91	3.72	4.32	2.70	3.96		
Color	CLEAR							
Odor/Evidence of LNAPL	NONE	NOTICED						

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

WELL E-7 RESAMPLE
JULY 2015
Groundwater Purge and Sample Form

Groundwater Purge and Sample Form (Minimal Drawdown) **Kennedy/Jenks Consultants**

Date: 7/16/15

Project Name: **BN Livingston Shop Complex**

Project Number: **1596021*16**

Sampling Personnel: B. CARREON

Water Level Meter: Solinst

Purging Equipment: DED. BLADDER

Sampling Equipment: DED. BLADDER

Sampling Time: 1225

Total Discharge (gal): 2.4

Water Disposal: GWTP

Well Number: **E-7**

Monument Type: Stickup: _____ (ft PVC) Flush: X

Well Diameter (in): 8

Well Condition: GOOD

Total Casing Depth (ft):

Screened Interval (ft):

Purge Depth (ft): AS MARKED

Depth to Groundwater (ft): 21.06

Depth to LNAPL (ft): —

Water Column (ft):

Reference: TOC

Weather: Pt Cloudy - 75°F

Water Quality Meter(s)	Model	Calibration Date/Time	QA/QC Samples		
			Type	Sample ID	Time
Temp/pH/SC/ORP/DO:	YSI 556	7/16/15 0800			
Turbidity:	Micro TPW	3/9/15 0800	TRIP BLANK	TB1_071615	0800
Other:					

Sample ID	Sample Containers No.	Type	Pres.	Vol.	Field Filtered	Analysis Requested	MS/MSD & Comments
E-7_ 071615	3	VOA	HCL	40ml	N	VOC 8260	
COMPLETE SAMPLE ID: E-7_Date ie; mmddyy							

1153 Time	1158	1203	1208	1213	1218	1223		
Parameter (every 5 min)	5 min	10 min	15 min	20 min	25 min	30 min	min	min
Flow Rate (L/min)	0.3	0.3	0.3	0.3	0.3	0.3		
Volume Purged (Liters)	1.5	3.0	4.5	6.0	7.5	9.0		
Water Depth (ft)	21.06	21.06	21.06	21.06	21.06	21.06		
Temperature (°C), (± 0.2)	12.70	12.75	~~19.9~~ 12.97	12.86	13.04	13.06		
pH, (± 0.1)	5.55	5.70	6.17	6.39	6.54	6.70		
Sp. Conductance (uS/cm),(± 3%)	724	680	655	644	644	641		
DO (mg/L), (± 10% or 10% of 0.2mg/l)	6.49	6.42	6.58	6.85	6.84	6.96		
ORP (mV), (± 10%)	307.6	299.5	262.3	244.7	233.6	218.7		
Turbidity (NTU), (± 10% or 3 <10 NTUs)	11.06	10.90	8.09	6.57	5.97	5.35		
Color	CLEAR →							
Odor/Evidence of LNAPL	NONE →							

Notes: (i.e. actions taken if well dewaters, difficulties in sampling through LNAPL, problems during purging/sampling, etc.)

1 US Gallon = 3.8 Liters

DEQ'S REVISED GROUNDWATER MONITORING PROGRAM DIRECTIVE NO. 2
JUNE 2015
AND
WELL E-7 RESAMPLE (JULY 2015)
Analytical Laboratory Reports
(on CD at back of report)

ANALYTICAL SUMMARY REPORT

June 17, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061032 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - GWMD-2R

Energy Laboratories Inc Billings MT received the following 24 samples for Kennedy Jenks Consultants on 6/10/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061032-001	TB1_060316	06/03/15 8:00	06/10/15	Trip Blank	8260-Volatile Organic Compounds-Short List
B15061032-002	LIV_060315	06/03/15 9:42	06/10/15	Aqueous	Same As Above
B15061032-003	L-88-13_060315	06/03/15 10:10	06/10/15	Aqueous	Same As Above
B15061032-004	LIV_060415	06/04/15 9:15	06/10/15	Aqueous	Same As Above
B15061032-005	07-11_060415	06/04/15 9:40	06/10/15	Aqueous	Same As Above
B15061032-006	07-12_060415	06/04/15 10:30	06/10/15	Aqueous	Same As Above
B15061032-007	94-1_060415	06/04/15 11:25	06/10/15	Aqueous	Same As Above
B15061032-008	07-7_060415	06/04/15 12:15	06/10/15	Aqueous	Same As Above
B15061032-009	07-06_060415	06/04/15 13:15	06/10/15	Aqueous	Same As Above
B15061032-010	94-2_060415	06/04/15 14:05	06/10/15	Aqueous	Same As Above
B15061032-011	TB-2_060415	06/04/15 8:00	06/10/15	Trip Blank	Same As Above
B15061032-012	10-3_060415	06/04/15 10:45	06/10/15	Aqueous	Same As Above
B15061032-013	12-7_060415	06/04/15 11:20	06/10/15	Aqueous	Same As Above
B15061032-014	10-7_060415	06/04/15 13:20	06/10/15	Aqueous	Same As Above
B15061032-015	12-9_060415	06/04/15 13:50	06/10/15	Aqueous	Same As Above
B15061032-016	89-6_060415	06/04/15 14:55	06/10/15	Aqueous	Same As Above
B15061032-017	92-4_060415	06/04/15 15:40	06/10/15	Aqueous	Same As Above
B15061032-018	D1-_060515	06/05/15 8:00	06/10/15	Aqueous	Same As Above
B15061032-019	LIV_060515	06/05/15 10:38	06/10/15	Aqueous	Same As Above
B15061032-020	07-8_060515	06/05/15 12:25	06/10/15	Aqueous	Same As Above
B15061032-021	07-9_060515	06/05/15 11:45	06/10/15	Aqueous	Same As Above
B15061032-022	5_060515	06/05/15 11:00	06/10/15	Aqueous	Same As Above
B15061032-023	6_060515	06/05/15 10:00	06/10/15	Aqueous	Same As Above
B15061032-024	LS-11_060415	06/04/15 15:15	06/10/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

ANALYTICAL SUMMARY REPORT

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

DATES REPORT

Work Order: B15061032
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/17/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061032-001A	TB1_060316	6/3/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-002A	LIV_060315	6/3/2015 9:42:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-003A	L-88-13_060315	6/3/2015 10:10:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-004A	LIV_060415	6/4/2015 9:15:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-005A	07-11_060415	6/4/2015 9:40:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-006A	07-12_060415	6/4/2015 10:30:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-007A	94-1_060415	6/4/2015 11:25:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-008A	07-7_060415	6/4/2015 12:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-009A	07-06_060415	6/4/2015 1:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-010A	94-2_060415	6/4/2015 2:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-011A	TB-2_060415	6/4/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/10/2015
B15061032-012A	10-3_060415	6/4/2015 10:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-012A	10-3_060415	6/4/2015 10:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-013A	12-7_060415	6/4/2015 11:20:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-014A	10-7_060415	6/4/2015 1:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-014A	10-7_060415	6/4/2015 1:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-015A	12-9_060415	6/4/2015 1:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-015A	12-9_060415	6/4/2015 1:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-016A	89-6_060415	6/4/2015 2:55:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-017A	92-4_060415	6/4/2015 3:40:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-018A	D1-_060515	6/5/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-018A	D1-_060515	6/5/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015

DATES REPORT

Work Order: B15061032
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -

Report Date: 06/17/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061032-018A	D1-_060515	6/5/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061032-019A	LIV_060515	6/5/2015 10:38:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-020A	07-8_060515	6/5/2015 12:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-021A	07-9_060515	6/5/2015 11:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-021A	07-9_060515	6/5/2015 11:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061032-022A	5_060515	6/5/2015 11:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-023A	6_060515	6/5/2015 10:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015
B15061032-024A	LS-11_060415	6/4/2015 3:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/11/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-001
Client Sample ID: TB1_060316

Report Date: 06/17/15
Collection Date: 06/03/15 08:00
DateReceived: 06/10/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 18:26 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 18:26 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-001
Client Sample ID: TB1_060316

Report Date: 06/17/15
Collection Date: 06/03/15 08:00
DateReceived: 06/10/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 18:26 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 18:26 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/10/15 18:26 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/10/15 18:26 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/10/15 18:26 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/10/15 18:26 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-002
Client Sample ID: LIV_060315

Report Date: 06/17/15
Collection Date: 06/03/15 09:42
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 18:56 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 18:56 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-002
Client Sample ID: LIV_060315

Report Date: 06/17/15
Collection Date: 06/03/15 09:42
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 18:56 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 18:56 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/10/15 18:56 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/10/15 18:56 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/10/15 18:56 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/10/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-003
Client Sample ID: L-88-13_060315

Report Date: 06/17/15
Collection Date: 06/03/15 10:10
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 19:25 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
cis-1,2-Dichloroethene	0.20	ug/L	J	0.50		SW8260B	06/10/15 19:25 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 19:25 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Tetrachloroethene	2.2	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-003
Client Sample ID: L-88-13_060315

Report Date: 06/17/15
Collection Date: 06/03/15 10:10
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.72	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 19:25 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 19:25 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/10/15 19:25 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/10/15 19:25 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/10/15 19:25 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/10/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-004
Client Sample ID: LIV_060415

Report Date: 06/17/15
Collection Date: 06/04/15 09:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 21:21 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 21:21 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-004
Client Sample ID: LIV_060415

Report Date: 06/17/15
Collection Date: 06/04/15 09:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 21:21 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 21:21 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/10/15 21:21 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/10/15 21:21 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/10/15 21:21 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/10/15 21:21 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-005
Client Sample ID: 07-11_060415

Report Date: 06/17/15
Collection Date: 06/04/15 09:40
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 21:50 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 21:50 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Tetrachloroethene	1.0	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-005
Client Sample ID: 07-11_060415

Report Date: 06/17/15
Collection Date: 06/04/15 09:40
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 21:50 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 21:50 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/10/15 21:50 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/10/15 21:50 / nl
Surr: Toluene-d8	104	%REC		79-122		SW8260B	06/10/15 21:50 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/10/15 21:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-006
Client Sample ID: 07-12_060415

Report Date: 06/17/15
Collection Date: 06/04/15 10:30
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 22:19 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 22:19 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Tetrachloroethene	0.49	ug/L	J	0.50		SW8260B	06/10/15 22:19 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-006
Client Sample ID: 07-12_060415

Report Date: 06/17/15
Collection Date: 06/04/15 10:30
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 22:19 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 22:19 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/10/15 22:19 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/10/15 22:19 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/10/15 22:19 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/10/15 22:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-007
Client Sample ID: 94-1_060415

Report Date: 06/17/15
Collection Date: 06/04/15 11:25
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 22:48 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 22:48 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Tetrachloroethene	0.82	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-007
Client Sample ID: 94-1_060415

Report Date: 06/17/15
Collection Date: 06/04/15 11:25
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 22:48 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 22:48 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/10/15 22:48 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/10/15 22:48 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/10/15 22:48 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/10/15 22:48 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-008
Client Sample ID: 07-7_060415

Report Date: 06/17/15
Collection Date: 06/04/15 12:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 23:17 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 23:17 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Tetrachloroethene	0.25	ug/L	J	0.50		SW8260B	06/10/15 23:17 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-008
Client Sample ID: 07-7_060415

Report Date: 06/17/15
Collection Date: 06/04/15 12:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 23:17 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 23:17 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/10/15 23:17 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/10/15 23:17 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/10/15 23:17 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/10/15 23:17 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-009
Client Sample ID: 07-06_060415

Report Date: 06/17/15
Collection Date: 06/04/15 13:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 23:46 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 23:46 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-009
Client Sample ID: 07-06_060415

Report Date: 06/17/15
Collection Date: 06/04/15 13:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 23:46 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 23:46 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/10/15 23:46 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/10/15 23:46 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/10/15 23:46 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/10/15 23:46 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-010
Client Sample ID: 94-2_060415

Report Date: 06/17/15
Collection Date: 06/04/15 14:05
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 00:15 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 00:15 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-010
Client Sample ID: 94-2_060415

Report Date: 06/17/15
Collection Date: 06/04/15 14:05
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 00:15 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 00:15 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/11/15 00:15 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/11/15 00:15 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/11/15 00:15 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/11/15 00:15 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-011
Client Sample ID: TB-2_060415

Report Date: 06/17/15
Collection Date: 06/04/15 08:00
DateReceived: 06/10/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/10/15 17:57 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/10/15 17:57 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-011
Client Sample ID: TB-2_060415

Report Date: 06/17/15
Collection Date: 06/04/15 08:00
DateReceived: 06/10/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/10/15 17:57 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/10/15 17:57 / nl
Surr: Dibromofluoromethane	103	%REC		77-126		SW8260B	06/10/15 17:57 / nl
Surr: 1,2-Dichloroethane-d4	91.0	%REC		70-130		SW8260B	06/10/15 17:57 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/10/15 17:57 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/10/15 17:57 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-012
Client Sample ID: 10-3_060415

Report Date: 06/17/15
Collection Date: 06/04/15 10:45
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Chlorobenzene	0.76	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 02:12 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,2-Dichlorobenzene	0.47	ug/L	J	0.50		SW8260B	06/11/15 02:12 / nl
1,3-Dichlorobenzene	0.12	ug/L	J	0.50		SW8260B	06/11/15 02:12 / nl
1,4-Dichlorobenzene	0.61	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
cis-1,2-Dichloroethene	7.2	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
trans-1,2-Dichloroethene	0.16	ug/L	J	0.50		SW8260B	06/11/15 02:12 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 02:12 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Tetrachloroethene	36	ug/L		5.0		SW8260B	06/11/15 15:27 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-012
Client Sample ID: 10-3_060415

Report Date: 06/17/15
Collection Date: 06/04/15 10:45
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	4.9	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 02:12 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 02:12 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/11/15 02:12 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/11/15 02:12 / nl
Surr: Toluene-d8	109	%REC		79-122		SW8260B	06/11/15 02:12 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/11/15 02:12 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-013
Client Sample ID: 12-7_060415

Report Date: 06/17/15
Collection Date: 06/04/15 11:20
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Chlorobenzene	0.84	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 00:44 / nl
2-Chlorotoluene	0.39	ug/L	J	0.50		SW8260B	06/11/15 00:44 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,2-Dichlorobenzene	0.15	ug/L	J	0.50		SW8260B	06/11/15 00:44 / nl
1,3-Dichlorobenzene	0.65	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,4-Dichlorobenzene	2.2	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
cis-1,2-Dichloroethene	9.1	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
trans-1,2-Dichloroethene	0.14	ug/L	J	0.50		SW8260B	06/11/15 00:44 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 00:44 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Tetrachloroethene	4.7	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-013
Client Sample ID: 12-7_060415

Report Date: 06/17/15
Collection Date: 06/04/15 11:20
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	2.4	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Vinyl chloride	0.13	ug/L	J	0.40		SW8260B	06/11/15 00:44 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 00:44 / nl
Surr: Dibromofluoromethane	102	%REC		77-126		SW8260B	06/11/15 00:44 / nl
Surr: 1,2-Dichloroethane-d4	93.0	%REC		70-130		SW8260B	06/11/15 00:44 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/11/15 00:44 / nl
Surr: p-Bromofluorobenzene	101	%REC		76-127		SW8260B	06/11/15 00:44 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-014
Client Sample ID: 10-7_060415

Report Date: 06/17/15
Collection Date: 06/04/15 13:20
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 01:14 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
cis-1,2-Dichloroethene	1.5	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
trans-1,2-Dichloroethene	0.26	ug/L	J	0.50		SW8260B	06/11/15 01:14 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 01:14 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Tetrachloroethene	22	ug/L		5.0		SW8260B	06/11/15 15:56 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-014
Client Sample ID: 10-7_060415

Report Date: 06/17/15
Collection Date: 06/04/15 13:20
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	2.0	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 01:14 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 01:14 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/11/15 01:14 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/11/15 01:14 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/11/15 01:14 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/11/15 01:14 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-015
Client Sample ID: 12-9_060415

Report Date: 06/17/15
Collection Date: 06/04/15 13:50
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 01:43 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
cis-1,2-Dichloroethene	2.2	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
trans-1,2-Dichloroethene	0.36	ug/L	J	0.50		SW8260B	06/11/15 01:43 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 01:43 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Tetrachloroethene	22	ug/L		5.0		SW8260B	06/11/15 16:25 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-015
Client Sample ID: 12-9_060415

Report Date: 06/17/15
Collection Date: 06/04/15 13:50
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	2.3	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 01:43 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 01:43 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/11/15 01:43 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/11/15 01:43 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/11/15 01:43 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/11/15 01:43 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-016
Client Sample ID: 89-6_060415

Report Date: 06/17/15
Collection Date: 06/04/15 14:55
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 13:33 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 13:33 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Tetrachloroethene	6.4	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-016
Client Sample ID: 89-6_060415

Report Date: 06/17/15
Collection Date: 06/04/15 14:55
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 13:33 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 13:33 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/11/15 13:33 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/11/15 13:33 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/11/15 13:33 / nl
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	06/11/15 13:33 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-017
Client Sample ID: 92-4_060415

Report Date: 06/17/15
Collection Date: 06/04/15 15:40
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 14:02 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 14:02 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Tetrachloroethene	12	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-017
Client Sample ID: 92-4_060415

Report Date: 06/17/15
Collection Date: 06/04/15 15:40
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	1.4	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 14:02 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 14:02 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/11/15 14:02 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/11/15 14:02 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/11/15 14:02 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/11/15 14:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-018
Client Sample ID: D1-_060515

Report Date: 06/17/15
Collection Date: 06/05/15 08:00
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 19:18 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 19:18 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Tetrachloroethene	25	ug/L		5.0		SW8260B	06/12/15 12:43 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-018
Client Sample ID: D1-_060515

Report Date: 06/17/15
Collection Date: 06/05/15 08:00
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.66	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 19:18 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 19:18 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/11/15 19:18 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/11/15 19:18 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/11/15 19:18 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/11/15 19:18 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-019
Client Sample ID: LIV_060515

Report Date: 06/17/15
Collection Date: 06/05/15 10:38
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 18:49 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 18:49 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-019
Client Sample ID: LIV_060515

Report Date: 06/17/15
Collection Date: 06/05/15 10:38
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 18:49 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 18:49 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/11/15 18:49 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/11/15 18:49 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/11/15 18:49 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/11/15 18:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-020
Client Sample ID: 07-8_060515

Report Date: 06/17/15
Collection Date: 06/05/15 12:25
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 18:20 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 18:20 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Tetrachloroethene	1.4	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-020
Client Sample ID: 07-8_060515

Report Date: 06/17/15
Collection Date: 06/05/15 12:25
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.23	ug/L	J	0.50		SW8260B	06/11/15 18:20 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 18:20 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 18:20 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/11/15 18:20 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/11/15 18:20 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/11/15 18:20 / nl
Surr: p-Bromofluorobenzene	113	%REC		76-127		SW8260B	06/11/15 18:20 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-021
Client Sample ID: 07-9_060515

Report Date: 06/17/15
Collection Date: 06/05/15 11:45
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 17:51 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 17:51 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Tetrachloroethene	24	ug/L		5.0		SW8260B	06/12/15 13:12 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-021
Client Sample ID: 07-9_060515

Report Date: 06/17/15
Collection Date: 06/05/15 11:45
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.63	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 17:51 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 17:51 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/11/15 17:51 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/11/15 17:51 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/11/15 17:51 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/11/15 17:51 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-022
Client Sample ID: 5_060515

Report Date: 06/17/15
Collection Date: 06/05/15 11:00
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Chloroform	0.22	ug/L	J	0.50		SW8260B	06/11/15 17:22 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 17:22 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 17:22 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-022
Client Sample ID: 5_060515

Report Date: 06/17/15
Collection Date: 06/05/15 11:00
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 17:22 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 17:22 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/11/15 17:22 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/11/15 17:22 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/11/15 17:22 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/11/15 17:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-023
Client Sample ID: 6_060515

Report Date: 06/17/15
Collection Date: 06/05/15 10:00
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 11:10 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 11:10 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Tetrachloroethene	1.2	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-023
Client Sample ID: 6_060515

Report Date: 06/17/15
Collection Date: 06/05/15 10:00
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 11:10 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 11:10 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/11/15 11:10 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/11/15 11:10 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/11/15 11:10 / nl
Surr: p-Bromofluorobenzene	115	%REC		76-127		SW8260B	06/11/15 11:10 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-024
Client Sample ID: LS-11_060415

Report Date: 06/17/15
Collection Date: 06/04/15 15:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Chlorobenzene	0.15	ug/L	J	0.50		SW8260B	06/11/15 16:53 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/11/15 16:53 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,4-Dichlorobenzene	0.52	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
cis-1,2-Dichloroethene	1.4	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
trans-1,2-Dichloroethene	0.13	ug/L	J	0.50		SW8260B	06/11/15 16:53 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/11/15 16:53 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Tetrachloroethene	13	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061032-024
Client Sample ID: LS-11_060415

Report Date: 06/17/15
Collection Date: 06/04/15 15:15
DateReceived: 06/10/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	2.1	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/11/15 16:53 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/11/15 16:53 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/11/15 16:53 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/11/15 16:53 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/11/15 16:53 / nl
Surr: p-Bromofluorobenzene	113	%REC		76-127		SW8260B	06/11/15 16:53 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: R244334	
Lab ID: CCV-061015	Continuing Calibration Verification Standard							06/10/15 15:06	
Benzene	4.96	ug/L	1.0	99	70	130			
Bromobenzene	5.56	ug/L	1.0	111	70	130			
Bromochloromethane	5.48	ug/L	1.0	110	70	130			
Bromodichloromethane	5.00	ug/L	1.0	100	70	130			
Bromoform	5.12	ug/L	1.0	102	70	130			
Bromomethane	3.98	ug/L	1.0	80	70	130			
Carbon tetrachloride	4.88	ug/L	1.0	98	70	130			
Chlorobenzene	5.28	ug/L	1.0	106	70	130			
Chlorodibromomethane	5.12	ug/L	1.0	102	70	130			
Chloroethane	5.28	ug/L	1.0	106	70	130			
Chloroform	4.80	ug/L	1.0	96	80	120			
Chloromethane	4.32	ug/L	1.0	86	70	130			
1,2-Dibromoethane	5.08	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.28	ug/L	1.0	106	70	130			
Dibromomethane	5.28	ug/L	1.0	106	70	130			
1,2-Dichlorobenzene	5.36	ug/L	1.0	107	70	130			
4-Chlorotoluene	5.08	ug/L	1.0	102	70	130			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	70	130			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	70	130			
Dichlorodifluoromethane	6.68	ug/L	1.0	134	70	130			S
1,1-Dichloroethane	5.04	ug/L	1.0	101	70	130			
1,2-Dichloroethane	4.56	ug/L	1.0	91	70	130			
1,1-Dichloroethene	4.92	ug/L	1.0	98	80	120			
cis-1,2-Dichloroethene	5.16	ug/L	1.0	103	70	130			
trans-1,2-Dichloroethene	5.32	ug/L	1.0	106	70	130			
1,2-Dichloropropane	4.96	ug/L	1.0	99	80	120			
1,3-Dichloropropane	5.16	ug/L	1.0	103	70	130			
2,2-Dichloropropane	5.20	ug/L	1.0	104	70	130			
1,1-Dichloropropene	5.04	ug/L	1.0	101	70	130			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	70	130			
trans-1,3-Dichloropropene	4.76	ug/L	1.0	95	70	130			
Ethylbenzene	5.36	ug/L	1.0	107	80	120			
Methyl tert-butyl ether (MTBE)	4.88	ug/L	1.0	98	70	130			
Methylene chloride	4.28	ug/L	1.0	86	70	130			
Naphthalene	4.20	ug/L	1.0	84	70	130			
Styrene	5.40	ug/L	1.0	108	70	130			
1,1,1,2-Tetrachloroethane	5.20	ug/L	1.0	104	70	130			
1,1,2,2-Tetrachloroethane	4.68	ug/L	1.0	94	70	130			
Tetrachloroethene	5.76	ug/L	1.0	115	70	130			
Toluene	5.32	ug/L	1.0	106	80	120			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	70	130			
1,1,2-Trichloroethane	5.12	ug/L	1.0	102	70	130			
Trichloroethene	5.48	ug/L	1.0	110	70	130			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244334
Lab ID: CCV-061015	Continuing Calibration Verification Standard								06/10/15 15:06
Trichlorofluoromethane	5.68	ug/L	1.0	114	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.08	ug/L	1.0	122	70	130			
1,2,3-Trichloropropane	5.24	ug/L	1.0	105	70	130			
Vinyl chloride	5.40	ug/L	1.0	108	80	120			
m+p-Xylenes	10.6	ug/L	1.0	106	70	130			
o-Xylene	5.44	ug/L	1.0	109	70	130			
Xylenes, Total	16.1	ug/L	1.0	107	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Method: SW8260B									Batch: R244334
Lab ID: LCS-061015	Laboratory Control Sample				Run: SV5972.I_150610A				06/10/15 15:35
Benzene	4.84	ug/L	1.0	97	71	133			
Bromobenzene	5.56	ug/L	1.0	111	78	133			
Bromochloromethane	5.44	ug/L	1.0	109	68	131			
Bromodichloromethane	5.32	ug/L	1.0	106	67	138			
Bromoform	5.40	ug/L	1.0	108	64	136			
Bromomethane	4.00	ug/L	1.0	80	60	138			
Carbon tetrachloride	4.88	ug/L	1.0	98	61	144			
Chlorobenzene	5.40	ug/L	1.0	108	78	136			
Chlorodibromomethane	5.72	ug/L	1.0	114	72	136			
Chloroethane	4.20	ug/L	1.0	84	64	136			
Chloroform	4.76	ug/L	1.0	95	69	133			
Chloromethane	3.30	ug/L	1.0	66	63	149			
1,2-Dibromoethane	5.48	ug/L	1.0	110	75	131			
2-Chlorotoluene	5.52	ug/L	1.0	110	74	135			
Dibromomethane	5.56	ug/L	1.0	111	72	133			
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129			
4-Chlorotoluene	5.08	ug/L	1.0	102	79	135			
1,3-Dichlorobenzene	5.52	ug/L	1.0	110	79	132			
1,4-Dichlorobenzene	5.40	ug/L	1.0	108	78	131			
Dichlorodifluoromethane	4.92	ug/L	1.0	98	55	141			
1,1-Dichloroethane	5.12	ug/L	1.0	102	72	130			
1,2-Dichloroethane	4.68	ug/L	1.0	94	57	146			
1,1-Dichloroethene	5.04	ug/L	1.0	101	66	142			
cis-1,2-Dichloroethene	5.24	ug/L	1.0	105	74	133			
trans-1,2-Dichloroethene	5.52	ug/L	1.0	110	76	138			
1,2-Dichloropropane	5.12	ug/L	1.0	102	72	135			
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134			
2,2-Dichloropropane	4.96	ug/L	1.0	99	42	167			
1,1-Dichloropropene	5.24	ug/L	1.0	105	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244334
Lab ID: LCS-061015	Laboratory Control Sample				Run: SV5972.I_150610A				06/10/15 15:35
cis-1,3-Dichloropropene	5.28	ug/L	1.0	106	75	132			
trans-1,3-Dichloropropene	5.52	ug/L	1.0	110	77	145			
Ethylbenzene	5.44	ug/L	1.0	109	78	131			
Methyl tert-butyl ether (MTBE)	4.56	ug/L	1.0	91	58	151			
Methylene chloride	4.36	ug/L	1.0	87	73	126			
Naphthalene	5.20	ug/L	1.0	104	55	139			
Styrene	5.60	ug/L	1.0	112	76	134			
1,1,1,2-Tetrachloroethane	5.52	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	72	132			
Tetrachloroethene	5.80	ug/L	1.0	116	78	137			
Toluene	5.36	ug/L	1.0	107	78	134			
1,1,1-Trichloroethane	4.88	ug/L	1.0	98	64	141			
1,1,2-Trichloroethane	5.28	ug/L	1.0	106	72	133			
Trichloroethene	5.76	ug/L	1.0	115	75	138			
Trichlorofluoromethane	4.80	ug/L	1.0	96	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	7.76	ug/L	1.0	155	60	140			S
1,2,3-Trichloropropane	5.56	ug/L	1.0	111	67	133			
Vinyl chloride	4.64	ug/L	1.0	93	66	140			
m+p-Xylenes	10.9	ug/L	1.0	109	78	133			
o-Xylene	5.40	ug/L	1.0	108	79	136			
Xylenes, Total	16.3	ug/L	1.0	109	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	105	77	126			
Surr: p-Bromofluorobenzene			1.0	105	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: MB-061015	Method Blank				Run: SV5972.I_150610A				06/10/15 16:33
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244334
Lab ID: MB-061015	Method Blank				Run: SV5972.I_150610A				06/10/15 16:33
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	103	77	126			
Surr: p-Bromofluorobenzene			1.0	108	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061032-003A_MS	Sample Matrix Spike				Run: SV5972.I_150610A				06/10/15 19:54
Benzene	9.52	ug/L	1.0	95	71	133			
Bromobenzene	10.5	ug/L	1.0	105	78	133			
Bromochloromethane	11.3	ug/L	1.0	113	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244334
Lab ID: B15061032-003A_MS	Sample Matrix Spike				Run: SV5972.I_150610A				06/10/15 19:54
Bromodichloromethane	10.6	ug/L	1.0	106	67	138			
Bromoform	10.3	ug/L	1.0	103	64	136			
Bromomethane	8.48	ug/L	1.0	85	60	138			
Carbon tetrachloride	9.92	ug/L	1.0	99	61	144			
Chlorobenzene	10.4	ug/L	1.0	104	78	136			
Chlorodibromomethane	11.4	ug/L	1.0	114	72	136			
Chloroethane	9.20	ug/L	1.0	92	64	136			
Chloroform	9.52	ug/L	1.0	95	69	133			
Chloromethane	5.82	ug/L	1.0	58	63	149			S
1,2-Dibromoethane	10.8	ug/L	1.0	108	75	131			
2-Chlorotoluene	10.2	ug/L	1.0	102	74	135			
Dibromomethane	10.3	ug/L	1.0	103	72	133			
1,2-Dichlorobenzene	10.2	ug/L	1.0	102	78	129			
4-Chlorotoluene	9.04	ug/L	1.0	90	79	135			
1,3-Dichlorobenzene	10.3	ug/L	1.0	103	79	132			
1,4-Dichlorobenzene	9.92	ug/L	1.0	99	78	131			
Dichlorodifluoromethane	10.2	ug/L	1.0	102	55	141			
1,1-Dichloroethane	10.0	ug/L	1.0	100	72	130			
1,2-Dichloroethane	9.68	ug/L	1.0	97	57	146			
1,1-Dichloroethene	10.0	ug/L	1.0	100	66	142			
cis-1,2-Dichloroethene	10.7	ug/L	1.0	105	74	133			
trans-1,2-Dichloroethene	10.9	ug/L	1.0	109	76	138			
1,2-Dichloropropane	9.76	ug/L	1.0	98	72	135			
1,3-Dichloropropane	10.2	ug/L	1.0	102	75	134			
2,2-Dichloropropane	10.1	ug/L	1.0	101	42	167			
1,1-Dichloropropene	10.1	ug/L	1.0	101	72	140			
cis-1,3-Dichloropropene	10.0	ug/L	1.0	100	75	132			
trans-1,3-Dichloropropene	10.5	ug/L	1.0	105	77	145			
Ethylbenzene	10.4	ug/L	1.0	104	78	131			
Methyl tert-butyl ether (MTBE)	9.68	ug/L	1.0	97	58	151			
Methylene chloride	8.88	ug/L	1.0	89	73	126			
Naphthalene	9.76	ug/L	1.0	98	55	139			
Styrene	10.8	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	10.7	ug/L	1.0	107	75	135			
1,1,2,2-Tetrachloroethane	8.96	ug/L	1.0	90	72	132			
Tetrachloroethene	13.5	ug/L	1.0	113	78	137			
Toluene	10.2	ug/L	1.0	102	78	134			
1,1,1-Trichloroethane	9.84	ug/L	1.0	98	64	141			
1,1,2-Trichloroethane	10.6	ug/L	1.0	106	72	133			
Trichloroethene	11.6	ug/L	1.0	109	75	138			
Trichlorofluoromethane	10.1	ug/L	1.0	101	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	12.4	ug/L	1.0	124	60	140			
1,2,3-Trichloropropane	10.5	ug/L	1.0	105	67	133			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Batch: R244334	
Lab ID: B15061032-003A_MS	Sample Matrix Spike				Run: SV5972.I_150610A			06/10/15 19:54	
Vinyl chloride	9.84	ug/L	1.0	98	66	140			
m+p-Xylenes	20.6	ug/L	1.0	103	78	133			
o-Xylene	10.3	ug/L	1.0	103	79	136			
Xylenes, Total	31.0	ug/L	1.0	103	78	136			
Surr: 1,2-Dichloroethane-d4			2.0	101	70	130			
Surr: Dibromofluoromethane			2.0	109	77	126			
Surr: p-Bromofluorobenzene			2.0	100	76	127			
Surr: Toluene-d8			2.0	112	79	122			
Lab ID: B15061032-003A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150610A			06/10/15 20:23	
Benzene	9.68	ug/L	1.0	97	71	133	1.7	20	
Bromobenzene	11.1	ug/L	1.0	111	78	133	5.9	20	
Bromochloromethane	11.5	ug/L	1.0	115	68	131	2.1	20	
Bromodichloromethane	10.6	ug/L	1.0	106	67	138	0.0	20	
Bromoform	10.9	ug/L	1.0	109	64	136	5.3	20	
Bromomethane	9.92	ug/L	1.0	99	60	138	16	20	
Carbon tetrachloride	9.68	ug/L	1.0	97	61	144	2.4	20	
Chlorobenzene	10.6	ug/L	1.0	106	78	136	1.5	20	
Chlorodibromomethane	11.4	ug/L	1.0	114	72	136	0.0	20	
Chloroethane	9.20	ug/L	1.0	92	64	136	0.0	20	
Chloroform	9.76	ug/L	1.0	98	69	133	2.5	20	
Chloromethane	6.10	ug/L	1.0	61	63	149	4.7	20	S
1,2-Dibromoethane	10.9	ug/L	1.0	109	75	131	0.7	20	
2-Chlorotoluene	10.6	ug/L	1.0	106	74	135	3.9	20	
Dibromomethane	10.9	ug/L	1.0	109	72	133	5.3	20	
1,2-Dichlorobenzene	10.6	ug/L	1.0	106	78	129	3.1	20	
4-Chlorotoluene	9.68	ug/L	1.0	97	79	135	6.8	20	
1,3-Dichlorobenzene	10.5	ug/L	1.0	105	79	132	1.5	20	
1,4-Dichlorobenzene	10.3	ug/L	1.0	103	78	131	4.0	20	
Dichlorodifluoromethane	10.3	ug/L	1.0	103	55	141	1.6	20	
1,1-Dichloroethane	10.3	ug/L	1.0	103	72	130	3.1	20	
1,2-Dichloroethane	9.84	ug/L	1.0	98	57	146	1.6	20	
1,1-Dichloroethene	10.1	ug/L	1.0	101	66	142	0.8	20	
cis-1,2-Dichloroethene	10.8	ug/L	1.0	106	74	133	0.7	20	
trans-1,2-Dichloroethene	11.5	ug/L	1.0	115	76	138	5.7	20	
1,2-Dichloropropane	10.2	ug/L	1.0	102	72	135	4.0	20	
1,3-Dichloropropane	10.2	ug/L	1.0	102	75	134	0.8	20	
2,2-Dichloropropane	10.0	ug/L	1.0	100	42	167	0.8	20	
1,1-Dichloropropene	10.1	ug/L	1.0	101	72	140	0.0	20	
cis-1,3-Dichloropropene	10.1	ug/L	1.0	101	75	132	0.8	20	
trans-1,3-Dichloropropene	10.3	ug/L	1.0	103	77	145	1.5	20	
Ethylbenzene	10.5	ug/L	1.0	105	78	131	0.8	20	
Methyl tert-butyl ether (MTBE)	9.76	ug/L	1.0	98	58	151	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244334
Lab ID: B15061032-003A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150610A			06/10/15 20:23	
Methylene chloride	9.12	ug/L	1.0	91	73	126	2.7	20	
Naphthalene	10.6	ug/L	1.0	106	55	139	7.9	20	
Styrene	11.0	ug/L	1.0	110	76	134	1.5	20	
1,1,1,2-Tetrachloroethane	10.7	ug/L	1.0	107	75	135	0.0	20	
1,1,2,2-Tetrachloroethane	9.60	ug/L	1.0	96	72	132	6.9	20	
Tetrachloroethene	13.6	ug/L	1.0	114	78	137	0.6	20	
Toluene	10.4	ug/L	1.0	104	78	134	1.6	20	
1,1,1-Trichloroethane	10.0	ug/L	1.0	100	64	141	1.6	20	
1,1,2-Trichloroethane	10.7	ug/L	1.0	107	72	133	1.5	20	
Trichloroethene	11.7	ug/L	1.0	110	75	138	0.7	20	
Trichlorofluoromethane	10.1	ug/L	1.0	101	58	139	0.0	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	12.8	ug/L	1.0	128	60	140	3.2	20	
1,2,3-Trichloropropane	10.9	ug/L	1.0	109	67	133	3.7	20	
Vinyl chloride	9.92	ug/L	1.0	99	66	140	0.8	20	
m+p-Xylenes	21.1	ug/L	1.0	106	78	133	2.3	20	
o-Xylene	10.5	ug/L	1.0	105	79	136	1.5	20	
Xylenes, Total	31.6	ug/L	1.0	105	78	136			
Surr: 1,2-Dichloroethane-d4			2.0	99	70	130			
Surr: Dibromofluoromethane			2.0	109	77	126			
Surr: p-Bromofluorobenzene			2.0	104	76	127			
Surr: Toluene-d8			2.0	111	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244379
Lab ID: CCV-061115	Continuing Calibration Verification Standard								06/11/15 09:15
Benzene	4.88	ug/L	1.0	98	70	130			
Bromobenzene	5.44	ug/L	1.0	109	70	130			
Bromochloromethane	5.36	ug/L	1.0	107	70	130			
Bromodichloromethane	4.92	ug/L	1.0	98	70	130			
Bromoform	4.92	ug/L	1.0	98	70	130			
Bromomethane	4.04	ug/L	1.0	81	70	130			
Carbon tetrachloride	4.84	ug/L	1.0	97	70	130			
Chlorobenzene	5.16	ug/L	1.0	103	70	130			
Chlorodibromomethane	5.12	ug/L	1.0	102	70	130			
Chloroethane	5.12	ug/L	1.0	102	70	130			
Chloroform	4.88	ug/L	1.0	98	80	120			
Chloromethane	4.16	ug/L	1.0	83	70	130			
1,2-Dibromoethane	5.12	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.20	ug/L	1.0	104	70	130			
Dibromomethane	5.24	ug/L	1.0	105	70	130			
1,2-Dichlorobenzene	5.28	ug/L	1.0	106	70	130			
4-Chlorotoluene	5.04	ug/L	1.0	101	70	130			
1,3-Dichlorobenzene	5.24	ug/L	1.0	105	70	130			
1,4-Dichlorobenzene	5.08	ug/L	1.0	102	70	130			
Dichlorodifluoromethane	5.96	ug/L	1.0	119	70	130			
1,1-Dichloroethane	5.04	ug/L	1.0	101	70	130			
1,2-Dichloroethane	4.76	ug/L	1.0	95	70	130			
1,1-Dichloroethene	5.04	ug/L	1.0	101	80	120			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	70	130			
trans-1,2-Dichloroethene	5.48	ug/L	1.0	110	70	130			
1,2-Dichloropropane	4.96	ug/L	1.0	99	80	120			
1,3-Dichloropropane	5.20	ug/L	1.0	104	70	130			
2,2-Dichloropropane	5.32	ug/L	1.0	106	70	130			
1,1-Dichloropropene	4.96	ug/L	1.0	99	70	130			
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	70	130			
trans-1,3-Dichloropropene	4.72	ug/L	1.0	94	70	130			
Ethylbenzene	5.24	ug/L	1.0	105	80	120			
Methyl tert-butyl ether (MTBE)	4.72	ug/L	1.0	94	70	130			
Methylene chloride	4.44	ug/L	1.0	89	70	130			
Naphthalene	3.92	ug/L	1.0	78	70	130			
Styrene	5.32	ug/L	1.0	106	70	130			
1,1,1,2-Tetrachloroethane	5.16	ug/L	1.0	103	70	130			
1,1,2,2-Tetrachloroethane	4.60	ug/L	1.0	92	70	130			
Tetrachloroethene	5.56	ug/L	1.0	111	70	130			
Toluene	5.20	ug/L	1.0	104	80	120			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	70	130			
1,1,2-Trichloroethane	5.08	ug/L	1.0	102	70	130			
Trichloroethene	5.32	ug/L	1.0	106	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244379
Lab ID: CCV-061115	Continuing Calibration Verification Standard								06/11/15 09:15
Trichlorofluoromethane	5.20	ug/L	1.0	104	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.44	ug/L	1.0	109	70	130			
1,2,3-Trichloropropane	5.08	ug/L	1.0	102	70	130			
Vinyl chloride	5.04	ug/L	1.0	101	80	120			
m+p-Xylenes	10.5	ug/L	1.0	105	70	130			
o-Xylene	5.20	ug/L	1.0	104	70	130			
Xylenes, Total	15.7	ug/L	1.0	105	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	105	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Method: SW8260B									Batch: R244379
Lab ID: LCS-061115	Laboratory Control Sample				Run: SV5972.I_150611A				06/11/15 09:44
Benzene	4.84	ug/L	1.0	97	71	133			
Bromobenzene	5.48	ug/L	1.0	110	78	133			
Bromochloromethane	5.56	ug/L	1.0	111	68	131			
Bromodichloromethane	5.12	ug/L	1.0	102	67	138			
Bromoform	5.04	ug/L	1.0	101	64	136			
Bromomethane	4.08	ug/L	1.0	82	60	138			
Carbon tetrachloride	4.88	ug/L	1.0	98	61	144			
Chlorobenzene	5.16	ug/L	1.0	103	78	136			
Chlorodibromomethane	5.44	ug/L	1.0	109	72	136			
Chloroethane	4.24	ug/L	1.0	85	64	136			
Chloroform	4.84	ug/L	1.0	97	69	133			
Chloromethane	3.51	ug/L	1.0	70	63	149			
1,2-Dibromoethane	5.36	ug/L	1.0	107	75	131			
2-Chlorotoluene	5.32	ug/L	1.0	106	74	135			
Dibromomethane	5.28	ug/L	1.0	106	72	133			
1,2-Dichlorobenzene	5.48	ug/L	1.0	110	78	129			
4-Chlorotoluene	5.04	ug/L	1.0	101	79	135			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132			
1,4-Dichlorobenzene	5.36	ug/L	1.0	107	78	131			
Dichlorodifluoromethane	4.88	ug/L	1.0	98	55	141			
1,1-Dichloroethane	5.00	ug/L	1.0	100	72	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	57	146			
1,1-Dichloroethene	5.08	ug/L	1.0	102	66	142			
cis-1,2-Dichloroethene	5.20	ug/L	1.0	104	74	133			
trans-1,2-Dichloroethene	5.44	ug/L	1.0	109	76	138			
1,2-Dichloropropane	5.00	ug/L	1.0	100	72	135			
1,3-Dichloropropane	4.96	ug/L	1.0	99	75	134			
2,2-Dichloropropane	5.12	ug/L	1.0	102	42	167			
1,1-Dichloropropene	5.16	ug/L	1.0	103	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244379
Lab ID: LCS-061115	Laboratory Control Sample				Run: SV5972.I_150611A				06/11/15 09:44
cis-1,3-Dichloropropene	5.08	ug/L	1.0	102	75	132			
trans-1,3-Dichloropropene	5.64	ug/L	1.0	113	77	145			
Ethylbenzene	5.28	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.72	ug/L	1.0	94	58	151			
Methylene chloride	4.32	ug/L	1.0	86	73	126			
Naphthalene	4.84	ug/L	1.0	97	55	139			
Styrene	5.44	ug/L	1.0	109	76	134			
1,1,1,2-Tetrachloroethane	5.32	ug/L	1.0	106	75	135			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	72	132			
Tetrachloroethene	5.76	ug/L	1.0	115	78	137			
Toluene	5.20	ug/L	1.0	104	78	134			
1,1,1-Trichloroethane	4.92	ug/L	1.0	98	64	141			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	72	133			
Trichloroethene	5.44	ug/L	1.0	109	75	138			
Trichlorofluoromethane	4.92	ug/L	1.0	98	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.32	ug/L	1.0	126	60	140			
1,2,3-Trichloropropane	5.32	ug/L	1.0	106	67	133			
Vinyl chloride	4.68	ug/L	1.0	94	66	140			
m+p-Xylenes	10.5	ug/L	1.0	105	78	133			
o-Xylene	5.16	ug/L	1.0	103	79	136			
Xylenes, Total	15.6	ug/L	1.0	104	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: MB-061115	Method Blank				Run: SV5972.I_150611A				06/11/15 10:41
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244379
Lab ID: MB-061115	Method Blank				Run: SV5972.I_150611A				06/11/15 10:41
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	102	77	126			
Surr: p-Bromofluorobenzene			1.0	112	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: B15061032-023A_MS	Sample Matrix Spike				Run: SV5972.I_150611A				06/11/15 14:30
Benzene	5.08	ug/L	1.0	102	71	133			
Bromobenzene	5.44	ug/L	1.0	109	78	133			
Bromochloromethane	5.84	ug/L	1.0	117	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244379
Lab ID: B15061032-023A_MS	Sample Matrix Spike				Run: SV5972.I_150611A				06/11/15 14:30
Bromodichloromethane	5.40	ug/L	1.0	108	67	138			
Bromoform	5.00	ug/L	1.0	100	64	136			
Bromomethane	4.44	ug/L	1.0	89	60	138			
Carbon tetrachloride	5.16	ug/L	1.0	103	61	144			
Chlorobenzene	5.40	ug/L	1.0	108	78	136			
Chlorodibromomethane	5.68	ug/L	1.0	114	72	136			
Chloroethane	4.76	ug/L	1.0	95	64	136			
Chloroform	5.12	ug/L	1.0	102	69	133			
Chloromethane	3.13	ug/L	1.0	63	63	149			
1,2-Dibromoethane	5.32	ug/L	1.0	106	75	131			
2-Chlorotoluene	5.32	ug/L	1.0	106	74	135			
Dibromomethane	5.64	ug/L	1.0	113	72	133			
1,2-Dichlorobenzene	5.36	ug/L	1.0	107	78	129			
4-Chlorotoluene	5.04	ug/L	1.0	101	79	135			
1,3-Dichlorobenzene	5.28	ug/L	1.0	106	79	132			
1,4-Dichlorobenzene	5.16	ug/L	1.0	103	78	131			
Dichlorodifluoromethane	5.24	ug/L	1.0	105	55	141			
1,1-Dichloroethane	5.44	ug/L	1.0	109	72	130			
1,2-Dichloroethane	5.00	ug/L	1.0	100	57	146			
1,1-Dichloroethene	5.52	ug/L	1.0	110	66	142			
cis-1,2-Dichloroethene	5.56	ug/L	1.0	111	74	133			
trans-1,2-Dichloroethene	5.96	ug/L	1.0	119	76	138			
1,2-Dichloropropane	5.28	ug/L	1.0	106	72	135			
1,3-Dichloropropane	5.24	ug/L	1.0	105	75	134			
2,2-Dichloropropane	5.36	ug/L	1.0	107	42	167			
1,1-Dichloropropene	5.36	ug/L	1.0	107	72	140			
cis-1,3-Dichloropropene	5.16	ug/L	1.0	103	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.44	ug/L	1.0	109	78	131			
Methyl tert-butyl ether (MTBE)	5.00	ug/L	1.0	100	58	151			
Methylene chloride	4.64	ug/L	1.0	93	73	126			
Naphthalene	4.56	ug/L	1.0	91	55	139			
Styrene	5.52	ug/L	1.0	110	76	134			
1,1,1,2-Tetrachloroethane	5.52	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.80	ug/L	1.0	96	72	132			
Tetrachloroethene	7.00	ug/L	1.0	117	78	137			
Toluene	5.40	ug/L	1.0	108	78	134			
1,1,1-Trichloroethane	5.16	ug/L	1.0	103	64	141			
1,1,2-Trichloroethane	5.44	ug/L	1.0	109	72	133			
Trichloroethene	5.52	ug/L	1.0	110	75	138			
Trichlorofluoromethane	5.20	ug/L	1.0	104	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.84	ug/L	1.0	137	60	140			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/17/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244379
Lab ID: B15061032-023A_MS	Sample Matrix Spike				Run: SV5972.I_150611A			06/11/15 14:30	
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.32	ug/L	1.0	106	79	136			
Xylenes, Total	16.1	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	101	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	111	79	122			
Lab ID: B15061032-023A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150611A			06/11/15 14:59	
Benzene	5.04	ug/L	1.0	101	71	133	0.8	20	
Bromobenzene	5.72	ug/L	1.0	114	78	133	5.0	20	
Bromochloromethane	5.88	ug/L	1.0	118	68	131	0.7	20	
Bromodichloromethane	5.36	ug/L	1.0	107	67	138	0.7	20	
Bromoform	5.36	ug/L	1.0	107	64	136	6.9	20	
Bromomethane	5.08	ug/L	1.0	102	60	138	13	20	
Carbon tetrachloride	5.04	ug/L	1.0	101	61	144	2.4	20	
Chlorobenzene	5.44	ug/L	1.0	109	78	136	0.7	20	
Chlorodibromomethane	5.68	ug/L	1.0	114	72	136	0.0	20	
Chloroethane	4.64	ug/L	1.0	93	64	136	2.6	20	
Chloroform	5.12	ug/L	1.0	102	69	133	0.0	20	
Chloromethane	3.29	ug/L	1.0	66	63	149	5.1	20	
1,2-Dibromoethane	5.44	ug/L	1.0	109	75	131	2.2	20	
2-Chlorotoluene	5.64	ug/L	1.0	113	74	135	5.8	20	
Dibromomethane	5.60	ug/L	1.0	112	72	133	0.7	20	
1,2-Dichlorobenzene	5.64	ug/L	1.0	113	78	129	5.1	20	
4-Chlorotoluene	5.20	ug/L	1.0	104	79	135	3.1	20	
1,3-Dichlorobenzene	5.68	ug/L	1.0	114	79	132	7.3	20	
1,4-Dichlorobenzene	5.52	ug/L	1.0	110	78	131	6.7	20	
Dichlorodifluoromethane	5.20	ug/L	1.0	104	55	141	0.8	20	
1,1-Dichloroethane	5.28	ug/L	1.0	106	72	130	3.0	20	
1,2-Dichloroethane	5.00	ug/L	1.0	100	57	146	0.0	20	
1,1-Dichloroethene	5.36	ug/L	1.0	107	66	142	2.9	20	
cis-1,2-Dichloroethene	5.44	ug/L	1.0	109	74	133	2.2	20	
trans-1,2-Dichloroethene	5.88	ug/L	1.0	118	76	138	1.4	20	
1,2-Dichloropropane	5.20	ug/L	1.0	104	72	135	1.5	20	
1,3-Dichloropropane	5.32	ug/L	1.0	106	75	134	1.5	20	
2,2-Dichloropropane	5.28	ug/L	1.0	106	42	167	1.5	20	
1,1-Dichloropropene	5.36	ug/L	1.0	107	72	140	0.0	20	
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	75	132	0.8	20	
trans-1,3-Dichloropropene	5.16	ug/L	1.0	103	77	145	3.1	20	
Ethylbenzene	5.40	ug/L	1.0	108	78	131	0.7	20	
Methyl tert-butyl ether (MTBE)	4.84	ug/L	1.0	97	58	151	3.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244379
Lab ID: B15061032-023A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150611A			06/11/15 14:59	
Methylene chloride	4.60	ug/L	1.0	92	73	126	0.9	20	
Naphthalene	5.28	ug/L	1.0	106	55	139	15	20	
Styrene	5.64	ug/L	1.0	113	76	134	2.2	20	
1,1,1,2-Tetrachloroethane	5.44	ug/L	1.0	109	75	135	1.5	20	
1,1,2,2-Tetrachloroethane	5.04	ug/L	1.0	101	72	132	4.9	20	
Tetrachloroethene	6.84	ug/L	1.0	113	78	137	2.3	20	
Toluene	5.40	ug/L	1.0	108	78	134	0.0	20	
1,1,1-Trichloroethane	5.16	ug/L	1.0	103	64	141	0.0	20	
1,1,2-Trichloroethane	5.36	ug/L	1.0	107	72	133	1.5	20	
Trichloroethene	5.60	ug/L	1.0	112	75	138	1.4	20	
Trichlorofluoromethane	5.08	ug/L	1.0	102	58	139	2.3	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.44	ug/L	1.0	129	60	140	6.0	20	
1,2,3-Trichloropropane	5.96	ug/L	1.0	119	67	133	9.1	20	
Vinyl chloride	5.04	ug/L	1.0	101	66	140	0.0	20	
m+p-Xylenes	10.7	ug/L	1.0	107	78	133	0.4	20	
o-Xylene	5.28	ug/L	1.0	106	79	136	0.8	20	
Xylenes, Total	16.0	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	104	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	106	76	127			
Surr: Toluene-d8			1.0	112	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/17/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061032

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244435
Lab ID: CCV-061215	Continuing Calibration Verification Standard								06/12/15 10:38
Tetrachloroethene	5.76	ug/L	1.0	115	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	107	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Method: SW8260B									Batch: R244435
Lab ID: LCS-061215	Laboratory Control Sample				Run: SV5972.I_150612A				06/12/15 11:07
Tetrachloroethene	5.72	ug/L	1.0	114	78	137			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	105	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-061215	Method Blank				Run: SV5972.I_150612A				06/12/15 12:04
Tetrachloroethene	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	112	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061173-004A_MS	Sample Matrix Spike				Run: SV5972.I_150612A				06/12/15 15:36
Tetrachloroethene	8.80	ug/L	1.0	116	78	137			
Surr: 1,2-Dichloroethane-d4			1.0	102	70	130			
Surr: Dibromofluoromethane			1.0	111	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: B15061173-004A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150612A				06/12/15 16:04
Tetrachloroethene	8.92	ug/L	1.0	118	78	137	1.4	20	
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	112	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061032

Login completed by:	Leslie S. Cadreau	Date Received:	6/10/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/10/2015	Carrier name:	Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.0°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format:_____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s):
Receipt Temp 1.0 °C TB
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
1	TB1_060316	6/3/15	0800	1 - W	X										X		B1506 1032	-001
2	LIV_060315	6/3/15	0942	3 - W	X										X			-002
3	L-88-13_060315	6/3/15	1010	3 - W	X										X			-003
4	LIV_060415	6/4/15	0915	3 - W	X										X			-004
5	07-11_060415	6/4/15	0940	3 - W	X										X			-005
6	07-12_060415	6/4/15	1030	3 - W	X										X			-006
7	94-1_060415	6/4/15	1125	3 - W	X										X			-007
8	07-7_060415	6/4/15	1215	3 - W	X										X			-008
9	07-06_060415	6/4/15	1315	3 - W	X										X			-009
10	94-2_060415	6/4/15	1405	3 - W	X										X			-010

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LAROSE	6/9/15 1500		SEALED FOR SHIPMENT		CL
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KYLE LARSEN Date/Time: 10 JUN 2015 9:00 am Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GPD PTN

Cooler ID(s):

Receipt Temp 1.0 °C TB

On Ice: (Yes) No

Custody Seal (Y) NC
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	TB-2_060415	6/4/15	0800	~~3~~ 1 - W	X										X		B15061032	-011
2	10-3_060415	6/4/15	1045	3 - W	X										X			-012
3	12-7_060415	6/4/15	1120	3 - W	X										X			-013
4	10-7_060415	6/4/15	1320	3 - W	X										X			-014
5	12-9_060415	6/4/15	1350	3 - W	X										X			-015
6	89-6_060415	6/4/15	1455	3 - W	X										X			-016
7	92-4_060415	6/4/15	1540	3 - W	X										X			-017
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LaROSE	6/9/15 1500		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KMLE LARSEN Date/Time: 10 JUN 2015 9:00am Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH — Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F- d constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s):
Receipt Temp 1.0 °C TB
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$, HCO_3, CO_3)	Chloride and Sulfate				SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	D1_060515	6/5/15	0800	3 - W	X											X		B15061032	-018
2	LIV_060515	6/5/15	1038	3 - W	X											X			-019
3	07-8_060515	6/5/15	1225	3 - W	X											X			-020
4	07-9_060515	6/5/15	1145	3 - W	X											X			-021
5	5_060515	6/5/15	1100	3 - W	X											X			-022
6	6_060515	6/5/15	1000	3 - W	X											X			-023
7																			
8																			
9																			
10																			

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LaROSE	6/9/15 1500		SEALED FOR SHIPMENT		CL
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: KYLE LARSEN Date/Time: 10 JUN 2015 9:00am Signature: Kyle Larsen

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

ANALYSIS REQUESTED

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GRD RTN

Cooler ID(s):

Receipt Temp 1.0 °C TB

On Ice: (Yes) No

Custody Seal (Y) N C

Intact (Y) N

Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH	Comments	LABORATORY USE ONLY
1	LS-11_060415	6/4/15	1515	3 - W	X										X		B150u1032	024
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
CHRIS LaROSE	6/9/15 1500		SEALED FOR SHIPMENT		CL
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: RYLE LARSEN	10 JUN 2015 9:00am	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

June 23, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061173 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - GWMD-2R

Energy Laboratories Inc Billings MT received the following 20 samples for Kennedy Jenks Consultants on 6/11/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061173-001	TB2_060815	06/08/15 8:00	06/11/15	Aqueous	8260-Volatile Organic Compounds-Short List
B15061173-002	D1-060815	06/08/15 8:00	06/11/15	Aqueous	Same As Above
B15061173-003	13-9_060815	06/08/15 13:35	06/11/15	Aqueous	Same As Above
B15061173-004	07-2A_060815	06/08/15 16:20	06/11/15	Aqueous	Same As Above
B15061173-005	TB1-060815	06/08/15 8:00	06/11/15	Aqueous	Same As Above
B15061173-006	LIV_060815	06/08/15 10:45	06/11/15	Aqueous	Same As Above
B15061173-007	L-87-5_060815	06/08/15 11:10	06/11/15	Aqueous	Same As Above
B15061173-008	89-8_060815	06/08/15 12:15	06/11/15	Aqueous	Same As Above
B15061173-009	07-5A_060815	06/08/15 14:30	06/11/15	Aqueous	Same As Above
B15061173-010	11-1_060815	06/08/15 15:30	06/11/15	Aqueous	Same As Above
B15061173-011	D1_060915	06/09/15 8:00	06/11/15	Aqueous	Same As Above
B15061173-012	07-1_060915	06/09/15 11:35	06/11/15	Aqueous	Same As Above
B15061173-013	PDB-BLANK_060915	06/09/15 11:50	06/11/15	Aqueous	Same As Above
B15061173-014	89-3-PDB-19.6_060915	06/09/15 11:55	06/11/15	Aqueous	Same As Above
B15061173-015	89-3-PDB-25.3_060915	06/09/15 12:00	06/11/15	Aqueous	Same As Above
B15061173-016	89-3-PDB-30.9_060915	06/09/15 12:05	06/11/15	Aqueous	Same As Above
B15061173-017	89-3_060915	06/09/15 13:15	06/11/15	Aqueous	Same As Above
B15061173-018	14-6_060915	06/09/15 13:40	06/11/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Preparation for TDS Solids, Total Dissolved 8260-Volatile Organic Compounds-Short List
B15061173-019	LIV_060915	06/09/15 15:20	06/11/15	Aqueous	8260-Volatile Organic Compounds-Short List

ANALYTICAL SUMMARY REPORT

B15061173-020	14-2_060915	06/09/15 15:25	06/11/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Preparation for TDS Solids, Total Dissolved 8260-Volatile Organic Compounds-Short List

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

DATES REPORT

Work Order: B15061173
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/23/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061173-001A	TB2_060815	6/8/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-002A	D1-060815	6/8/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-002A	D1-060815	6/8/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-003A	13-9_060815	6/8/2015 1:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-003A	13-9_060815	6/8/2015 1:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015
B15061173-004A	07-2A_060815	6/8/2015 4:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-005A	TB1-060815	6/8/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-006A	LIV_060815	6/8/2015 10:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-007A	L-87-5_060815	6/8/2015 11:10:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-008A	89-8_060815	6/8/2015 12:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-009A	07-5A_060815	6/8/2015 2:30:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-010A	11-1_060815	6/8/2015 3:30:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-011A	D1_060915	6/9/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-011A	D1_060915	6/9/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015
B15061173-011A	D1_060915	6/9/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015
B15061173-012A	07-1_060915	6/9/2015 11:35:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-013A	PDB-BLANK_060915	6/9/2015 11:50:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-014A	89-3-PDB-19.6_060915	6/9/2015 11:55:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-014A	89-3-PDB-19.6_060915	6/9/2015 11:55:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015
B15061173-015A	89-3-PDB-25.3_060915	6/9/2015 12:00:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-015A	89-3-PDB-25.3_060915	6/9/2015 12:00:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015
B15061173-016A	89-3-PDB-30.9_060915	6/9/2015 12:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015

DATES REPORT

Work Order: B15061173
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -

Report Date: 06/23/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061173-016A	89-3-PDB-30.9_060915	6/9/2015 12:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-017A	89-3_060915	6/9/2015 1:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-017A	89-3_060915	6/9/2015 1:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015
B15061173-018A	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Alkalinity		NA	6/16/2015
B15061173-018A	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Anions by Ion Chromatography		NA	6/16/2015
B15061173-018A	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Anions by Ion Chromatography		NA	6/16/2015
B15061173-018A	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Solids, Total Dissolved		06/15/2015 A2540 C [90484]	6/15/2015
B15061173-018B	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Hardness as CaCO3		NA	6/15/2015
B15061173-018B	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/15/2015
B15061173-018C	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/15/2015
B15061173-018D	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-018D	14-6_060915	6/9/2015 1:40:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/15/2015
B15061173-019A	LIV_060915	6/9/2015 3:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/13/2015
B15061173-020A	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Alkalinity		NA	6/16/2015
B15061173-020A	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Anions by Ion Chromatography		NA	6/16/2015
B15061173-020A	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Anions by Ion Chromatography		NA	6/16/2015
B15061173-020A	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Solids, Total Dissolved		06/15/2015 A2540 C [90484]	6/15/2015
B15061173-020A	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Solids, Total Dissolved		06/16/2015 A2540 C [90527]	6/16/2015
B15061173-020B	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Hardness as CaCO3		NA	6/16/2015
B15061173-020B	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/15/2015
B15061173-020C	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/15/2015
B15061173-020D	14-2_060915	6/9/2015 3:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/12/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-001
Client Sample ID: TB2_060815

Report Date: 06/23/15
Collection Date: 06/08/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Chloroethane	0.11	ug/L	J	0.50		SW8260B	06/12/15 15:07 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 15:07 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1-Dichloropropene	1.8	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 15:07 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Methylene chloride	0.14	ug/L	J	0.50		SW8260B	06/12/15 15:07 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-001
Client Sample ID: TB2_060815

Report Date: 06/23/15
Collection Date: 06/08/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 15:07 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 15:07 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/12/15 15:07 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/12/15 15:07 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/12/15 15:07 / nl
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	06/12/15 15:07 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-002
Client Sample ID: D1-060815

Report Date: 06/23/15
Collection Date: 06/08/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Bromobenzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Bromochloromethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Bromodichloromethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Bromoform	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Bromomethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Carbon tetrachloride	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Chlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Chlorodibromomethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Chloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Chloroform	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Chloromethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,2-Dibromoethane	ND	ug/L		6.0		SW8260B	06/13/15 09:28 / nl
2-Chlorotoluene	11	ug/L		10		SW8260B	06/13/15 09:28 / nl
4-Chlorotoluene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Dibromomethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,2-Dichlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,3-Dichlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,4-Dichlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Dichlorodifluoromethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1-Dichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,2-Dichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1-Dichloroethene	3.2	ug/L	J	10		SW8260B	06/13/15 09:28 / nl
cis-1,2-Dichloroethene	2.2	ug/L	J	10		SW8260B	06/13/15 09:28 / nl
trans-1,2-Dichloroethene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,2-Dichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,3-Dichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
2,2-Dichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1-Dichloropropene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
cis-1,3-Dichloropropene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
trans-1,3-Dichloropropene	ND	ug/L		6.0		SW8260B	06/13/15 09:28 / nl
Ethylbenzene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Methylene chloride	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Naphthalene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Styrene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Tetrachloroethene	35800	ug/L		2500		SW8260B	06/12/15 18:25 / nl
Toluene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1,1-Trichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1,2-Trichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Trichloroethene	115	ug/L		10		SW8260B	06/13/15 09:28 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-002
Client Sample ID: D1-060815

Report Date: 06/23/15
Collection Date: 06/08/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,2,3-Trichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Vinyl chloride	ND	ug/L		8.0		SW8260B	06/13/15 09:28 / nl
m+p-Xylenes	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
o-Xylene	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Xylenes, Total	ND	ug/L		10		SW8260B	06/13/15 09:28 / nl
Surr: Dibromofluoromethane	120	%REC		77-126		SW8260B	06/13/15 09:28 / nl
Surr: 1,2-Dichloroethane-d4	115	%REC		70-130		SW8260B	06/13/15 09:28 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/13/15 09:28 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/13/15 09:28 / nl

- The reporting limit reflects a 20 times dilution. The sample was diluted due to sample matrix interference.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-003
Client Sample ID: 13-9_060815

Report Date: 06/23/15
Collection Date: 06/08/15 13:35
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Bromobenzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Bromochloromethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Bromodichloromethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Bromoform	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Bromomethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Carbon tetrachloride	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Chlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Chlorodibromomethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Chloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Chloroform	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Chloromethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,2-Dibromoethane	ND	ug/L		6.0		SW8260B	06/13/15 09:57 / nl
2-Chlorotoluene	12	ug/L		10		SW8260B	06/13/15 09:57 / nl
4-Chlorotoluene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Dibromomethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,2-Dichlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,3-Dichlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,4-Dichlorobenzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Dichlorodifluoromethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1-Dichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,2-Dichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1-Dichloroethene	2.8	ug/L	J	10		SW8260B	06/13/15 09:57 / nl
cis-1,2-Dichloroethene	2.4	ug/L	J	10		SW8260B	06/13/15 09:57 / nl
trans-1,2-Dichloroethene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,2-Dichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,3-Dichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
2,2-Dichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1-Dichloropropene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
cis-1,3-Dichloropropene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
trans-1,3-Dichloropropene	ND	ug/L		6.0		SW8260B	06/13/15 09:57 / nl
Ethylbenzene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Methylene chloride	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Naphthalene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Styrene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Tetrachloroethene	37800	ug/L		2500		SW8260B	06/15/15 13:37 / nl
Toluene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1,1-Trichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1,2-Trichloroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Trichloroethene	119	ug/L		10		SW8260B	06/13/15 09:57 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-003
Client Sample ID: 13-9_060815

Report Date: 06/23/15
Collection Date: 06/08/15 13:35
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,2,3-Trichloropropane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Vinyl chloride	ND	ug/L		8.0		SW8260B	06/13/15 09:57 / nl
m+p-Xylenes	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
o-Xylene	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Xylenes, Total	ND	ug/L		10		SW8260B	06/13/15 09:57 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/13/15 09:57 / nl
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130		SW8260B	06/13/15 09:57 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/13/15 09:57 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/13/15 09:57 / nl

- The reporting limit reflects a 20 times dilution. The sample was diluted due to sample matrix interference.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-004
Client Sample ID: 07-2A_060815

Report Date: 06/23/15
Collection Date: 06/08/15 16:20
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Chloroethane	0.12	ug/L	J	0.50		SW8260B	06/12/15 13:41 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 13:41 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
cis-1,2-Dichloroethene	0.16	ug/L	J	0.50		SW8260B	06/12/15 13:41 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 13:41 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Tetrachloroethene	3.0	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Trichloroethene	0.29	ug/L	J	0.50		SW8260B	06/12/15 13:41 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-004
Client Sample ID: 07-2A_060815

Report Date: 06/23/15
Collection Date: 06/08/15 16:20
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 13:41 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 13:41 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/12/15 13:41 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/12/15 13:41 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/12/15 13:41 / nl
Surr: p-Bromofluorobenzene	113	%REC		76-127		SW8260B	06/12/15 13:41 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-005
Client Sample ID: TB1-060815

Report Date: 06/23/15
Collection Date: 06/08/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Chloroethane	0.11	ug/L	J	0.50		SW8260B	06/12/15 14:38 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 14:38 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 14:38 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Methylene chloride	0.15	ug/L	J	0.50		SW8260B	06/12/15 14:38 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-005
Client Sample ID: TB1-060815

Report Date: 06/23/15
Collection Date: 06/08/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 14:38 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 14:38 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/12/15 14:38 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/12/15 14:38 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/12/15 14:38 / nl
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	06/12/15 14:38 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-006
Client Sample ID: LIV_060815

Report Date: 06/23/15
Collection Date: 06/08/15 10:45
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 20:22 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 20:22 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-006
Client Sample ID: LIV_060815

Report Date: 06/23/15
Collection Date: 06/08/15 10:45
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 20:22 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 20:22 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/12/15 20:22 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/12/15 20:22 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/12/15 20:22 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/12/15 20:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-007
Client Sample ID: L-87-5_060815

Report Date: 06/23/15
Collection Date: 06/08/15 11:10
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 20:51 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
cis-1,2-Dichloroethene	0.25	ug/L	J	0.50		SW8260B	06/12/15 20:51 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 20:51 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Tetrachloroethene	18	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Trichloroethene	0.67	ug/L		0.50		SW8260B	06/12/15 20:51 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-007
Client Sample ID: L-87-5_060815

Report Date: 06/23/15
Collection Date: 06/08/15 11:10
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 20:51 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 20:51 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/12/15 20:51 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/12/15 20:51 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/12/15 20:51 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/12/15 20:51 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-008
Client Sample ID: 89-8_060815

Report Date: 06/23/15
Collection Date: 06/08/15 12:15
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 21:20 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 21:20 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-008
Client Sample ID: 89-8_060815

Report Date: 06/23/15
Collection Date: 06/08/15 12:15
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 21:20 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 21:20 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/12/15 21:20 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/12/15 21:20 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/12/15 21:20 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/12/15 21:20 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-009
Client Sample ID: 07-5A_060815

Report Date: 06/23/15
Collection Date: 06/08/15 14:30
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 21:50 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 21:50 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Tetrachloroethene	1.2	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-009
Client Sample ID: 07-5A_060815

Report Date: 06/23/15
Collection Date: 06/08/15 14:30
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 21:50 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/12/15 21:50 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/12/15 21:50 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/12/15 21:50 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/12/15 21:50 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/12/15 21:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-010
Client Sample ID: 11-1_060815

Report Date: 06/23/15
Collection Date: 06/08/15 15:30
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 04:37 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 04:37 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-010
Client Sample ID: 11-1_060815

Report Date: 06/23/15
Collection Date: 06/08/15 15:30
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 04:37 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 04:37 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/13/15 04:37 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/13/15 04:37 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/13/15 04:37 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/13/15 04:37 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-011
Client Sample ID: D1_060915

Report Date: 06/23/15
Collection Date: 06/09/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 08:59 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 08:59 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Tetrachloroethene	41	ug/L		5.0		SW8260B	06/15/15 16:59 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Trichloroethene	0.48	ug/L	J	0.50		SW8260B	06/13/15 08:59 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-011
Client Sample ID: D1_060915

Report Date: 06/23/15
Collection Date: 06/09/15 08:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 08:59 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 08:59 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/13/15 08:59 / nl
Surr: 1,2-Dichloroethane-d4	104	%REC		70-130		SW8260B	06/13/15 08:59 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/13/15 08:59 / nl
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	06/13/15 08:59 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-012
Client Sample ID: 07-1_060915

Report Date: 06/23/15
Collection Date: 06/09/15 11:35
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 05:06 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 05:06 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-012
Client Sample ID: 07-1_060915

Report Date: 06/23/15
Collection Date: 06/09/15 11:35
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 05:06 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 05:06 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 05:06 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/13/15 05:06 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/13/15 05:06 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/13/15 05:06 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-013
Client Sample ID: PDB-BLANK_060915

Report Date: 06/23/15
Collection Date: 06/09/15 11:50
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 05:35 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 05:35 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Toluene	0.29	ug/L	J	0.50		SW8260B	06/13/15 05:35 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-013
Client Sample ID: PDB-BLANK_060915

Report Date: 06/23/15
Collection Date: 06/09/15 11:50
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 05:35 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 05:35 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 05:35 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/13/15 05:35 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/13/15 05:35 / nl
Surr: p-Bromofluorobenzene	105	%REC		76-127		SW8260B	06/13/15 05:35 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-014
Client Sample ID: 89-3-PDB-19.6_060915

Report Date: 06/23/15
Collection Date: 06/09/15 11:55
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 08:00 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 08:00 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Tetrachloroethene	34	ug/L		5.0		SW8260B	06/15/15 16:30 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Trichloroethene	0.27	ug/L	J	0.50		SW8260B	06/13/15 08:00 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-014
Client Sample ID: 89-3-PDB-19.6_060915

Report Date: 06/23/15
Collection Date: 06/09/15 11:55
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 08:00 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 08:00 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 08:00 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/13/15 08:00 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/13/15 08:00 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/13/15 08:00 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-015
Client Sample ID: 89-3-PDB-25.3_060915

Report Date: 06/23/15
Collection Date: 06/09/15 12:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 07:32 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 07:32 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Tetrachloroethene	33	ug/L		5.0		SW8260B	06/15/15 16:01 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Trichloroethene	0.28	ug/L	J	0.50		SW8260B	06/13/15 07:32 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-015
Client Sample ID: 89-3-PDB-25.3_060915

Report Date: 06/23/15
Collection Date: 06/09/15 12:00
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 07:32 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 07:32 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 07:32 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/13/15 07:32 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/13/15 07:32 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/13/15 07:32 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-016
Client Sample ID: 89-3-PDB-30.9_060915

Report Date: 06/23/15
Collection Date: 06/09/15 12:05
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 07:02 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 07:02 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Tetrachloroethene	130	ug/L		10		SW8260B	06/15/15 15:32 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Trichloroethene	6.1	ug/L		0.50		SW8260B	06/13/15 07:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-016
Client Sample ID: 89-3-PDB-30.9_060915

Report Date: 06/23/15
Collection Date: 06/09/15 12:05
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 07:02 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 07:02 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 07:02 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/13/15 07:02 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/13/15 07:02 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/13/15 07:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-017
Client Sample ID: 89-3_060915

Report Date: 06/23/15
Collection Date: 06/09/15 13:15
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 06:34 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 06:34 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Tetrachloroethene	43	ug/L		5.0		SW8260B	06/15/15 15:04 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Trichloroethene	0.45	ug/L	J	0.50		SW8260B	06/13/15 06:34 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-017
Client Sample ID: 89-3_060915

Report Date: 06/23/15
Collection Date: 06/09/15 13:15
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 06:34 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 06:34 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 06:34 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	06/13/15 06:34 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/13/15 06:34 / nl
Surr: p-Bromofluorobenzene	113	%REC		76-127		SW8260B	06/13/15 06:34 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-018
Client Sample ID: 14-6_060915

Report Date: 06/23/15
Collection Date: 06/09/15 13:40
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	346	mg/L	D	20		A2540 C	06/15/15 10:02 / nae
INORGANICS							
Alkalinity, Total as CaCO3	259	mg/L		4		A2320 B	06/16/15 01:41 / ajr
Bicarbonate as HCO3	316	mg/L		4		A2320 B	06/16/15 01:41 / ajr
Carbonate as CO3	ND	mg/L		4		A2320 B	06/16/15 01:41 / ajr
Chloride	15	mg/L		1		E300.0	06/16/15 06:24 / rbf
Sulfate	60	mg/L		1		E300.0	06/16/15 06:24 / rbf
Hardness as CaCO3	150	mg/L		1		A2340 B	06/15/15 14:08 / meh
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	06/15/15 14:19 / bas
METALS, DISSOLVED							
Calcium	43	mg/L		1		SW6010B	06/15/15 13:17 / prw
Iron	0.08	mg/L		0.03		SW6010B	06/15/15 13:17 / prw
Magnesium	10	mg/L		1		SW6010B	06/15/15 13:17 / prw
Potassium	2	mg/L		1		SW6010B	06/15/15 13:17 / prw
Sodium	76	mg/L		1		SW6010B	06/15/15 13:17 / prw
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 10:55 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1-Dichloroethene	0.40	ug/L	J	0.50		SW8260B	06/13/15 10:55 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-018
Client Sample ID: 14-6_060915

Report Date: 06/23/15
Collection Date: 06/09/15 13:40
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
cis-1,2-Dichloroethene	54	ug/L		25		SW8260B	06/15/15 14:35 / nl
trans-1,2-Dichloroethene	0.56	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 10:55 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Tetrachloroethene	834	ug/L		25		SW8260B	06/15/15 14:35 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Trichloroethene	113	ug/L		25		SW8260B	06/15/15 14:35 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Vinyl chloride	0.18	ug/L	J	0.40		SW8260B	06/13/15 10:55 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 10:55 / nl
Surr: Dibromofluoromethane	111	%REC		77-126		SW8260B	06/13/15 10:55 / nl
Surr: 1,2-Dichloroethane-d4	104	%REC		70-130		SW8260B	06/13/15 10:55 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/13/15 10:55 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/13/15 10:55 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-019
Client Sample ID: LIV_060915

Report Date: 06/23/15
Collection Date: 06/09/15 15:20
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/13/15 06:04 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/13/15 06:04 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-019
Client Sample ID: LIV_060915

Report Date: 06/23/15
Collection Date: 06/09/15 15:20
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/13/15 06:04 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/13/15 06:04 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/13/15 06:04 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/13/15 06:04 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/13/15 06:04 / nl
Surr: p-Bromofluorobenzene	119	%REC		76-127		SW8260B	06/13/15 06:04 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-020
Client Sample ID: 14-2_060915

Report Date: 06/23/15
Collection Date: 06/09/15 15:25
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	586	mg/L	D	20		A2540 C	06/15/15 10:03 / nae
INORGANICS							
Alkalinity, Total as CaCO3	483	mg/L		4		A2320 B	06/16/15 01:49 / ajr
Bicarbonate as HCO3	ND	mg/L		4		A2320 B	06/16/15 01:49 / ajr
Carbonate as CO3	51	mg/L		4		A2320 B	06/16/15 01:49 / ajr
Chloride	19	mg/L		1		E300.0	06/16/15 06:37 / rbf
Sulfate	34	mg/L	D	4		E300.0	06/16/15 06:37 / rbf
Hardness as CaCO3	407	mg/L		1		A2340 B	06/16/15 11:16 / meh
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.53	mg/L		0.01		E353.2	06/15/15 14:20 / bas
METALS, DISSOLVED							
Calcium	163	mg/L		1		SW6010B	06/15/15 13:37 / prw
Iron	ND	mg/L		0.03		SW6010B	06/15/15 13:37 / prw
Magnesium	ND	mg/L		1		SW6010B	06/15/15 13:37 / prw
Potassium	7	mg/L		1		SW6010B	06/15/15 13:37 / prw
Sodium	64	mg/L		1		SW6010B	06/15/15 13:37 / prw
VOLATILE ORGANIC COMPOUNDS							
Benzene	0.11	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Chloroethane	0.10	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Chloromethane	0.11	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/12/15 14:09 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
J - Estimated value. The analyte was present but less than the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061173-020
Client Sample ID: 14-2_060915

Report Date: 06/23/15
Collection Date: 06/09/15 15:25
DateReceived: 06/11/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/12/15 14:09 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Tetrachloroethene	0.11	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
Toluene	0.36	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/12/15 14:09 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/12/15 14:09 / nl
m+p-Xylenes	0.10	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
o-Xylene	0.11	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
Xylenes, Total	0.22	ug/L	J	0.50		SW8260B	06/12/15 14:09 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/12/15 14:09 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/12/15 14:09 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/12/15 14:09 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/12/15 14:09 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/19/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B								Batch: R244550	
Lab ID: MBLK	Method Blank				Run: MAN-TECH_150615B			06/15/15 23:08	
Alkalinity, Total as CaCO3	1	mg/L	1.0						
Lab ID: LCS	Laboratory Control Sample				Run: MAN-TECH_150615B			06/15/15 23:14	
Alkalinity, Total as CaCO3	108	mg/L	4.0	107	90	110			
Lab ID: B15061129-001AMS	Sample Matrix Spike				Run: MAN-TECH_150615B			06/15/15 23:41	
Alkalinity, Total as CaCO3	533	mg/L	4.0	101	80	120			
Lab ID: B15061129-010ADUP	Sample Duplicate				Run: MAN-TECH_150615B			06/16/15 00:50	
Alkalinity, Total as CaCO3	649	mg/L	4.0				2.9	10	
Bicarbonate as HCO3	562	mg/L	4.0				16	10	R
Carbonate as CO3	113	mg/L	4.0				37	10	R

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/19/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C									Batch: 90484
Lab ID: MB-90484	Method Blank				Run: BAL #SD-15_150615B				06/15/15 09:56
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	10						
Lab ID: LCS-90484	Laboratory Control Sample				Run: BAL #SD-15_150615B				06/15/15 09:57
Solids, Total Dissolved TDS @ 180 C	996	mg/L	10	101	90	110			
Lab ID: B15061129-006A DUP	Sample Duplicate				Run: BAL #SD-15_150615B				06/15/15 09:58
Solids, Total Dissolved TDS @ 180 C	2870	mg/L	48				1.7	5	
Lab ID: B15061133-005A DUP	Sample Duplicate				Run: BAL #SD-15_150615B				06/15/15 10:01
Solids, Total Dissolved TDS @ 180 C	2080	mg/L	46				1.5	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/19/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte		Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**						Analytical Run: IC METROHM 1_150615A			
Lab ID:	**ICV**	Initial Calibration Verification Standard							06/15/15 12:11	
Chloride		2.36	mg/L	1.0	105	90	110			
Sulfate		9.05	mg/L	1.0	101	90	110			
Method:	**E300.0**								Batch: R244565	
Lab ID:	**ICB**	Method Blank				Run: IC METROHM 1_150615A			06/15/15 12:24	
Chloride		ND	mg/L	0.02						
Sulfate		ND	mg/L	0.2						
Lab ID:	**LFB**	Laboratory Fortified Blank				Run: IC METROHM 1_150615A			06/15/15 12:38	
Chloride		3.02	mg/L	1.0	101	90	110			
Sulfate		9.01	mg/L	1.0	100	90	110			
Lab ID:	**B15061136-006AMS**	Sample Matrix Spike				Run: IC METROHM 1_150615A			06/16/15 04:49	
Chloride		364	mg/L	6.0	92	90	110			
Sulfate		5480	mg/L	18		90	110			A
Lab ID:	**B15061136-006AMSD**	Sample Matrix Spike Duplicate				Run: IC METROHM 1_150615A			06/16/15 05:03	
Chloride		365	mg/L	6.0	92	90	110	0.1	20	
Sulfate		5440	mg/L	18		90	110	0.8	20	A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/19/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-B_150615B	
Lab ID: ICV	Initial Calibration Verification Standard							06/15/15 14:03	
Nitrogen, Nitrate+Nitrite as N	0.543	mg/L	0.010	96	90	110			
Method: E353.2								Batch: R244532	
Lab ID: MBLK	Method Blank				Run: FIA203-B_150615B			06/15/15 14:05	
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.010						
Lab ID: LFB	Laboratory Fortified Blank				Run: FIA203-B_150615B			06/15/15 14:06	
Nitrogen, Nitrate+Nitrite as N	0.988	mg/L	0.010	99	90	110			
Lab ID: B15061134-001CMS	Sample Matrix Spike				Run: FIA203-B_150615B			06/15/15 14:12	
Nitrogen, Nitrate+Nitrite as N	1.99	mg/L	0.010	100	90	110			
Lab ID: B15061134-001CMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150615B			06/15/15 14:13	
Nitrogen, Nitrate+Nitrite as N	2.00	mg/L	0.010	101	90	110	0.7	10	
Lab ID: B15061177-014AMS	Sample Matrix Spike				Run: FIA203-B_150615B			06/15/15 14:28	
Nitrogen, Nitrate+Nitrite as N	1.40	mg/L	0.010	97	90	110			
Lab ID: B15061177-014AMSD	Sample Matrix Spike Duplicate				Run: FIA203-B_150615B			06/15/15 14:30	
Nitrogen, Nitrate+Nitrite as N	1.37	mg/L	0.010	94	90	110	2.4	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/22/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061173

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**SW6010B**									Analytical Run: ICP203-B_150615A	
Lab ID:	**QCS**	5	Initial Calibration Verification Standard							06/15/15 12:55	
Calcium			40.6	mg/L	1.0	101	90	110			
Iron			4.04	mg/L	0.030	101	90	110			
Magnesium			39.7	mg/L	1.0	99	90	110			
Potassium			40.2	mg/L	1.0	101	90	110			
Sodium			40.2	mg/L	1.0	101	90	110			
Lab ID:	**ICSA**	5	Interference Check Sample A							06/15/15 12:58	
Calcium			494	mg/L	1.0	99	80	120			
Iron			190	mg/L	0.030	95	80	120			
Magnesium			512	mg/L	1.0	102	80	120			
Potassium			0.0293	mg/L	1.0						
Sodium			0.0210	mg/L	1.0						
Lab ID:	**ICSAB**	5	Interference Check Sample AB							06/15/15 13:02	
Calcium			498	mg/L	1.0	100	80	120			
Iron			191	mg/L	0.030	95	80	120			
Magnesium			514	mg/L	1.0	103	80	120			
Potassium			20.7	mg/L	1.0	103	80	120			
Sodium			20.2	mg/L	1.0	101	80	120			
Method:	**SW6010B**									Batch: R244508	
Lab ID:	**MB-6500DIS150615A**	5	Method Blank				Run: ICP203-B_150615A			06/15/15 12:44	
Calcium			ND	mg/L	0.08						
Iron			ND	mg/L	0.003						
Magnesium			ND	mg/L	0.006						
Potassium			0.05	mg/L	0.04						
Sodium			ND	mg/L	0.01						
Lab ID:	**LFB-6500DIS150615A**	5	Laboratory Fortified Blank				Run: ICP203-B_150615A			06/15/15 12:48	
Calcium			52.7	mg/L	1.0	105	80	120			
Iron			5.24	mg/L	0.030	105	80	120			
Magnesium			54.1	mg/L	1.0	108	80	120			
Potassium			51.9	mg/L	1.0	104	80	120			
Sodium			52.4	mg/L	1.0	105	80	120			
Lab ID:	**B15061173-018BDIL**	5	Serial Dilution				Run: ICP203-B_150615A			06/15/15 13:27	
Calcium			44.3	mg/L	1.0		0	0	2.4	10	
Iron			0.0820	mg/L	0.030		0	0		10	N
Magnesium			10.3	mg/L	1.0		0	0	1.2	10	
Potassium			2.19	mg/L	1.0		0	0		10	N
Sodium			75.5	mg/L	1.2		0	0	0.3	10	
Lab ID:	**B15061173-018BMS2**	5	Sample Matrix Spike				Run: ICP203-B_150615A			06/15/15 13:31	
Calcium			95.5	mg/L	1.0	104	75	125			
Iron			5.34	mg/L	0.030	105	75	125			
Magnesium			61.5	mg/L	1.0	103	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

N - The analyte concentration was not sufficiently high to calculate a RPD for the serial dilution test.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/22/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061173

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: R244508	
Lab ID: B15061173-018BMS2	5	Sample Matrix Spike				Run: ICP203-B_150615A			06/15/15 13:31	
Potassium		54.9	mg/L	1.0	106	75	125			
Sodium		125	mg/L	1.0	98	75	125			
Lab ID: B15061173-018BMSD	5	Sample Matrix Spike Duplicate				Run: ICP203-B_150615A			06/15/15 13:34	
Calcium		106	mg/L	1.0	126	75	125	11	20	S
Iron		6.47	mg/L	0.030	128	75	125	19	20	S
Magnesium		72.7	mg/L	1.0	125	75	125	17	20	
Potassium		66.2	mg/L	1.0	129	75	125	19	20	S
Sodium		136	mg/L	1.0	120	75	125	8.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244435
Lab ID: CCV-061215	Continuing Calibration Verification Standard								06/12/15 10:38
Benzene	5.00	ug/L	1.0	100	70	130			
Bromobenzene	5.48	ug/L	1.0	110	70	130			
Bromochloromethane	5.80	ug/L	1.0	116	70	130			
Bromodichloromethane	5.16	ug/L	1.0	103	70	130			
Bromoform	5.00	ug/L	1.0	100	70	130			
Bromomethane	5.60	ug/L	1.0	112	70	130			
Carbon tetrachloride	5.12	ug/L	1.0	102	70	130			
Chlorobenzene	5.36	ug/L	1.0	107	70	130			
Chlorodibromomethane	5.20	ug/L	1.0	104	70	130			
Chloroethane	5.36	ug/L	1.0	107	70	130			
Chloroform	5.04	ug/L	1.0	101	80	120			
Chloromethane	4.08	ug/L	1.0	82	70	130			
1,2-Dibromoethane	5.12	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.60	ug/L	1.0	112	70	130			
Dibromomethane	5.44	ug/L	1.0	109	70	130			
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	70	130			
4-Chlorotoluene	5.20	ug/L	1.0	104	70	130			
1,3-Dichlorobenzene	5.44	ug/L	1.0	109	70	130			
1,4-Dichlorobenzene	5.36	ug/L	1.0	107	70	130			
Dichlorodifluoromethane	6.36	ug/L	1.0	127	70	130			
1,1-Dichloroethane	5.20	ug/L	1.0	104	70	130			
1,2-Dichloroethane	4.88	ug/L	1.0	98	70	130			
1,1-Dichloroethene	5.16	ug/L	1.0	103	80	120			
cis-1,2-Dichloroethene	5.28	ug/L	1.0	106	70	130			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	70	130			
1,2-Dichloropropane	4.96	ug/L	1.0	99	80	120			
1,3-Dichloropropane	5.28	ug/L	1.0	106	70	130			
2,2-Dichloropropane	5.52	ug/L	1.0	110	70	130			
1,1-Dichloropropene	5.08	ug/L	1.0	102	70	130			
cis-1,3-Dichloropropene	4.96	ug/L	1.0	99	70	130			
trans-1,3-Dichloropropene	4.68	ug/L	1.0	94	70	130			
Ethylbenzene	5.44	ug/L	1.0	109	80	120			
Methyl tert-butyl ether (MTBE)	4.80	ug/L	1.0	96	70	130			
Methylene chloride	4.48	ug/L	1.0	90	70	130			
Naphthalene	4.08	ug/L	1.0	82	70	130			
Styrene	5.28	ug/L	1.0	106	70	130			
1,1,1,2-Tetrachloroethane	5.32	ug/L	1.0	106	70	130			
1,1,2,2-Tetrachloroethane	4.80	ug/L	1.0	96	70	130			
Tetrachloroethene	5.76	ug/L	1.0	115	70	130			
Toluene	5.36	ug/L	1.0	107	80	120			
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	70	130			
1,1,2-Trichloroethane	5.24	ug/L	1.0	105	70	130			
Trichloroethene	5.48	ug/L	1.0	110	70	130			
Trichlorofluoromethane	5.52	ug/L	1.0	110	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244435
Lab ID: CCV-061215	Continuing Calibration Verification Standard								06/12/15 10:38
1,1,2-Trichloro-1,2,2-trifluoroethane	5.92	ug/L	1.0	118	70	130			
1,2,3-Trichloropropane	5.60	ug/L	1.0	112	70	130			
Vinyl chloride	5.36	ug/L	1.0	107	80	120			
m+p-Xylenes	10.8	ug/L	1.0	108	70	130			
o-Xylene	5.36	ug/L	1.0	107	70	130			
Xylenes, Total	16.2	ug/L	1.0	108	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	107	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: CCV_A_061215	Continuing Calibration Verification Standard								06/12/15 23:46
Benzene	5.16	ug/L	1.0	103	70	130			
Bromobenzene	5.68	ug/L	1.0	114	70	130			
Bromochloromethane	5.96	ug/L	1.0	119	70	130			
Bromodichloromethane	5.28	ug/L	1.0	106	70	130			
Bromoform	5.08	ug/L	1.0	102	70	130			
Bromomethane	5.48	ug/L	1.0	110	70	130			
Carbon tetrachloride	5.36	ug/L	1.0	107	70	130			
Chlorobenzene	5.56	ug/L	1.0	111	70	130			
Chlorodibromomethane	5.64	ug/L	1.0	113	70	130			
Chloroethane	5.40	ug/L	1.0	108	70	130			
Chloroform	5.16	ug/L	1.0	103	80	120			
Chloromethane	4.32	ug/L	1.0	86	70	130			
1,2-Dibromoethane	5.72	ug/L	1.0	114	70	130			
2-Chlorotoluene	5.56	ug/L	1.0	111	70	130			
Dibromomethane	5.84	ug/L	1.0	117	70	130			
1,2-Dichlorobenzene	5.68	ug/L	1.0	114	70	130			
4-Chlorotoluene	5.04	ug/L	1.0	101	70	130			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	70	130			
1,4-Dichlorobenzene	5.20	ug/L	1.0	104	70	130			
Dichlorodifluoromethane	6.84	ug/L	1.0	137	70	130			S
1,1-Dichloroethane	5.40	ug/L	1.0	108	70	130			
1,2-Dichloroethane	5.16	ug/L	1.0	103	70	130			
1,1-Dichloroethene	5.36	ug/L	1.0	107	80	120			
cis-1,2-Dichloroethene	5.44	ug/L	1.0	109	70	130			
trans-1,2-Dichloroethene	5.92	ug/L	1.0	118	70	130			
1,2-Dichloropropane	5.24	ug/L	1.0	105	80	120			
1,3-Dichloropropane	5.48	ug/L	1.0	110	70	130			
2,2-Dichloropropane	4.48	ug/L	1.0	90	70	130			
1,1-Dichloropropene	5.20	ug/L	1.0	104	70	130			
cis-1,3-Dichloropropene	5.00	ug/L	1.0	100	70	130			
trans-1,3-Dichloropropene	4.68	ug/L	1.0	94	70	130			
Ethylbenzene	5.48	ug/L	1.0	110	80	120			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244435
Lab ID: CCV_A_061215	Continuing Calibration Verification Standard								06/12/15 23:46
Methyl tert-butyl ether (MTBE)	4.96	ug/L	1.0	99	70	130			
Methylene chloride	4.76	ug/L	1.0	95	70	130			
Naphthalene	3.90	ug/L	1.0	78	70	130			
Styrene	5.60	ug/L	1.0	112	70	130			
1,1,1,2-Tetrachloroethane	5.56	ug/L	1.0	111	70	130			
1,1,2,2-Tetrachloroethane	4.52	ug/L	1.0	90	70	130			
Tetrachloroethene	6.00	ug/L	1.0	120	70	130			
Toluene	5.56	ug/L	1.0	111	80	120			
1,1,1-Trichloroethane	5.32	ug/L	1.0	106	70	130			
1,1,2-Trichloroethane	5.60	ug/L	1.0	112	70	130			
Trichloroethene	5.88	ug/L	1.0	118	70	130			
Trichlorofluoromethane	6.20	ug/L	1.0	124	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.76	ug/L	1.0	115	70	130			
1,2,3-Trichloropropane	5.52	ug/L	1.0	110	70	130			
Vinyl chloride	5.68	ug/L	1.0	114	80	120			
m+p-Xylenes	11.0	ug/L	1.0	110	70	130			
o-Xylene	5.48	ug/L	1.0	110	70	130			
Xylenes, Total	16.4	ug/L	1.0	110	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	107	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Method: SW8260B									Batch: R244435
Lab ID: LCS-061215	Laboratory Control Sample				Run: SV5972.I_150612A				06/12/15 11:07
Benzene	4.80	ug/L	1.0	96	71	133			
Bromobenzene	5.44	ug/L	1.0	109	78	133			
Bromochloromethane	5.60	ug/L	1.0	112	68	131			
Bromodichloromethane	5.20	ug/L	1.0	104	67	138			
Bromoform	5.00	ug/L	1.0	100	64	136			
Bromomethane	5.84	ug/L	1.0	117	60	138			
Carbon tetrachloride	4.92	ug/L	1.0	98	61	144			
Chlorobenzene	5.36	ug/L	1.0	107	78	136			
Chlorodibromomethane	5.48	ug/L	1.0	110	72	136			
Chloroethane	4.64	ug/L	1.0	93	64	136			
Chloroform	4.80	ug/L	1.0	96	69	133			
Chloromethane	3.44	ug/L	1.0	69	63	149			
1,2-Dibromoethane	5.16	ug/L	1.0	103	75	131			
2-Chlorotoluene	5.36	ug/L	1.0	107	74	135			
Dibromomethane	5.52	ug/L	1.0	110	72	133			
1,2-Dichlorobenzene	5.36	ug/L	1.0	107	78	129			
4-Chlorotoluene	4.92	ug/L	1.0	98	79	135			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132			
1,4-Dichlorobenzene	5.32	ug/L	1.0	106	78	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: LCS-061215	Laboratory Control Sample				Run: SV5972.I_150612A				06/12/15 11:07
Dichlorodifluoromethane	5.08	ug/L	1.0	102	55	141			
1,1-Dichloroethane	5.12	ug/L	1.0	102	72	130			
1,2-Dichloroethane	4.80	ug/L	1.0	96	57	146			
1,1-Dichloroethene	5.20	ug/L	1.0	104	66	142			
cis-1,2-Dichloroethene	5.32	ug/L	1.0	106	74	133			
trans-1,2-Dichloroethene	5.68	ug/L	1.0	114	76	138			
1,2-Dichloropropane	5.00	ug/L	1.0	100	72	135			
1,3-Dichloropropane	5.00	ug/L	1.0	100	75	134			
2,2-Dichloropropane	5.12	ug/L	1.0	102	42	167			
1,1-Dichloropropene	5.20	ug/L	1.0	104	72	140			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	75	132			
trans-1,3-Dichloropropene	5.20	ug/L	1.0	104	77	145			
Ethylbenzene	5.32	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.92	ug/L	1.0	98	58	151			
Methylene chloride	4.44	ug/L	1.0	89	73	126			
Naphthalene	4.72	ug/L	1.0	94	55	139			
Styrene	5.40	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	5.36	ug/L	1.0	107	75	135			
1,1,2,2-Tetrachloroethane	4.68	ug/L	1.0	94	72	132			
Tetrachloroethene	5.72	ug/L	1.0	114	78	137			
Toluene	5.28	ug/L	1.0	106	78	134			
1,1,1-Trichloroethane	4.92	ug/L	1.0	98	64	141			
1,1,2-Trichloroethane	5.24	ug/L	1.0	105	72	133			
Trichloroethene	5.52	ug/L	1.0	110	75	138			
Trichlorofluoromethane	5.04	ug/L	1.0	101	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.72	ug/L	1.0	134	60	140			
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133			
Vinyl chloride	4.96	ug/L	1.0	99	66	140			
m+p-Xylenes	10.6	ug/L	1.0	106	78	133			
o-Xylene	5.32	ug/L	1.0	106	79	136			
Xylenes, Total	15.9	ug/L	1.0	106	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	105	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-061215	Method Blank				Run: SV5972.I_150612A				06/12/15 12:04
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/22/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: MB-061215	Method Blank				Run: SV5972.I_150612A				06/12/15 12:04
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: MB-061215	Method Blank				Run: SV5972.I_150612A				06/12/15 12:04
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	112	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061173-004A_MS	Sample Matrix Spike				Run: SV5972.I_150612A				06/12/15 15:36
Benzene	4.88	ug/L	1.0	98	71	133			
Bromobenzene	5.28	ug/L	1.0	106	78	133			
Bromochloromethane	5.68	ug/L	1.0	114	68	131			
Bromodichloromethane	5.32	ug/L	1.0	106	67	138			
Bromoform	4.92	ug/L	1.0	98	64	136			
Bromomethane	5.20	ug/L	1.0	104	60	138			
Carbon tetrachloride	4.88	ug/L	1.0	98	61	144			
Chlorobenzene	5.28	ug/L	1.0	106	78	136			
Chlorodibromomethane	5.40	ug/L	1.0	108	72	136			
Chloroethane	4.64	ug/L	1.0	90	64	136			
Chloroform	5.04	ug/L	1.0	101	69	133			
Chloromethane	3.31	ug/L	1.0	66	63	149			
1,2-Dibromoethane	5.16	ug/L	1.0	103	75	131			
2-Chlorotoluene	5.28	ug/L	1.0	106	74	135			
Dibromomethane	5.48	ug/L	1.0	110	72	133			
1,2-Dichlorobenzene	5.20	ug/L	1.0	104	78	129			
4-Chlorotoluene	4.72	ug/L	1.0	94	79	135			
1,3-Dichlorobenzene	5.12	ug/L	1.0	102	79	132			
1,4-Dichlorobenzene	5.00	ug/L	1.0	100	78	131			
Dichlorodifluoromethane	5.20	ug/L	1.0	104	55	141			
1,1-Dichloroethane	5.24	ug/L	1.0	105	72	130			
1,2-Dichloroethane	5.00	ug/L	1.0	100	57	146			
1,1-Dichloroethene	5.24	ug/L	1.0	105	66	142			
cis-1,2-Dichloroethene	5.44	ug/L	1.0	106	74	133			
trans-1,2-Dichloroethene	5.76	ug/L	1.0	115	76	138			
1,2-Dichloropropane	5.00	ug/L	1.0	100	72	135			
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134			
2,2-Dichloropropane	5.28	ug/L	1.0	106	42	167			
1,1-Dichloropropene	5.24	ug/L	1.0	105	72	140			
cis-1,3-Dichloropropene	4.92	ug/L	1.0	98	75	132			
trans-1,3-Dichloropropene	5.04	ug/L	1.0	101	77	145			
Ethylbenzene	5.32	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151			
Methylene chloride	4.48	ug/L	1.0	90	73	126			
Naphthalene	4.04	ug/L	1.0	81	55	139			
Styrene	5.36	ug/L	1.0	107	76	134			
1,1,1,2-Tetrachloroethane	5.28	ug/L	1.0	106	75	135			
1,1,2,2-Tetrachloroethane	4.76	ug/L	1.0	95	72	132			
Tetrachloroethene	8.80	ug/L	1.0	116	78	137			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: B15061173-004A_MS	Sample Matrix Spike				Run: SV5972.I_150612A			06/12/15 15:36	
Toluene	5.20	ug/L	1.0	104	78	134			
1,1,1-Trichloroethane	4.96	ug/L	1.0	99	64	141			
1,1,2-Trichloroethane	5.12	ug/L	1.0	102	72	133			
Trichloroethene	5.68	ug/L	1.0	108	75	138			
Trichlorofluoromethane	5.28	ug/L	1.0	106	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.84	ug/L	1.0	137	60	140			
1,2,3-Trichloropropane	5.16	ug/L	1.0	103	67	133			
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	10.5	ug/L	1.0	105	78	133			
o-Xylene	5.20	ug/L	1.0	104	79	136			
Xylenes, Total	15.7	ug/L	1.0	105	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	102	70	130			
Surr: Dibromofluoromethane			1.0	111	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: B15061173-004A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150612A			06/12/15 16:04	
Benzene	4.88	ug/L	1.0	98	71	133	0.0	20	
Bromobenzene	5.36	ug/L	1.0	107	78	133	1.5	20	
Bromochloromethane	5.84	ug/L	1.0	117	68	131	2.8	20	
Bromodichloromethane	5.28	ug/L	1.0	106	67	138	0.8	20	
Bromoform	5.16	ug/L	1.0	103	64	136	4.8	20	
Bromomethane	5.36	ug/L	1.0	107	60	138	3.0	20	
Carbon tetrachloride	4.84	ug/L	1.0	97	61	144	0.8	20	
Chlorobenzene	5.36	ug/L	1.0	107	78	136	1.5	20	
Chlorodibromomethane	5.52	ug/L	1.0	110	72	136	2.2	20	
Chloroethane	4.44	ug/L	1.0	86	64	136	4.4	20	
Chloroform	4.96	ug/L	1.0	99	69	133	1.6	20	
Chloromethane	3.40	ug/L	1.0	68	63	149	2.7	20	
1,2-Dibromoethane	5.36	ug/L	1.0	107	75	131	3.8	20	
2-Chlorotoluene	5.20	ug/L	1.0	104	74	135	1.5	20	
Dibromomethane	5.44	ug/L	1.0	109	72	133	0.7	20	
1,2-Dichlorobenzene	5.36	ug/L	1.0	107	78	129	3.0	20	
4-Chlorotoluene	4.76	ug/L	1.0	95	79	135	0.8	20	
1,3-Dichlorobenzene	5.24	ug/L	1.0	105	79	132	2.3	20	
1,4-Dichlorobenzene	5.04	ug/L	1.0	101	78	131	0.8	20	
Dichlorodifluoromethane	4.96	ug/L	1.0	99	55	141	4.7	20	
1,1-Dichloroethane	5.12	ug/L	1.0	102	72	130	2.3	20	
1,2-Dichloroethane	4.84	ug/L	1.0	97	57	146	3.3	20	
1,1-Dichloroethene	5.08	ug/L	1.0	102	66	142	3.1	20	
cis-1,2-Dichloroethene	5.44	ug/L	1.0	106	74	133	0.0	20	
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138	2.8	20	
1,2-Dichloropropane	5.04	ug/L	1.0	101	72	135	0.8	20	
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134	2.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: B15061173-004A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150612A			06/12/15 16:04	
2,2-Dichloropropane	5.12	ug/L	1.0	102	42	167	3.1	20	
1,1-Dichloropropene	5.12	ug/L	1.0	102	72	140	2.3	20	
cis-1,3-Dichloropropene	5.00	ug/L	1.0	100	75	132	1.6	20	
trans-1,3-Dichloropropene	5.40	ug/L	1.0	108	77	145	6.9	20	
Ethylbenzene	5.20	ug/L	1.0	104	78	131	2.3	20	
Methyl tert-butyl ether (MTBE)	5.04	ug/L	1.0	101	58	151	0.8	20	
Methylene chloride	4.48	ug/L	1.0	90	73	126	0.0	20	
Naphthalene	4.80	ug/L	1.0	96	55	139	17	20	
Styrene	5.44	ug/L	1.0	109	76	134	1.5	20	
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135	3.7	20	
1,1,2,2-Tetrachloroethane	4.96	ug/L	1.0	99	72	132	4.1	20	
Tetrachloroethene	8.92	ug/L	1.0	118	78	137	1.4	20	
Toluene	5.16	ug/L	1.0	103	78	134	0.8	20	
1,1,1-Trichloroethane	4.96	ug/L	1.0	99	64	141	0.0	20	
1,1,2-Trichloroethane	5.24	ug/L	1.0	105	72	133	2.3	20	
Trichloroethene	5.60	ug/L	1.0	106	75	138	1.4	20	
Trichlorofluoromethane	5.00	ug/L	1.0	100	58	139	5.4	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.92	ug/L	1.0	138	60	140	1.2	20	
1,2,3-Trichloropropane	5.40	ug/L	1.0	108	67	133	4.5	20	
Vinyl chloride	4.88	ug/L	1.0	98	66	140	3.2	20	
m+p-Xylenes	10.4	ug/L	1.0	104	78	133	0.4	20	
o-Xylene	5.08	ug/L	1.0	102	79	136	2.3	20	
Xylenes, Total	15.5	ug/L	1.0	103	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: LCS_A_061215	Laboratory Control Sample				Run: SV5972.I_150612A			06/13/15 00:15	
Benzene	5.00	ug/L	1.0	100	71	133			
Bromobenzene	5.68	ug/L	1.0	114	78	133			
Bromochloromethane	5.80	ug/L	1.0	116	68	131			
Bromodichloromethane	5.40	ug/L	1.0	108	67	138			
Bromoform	5.28	ug/L	1.0	106	64	136			
Bromomethane	5.40	ug/L	1.0	108	60	138			
Carbon tetrachloride	5.04	ug/L	1.0	101	61	144			
Chlorobenzene	5.52	ug/L	1.0	110	78	136			
Chlorodibromomethane	5.64	ug/L	1.0	113	72	136			
Chloroethane	4.72	ug/L	1.0	94	64	136			
Chloroform	5.12	ug/L	1.0	102	69	133			
Chloromethane	3.60	ug/L	1.0	72	63	149			
1,2-Dibromoethane	5.60	ug/L	1.0	112	75	131			
2-Chlorotoluene	5.44	ug/L	1.0	109	74	135			
Dibromomethane	5.68	ug/L	1.0	114	72	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: LCS_A_061215	Laboratory Control Sample				Run: SV5972.I_150612A				06/13/15 00:15
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129			
4-Chlorotoluene	5.04	ug/L	1.0	101	79	135			
1,3-Dichlorobenzene	5.56	ug/L	1.0	111	79	132			
1,4-Dichlorobenzene	5.36	ug/L	1.0	107	78	131			
Dichlorodifluoromethane	5.40	ug/L	1.0	108	55	141			
1,1-Dichloroethane	5.28	ug/L	1.0	106	72	130			
1,2-Dichloroethane	5.08	ug/L	1.0	102	57	146			
1,1-Dichloroethene	5.32	ug/L	1.0	106	66	142			
cis-1,2-Dichloroethene	5.36	ug/L	1.0	107	74	133			
trans-1,2-Dichloroethene	5.76	ug/L	1.0	115	76	138			
1,2-Dichloropropane	5.20	ug/L	1.0	104	72	135			
1,3-Dichloropropane	5.28	ug/L	1.0	106	75	134			
2,2-Dichloropropane	4.04	ug/L	1.0	81	42	167			
1,1-Dichloropropene	5.28	ug/L	1.0	106	72	140			
cis-1,3-Dichloropropene	4.96	ug/L	1.0	99	75	132			
trans-1,3-Dichloropropene	4.96	ug/L	1.0	99	77	145			
Ethylbenzene	5.48	ug/L	1.0	110	78	131			
Methyl tert-butyl ether (MTBE)	4.72	ug/L	1.0	94	58	151			
Methylene chloride	4.72	ug/L	1.0	94	73	126			
Naphthalene	4.56	ug/L	1.0	91	55	139			
Styrene	5.72	ug/L	1.0	114	76	134			
1,1,1,2-Tetrachloroethane	5.60	ug/L	1.0	112	75	135			
1,1,2,2-Tetrachloroethane	4.48	ug/L	1.0	90	72	132			
Tetrachloroethene	5.88	ug/L	1.0	118	78	137			
Toluene	5.36	ug/L	1.0	107	78	134			
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	64	141			
1,1,2-Trichloroethane	5.48	ug/L	1.0	110	72	133			
Trichloroethene	5.88	ug/L	1.0	118	75	138			
Trichlorofluoromethane	5.48	ug/L	1.0	110	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.96	ug/L	1.0	139	60	140			
1,2,3-Trichloropropane	5.68	ug/L	1.0	114	67	133			
Vinyl chloride	5.20	ug/L	1.0	104	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.40	ug/L	1.0	108	79	136			
Xylenes, Total	16.2	ug/L	1.0	108	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: MB_A_061215	Method Blank				Run: SV5972.I_150612A				06/13/15 01:14
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: MB_A_061215	Method Blank				Run: SV5972.I_150612A				06/13/15 01:14
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: MB_A_061215	Method Blank				Run: SV5972.I_150612A				06/13/15 01:14
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	108	76	127			
Surr: Toluene-d8			1.0	111	79	122			
Lab ID: B15061173-020D_MS	Sample Matrix Spike				Run: SV5972.I_150612A				06/13/15 01:43
Benzene	4.84	ug/L	1.0	95	71	133			
Bromobenzene	5.08	ug/L	1.0	102	78	133			
Bromochloromethane	5.48	ug/L	1.0	110	68	131			
Bromodichloromethane	5.20	ug/L	1.0	104	67	138			
Bromoform	4.80	ug/L	1.0	96	64	136			
Bromomethane	5.52	ug/L	1.0	110	60	138			
Carbon tetrachloride	4.96	ug/L	1.0	99	61	144			
Chlorobenzene	5.24	ug/L	1.0	105	78	136			
Chlorodibromomethane	5.56	ug/L	1.0	111	72	136			
Chloroethane	4.64	ug/L	1.0	91	64	136			
Chloroform	4.84	ug/L	1.0	97	69	133			
Chloromethane	3.74	ug/L	1.0	73	63	149			
1,2-Dibromoethane	5.32	ug/L	1.0	106	75	131			
2-Chlorotoluene	5.00	ug/L	1.0	100	74	135			
Dibromomethane	5.48	ug/L	1.0	110	72	133			
1,2-Dichlorobenzene	5.08	ug/L	1.0	102	78	129			
4-Chlorotoluene	4.52	ug/L	1.0	90	79	135			
1,3-Dichlorobenzene	4.92	ug/L	1.0	98	79	132			
1,4-Dichlorobenzene	4.84	ug/L	1.0	97	78	131			
Dichlorodifluoromethane	5.24	ug/L	1.0	105	55	141			
1,1-Dichloroethane	5.16	ug/L	1.0	103	72	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	57	146			
1,1-Dichloroethene	4.96	ug/L	1.0	99	66	142			
cis-1,2-Dichloroethene	4.84	ug/L	1.0	97	74	133			
trans-1,2-Dichloroethene	5.40	ug/L	1.0	108	76	138			
1,2-Dichloropropane	4.88	ug/L	1.0	98	72	135			
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134			
2,2-Dichloropropane	3.45	ug/L	1.0	69	42	167			
1,1-Dichloropropene	5.04	ug/L	1.0	101	72	140			
cis-1,3-Dichloropropene	4.72	ug/L	1.0	94	75	132			
trans-1,3-Dichloropropene	4.84	ug/L	1.0	97	77	145			
Ethylbenzene	5.28	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.64	ug/L	1.0	93	58	151			
Methylene chloride	4.32	ug/L	1.0	86	73	126			
Naphthalene	4.44	ug/L	1.0	89	55	139			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: B15061173-020D_MS	Sample Matrix Spike				Run: SV5972.I_150612A			06/13/15 01:43	
Styrene	4.88	ug/L	1.0	98	76	134			
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.64	ug/L	1.0	93	72	132			
Tetrachloroethene	5.76	ug/L	1.0	113	78	137			
Toluene	5.52	ug/L	1.0	103	78	134			
1,1,1-Trichloroethane	4.96	ug/L	1.0	99	64	141			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	72	133			
Trichloroethene	5.32	ug/L	1.0	106	75	138			
Trichlorofluoromethane	5.28	ug/L	1.0	106	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.76	ug/L	1.0	135	60	140			
1,2,3-Trichloropropane	5.32	ug/L	1.0	106	67	133			
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	10.5	ug/L	1.0	104	78	133			
o-Xylene	5.28	ug/L	1.0	103	79	136			
Xylenes, Total	15.8	ug/L	1.0	104	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	98	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061173-020D_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150612A			06/13/15 02:12	
Benzene	4.92	ug/L	1.0	96	71	133	1.6	20	
Bromobenzene	5.28	ug/L	1.0	106	78	133	3.9	20	
Bromochloromethane	5.72	ug/L	1.0	114	68	131	4.3	20	
Bromodichloromethane	5.20	ug/L	1.0	104	67	138	0.0	20	
Bromoform	5.24	ug/L	1.0	105	64	136	8.8	20	
Bromomethane	5.48	ug/L	1.0	110	60	138	0.7	20	
Carbon tetrachloride	4.88	ug/L	1.0	98	61	144	1.6	20	
Chlorobenzene	5.28	ug/L	1.0	106	78	136	0.8	20	
Chlorodibromomethane	5.64	ug/L	1.0	113	72	136	1.4	20	
Chloroethane	4.72	ug/L	1.0	92	64	136	1.7	20	
Chloroform	4.96	ug/L	1.0	99	69	133	2.4	20	
Chloromethane	4.08	ug/L	1.0	79	63	149	8.7	20	
1,2-Dibromoethane	5.44	ug/L	1.0	109	75	131	2.2	20	
2-Chlorotoluene	5.04	ug/L	1.0	101	74	135	0.8	20	
Dibromomethane	5.80	ug/L	1.0	116	72	133	5.7	20	
1,2-Dichlorobenzene	5.36	ug/L	1.0	107	78	129	5.4	20	
4-Chlorotoluene	4.72	ug/L	1.0	94	79	135	4.3	20	
1,3-Dichlorobenzene	5.24	ug/L	1.0	105	79	132	6.3	20	
1,4-Dichlorobenzene	5.16	ug/L	1.0	103	78	131	6.4	20	
Dichlorodifluoromethane	4.96	ug/L	1.0	99	55	141	5.5	20	
1,1-Dichloroethane	5.28	ug/L	1.0	106	72	130	2.3	20	
1,2-Dichloroethane	5.04	ug/L	1.0	101	57	146	6.6	20	
1,1-Dichloroethene	5.00	ug/L	1.0	100	66	142	0.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 06/22/15
Project: BNSF Livingston Shop Complex - GWMD-2R
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244435
Lab ID: B15061173-020D_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150612A			06/13/15 02:12	
cis-1,2-Dichloroethene	5.20	ug/L	1.0	104	74	133	7.2	20	
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138	3.6	20	
1,2-Dichloropropane	5.08	ug/L	1.0	102	72	135	4.0	20	
1,3-Dichloropropane	5.24	ug/L	1.0	105	75	134	3.9	20	
2,2-Dichloropropane	3.77	ug/L	1.0	75	42	167	8.9	20	
1,1-Dichloropropene	4.96	ug/L	1.0	99	72	140	1.6	20	
cis-1,3-Dichloropropene	4.76	ug/L	1.0	95	75	132	0.8	20	
trans-1,3-Dichloropropene	5.24	ug/L	1.0	105	77	145	7.9	20	
Ethylbenzene	5.24	ug/L	1.0	105	78	131	0.8	20	
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151	9.1	20	
Methylene chloride	4.68	ug/L	1.0	94	73	126	8.0	20	
Naphthalene	5.40	ug/L	1.0	108	55	139	20	20	
Styrene	4.92	ug/L	1.0	98	76	134	0.8	20	
1,1,1,2-Tetrachloroethane	5.44	ug/L	1.0	109	75	135	0.7	20	
1,1,2,2-Tetrachloroethane	5.20	ug/L	1.0	104	72	132	11	20	
Tetrachloroethene	5.68	ug/L	1.0	111	78	137	1.4	20	
Toluene	5.48	ug/L	1.0	102	78	134	0.7	20	
1,1,1-Trichloroethane	4.92	ug/L	1.0	98	64	141	0.8	20	
1,1,2-Trichloroethane	5.44	ug/L	1.0	109	72	133	4.5	20	
Trichloroethene	5.28	ug/L	1.0	106	75	138	0.8	20	
Trichlorofluoromethane	5.20	ug/L	1.0	104	58	139	1.5	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.64	ug/L	1.0	133	60	140	1.8	20	
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133	2.2	20	
Vinyl chloride	5.04	ug/L	1.0	101	66	140	0.0	20	
m+p-Xylenes	10.6	ug/L	1.0	105	78	133	0.4	20	
o-Xylene	5.28	ug/L	1.0	103	79	136	0.0	20	
Xylenes, Total	15.8	ug/L	1.0	104	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	103	70	130			
Surr: Dibromofluoromethane			1.0	111	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	112	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R

Report Date: 06/22/15
Work Order: B15061173

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244497
Lab ID: CCV-061515	Continuing Calibration Verification Standard								06/15/15 10:44
cis-1,2-Dichloroethene	5.24	ug/L	1.0	105	70	130			
Tetrachloroethene	5.88	ug/L	1.0	118	70	130			
Trichloroethene	5.52	ug/L	1.0	110	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Method: SW8260B									Batch: R244497
Lab ID: LCS-061515	Laboratory Control Sample				Run: SV5972.I_150615A				06/15/15 11:13
cis-1,2-Dichloroethene	5.20	ug/L	1.0	104	74	133			
Tetrachloroethene	5.76	ug/L	1.0	115	78	137			
Trichloroethene	5.44	ug/L	1.0	109	75	138			
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: MB-061515	Method Blank				Run: SV5972.I_150615A				06/15/15 12:11
cis-1,2-Dichloroethene	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	113	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061302-002A_MS	Sample Matrix Spike				Run: SV5972.I_150615A				06/15/15 17:27
cis-1,2-Dichloroethene	5.72	ug/L	1.0	114	74	133			
Tetrachloroethene	6.00	ug/L	1.0	120	78	137			
Trichloroethene	5.84	ug/L	1.0	117	75	138			
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: B15061302-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150615A				06/15/15 17:56
cis-1,2-Dichloroethene	5.72	ug/L	1.0	114	74	133	0.0	20	
Tetrachloroethene	6.04	ug/L	1.0	121	78	137	0.7	20	
Trichloroethene	5.80	ug/L	1.0	116	75	138	0.7	20	
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	105	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	113	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061173

Login completed by: Tabitha Edwards
Reviewed by: BL2000\jmueller
Reviewed Date: 6/12/2015

Date Received: 6/11/2015
Received by: dlf
Carrier name: Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	0.9°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: AmandaAldersley @KennedyJenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format:_____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH	
1	TB2_060815	6/8/15	0800	1-W	X										X		
2	D1_060815	6/8/15	0800	3-W	X										X		
3	13-9_060815	6/8/15	1335	3-W	X										X		
4	07-2A_060815	6/8/15	1620	3-W	X										X		
5																	
6																	
7																	
8																	
9																	
10																	

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: Rtn UPS Grd

Cooler ID(s): TB

Receipt Temp 0.9 °C

On Ice: (Yes) No

Custody Seal (Y) N

Intact (Y) N

Signature Match (Y) N

LABORATORY USE ONLY: 1506d173-001, 002, 003, 004

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/10/15 1015	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
				6/11/15 0900	[signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: AmandaAldersley @KennedyJenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: Rtn UPS Gnd
Cooler ID(s): TB
Receipt Temp: 0.9 °C
On ice: (Yes) No
Custody Seal (Y) N
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
1	TB1_060815	6/8/15	0800	1-W	X										X			B1506173-005
2	LIV_060815	6/8/15	1045	3-W	X										X			006
3	L-87-5_060815	6/8/15	1110	3-W	X										X			007
4	89-8_060815	6/8/15	1215	3-W	X										X			008
5	07-5A_060815	6/8/15	1430	3-W	X										X			009
6	11-1_060815	6/8/15	1530	3-W	X										X			010
7																		
8																		
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARRON	6/10/15 1015	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
				6/11/15 0900	[signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: AmandaAldersley @KennedyJenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: Ran VS Gal

Cooler ID(s): TO

Receipt Temp: 0.9 °C

On Ice: (Yes) No

Custody Seal (Y) N
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
1	D1_060915	6/9/15	0800	3-W	X										X			B506173-011
2	07-1_060915	6/9/15	1135	3-W	X										X			012
3	PDB-BLANK_060915	6/9/15	1150	3-W	X										X			013
4	89-3-PDB-19.6_060915	6/9/15	1155	3-W	X										X			014
5	89-3-PDB-25.3_060915	6/9/15	1200	3-W	X										X			015
6	89-3-PDB-30.9_060915	6/9/15	1205	3-W	X										X			016
7	89-3_060915	6/9/15	1315	3-W	X										X			017
8	14-6_060915	6/9/15	1340	6-W	X	X	X	X	X	X	X				X			018
9	LIV_060915	6/9/15	1520	3-W	X													019
10	14-2_060915	6/9/15	1525	6-W	X	X	X	X	X	X	X				X			020

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
S.g.	6/10/15 1015	BEN S. CARLSON	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory:	Date/Time:	Signature:
				6/11/15 0900	

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

June 25, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061441 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - GWMD-2R

Energy Laboratories Inc Billings MT received the following 31 samples for Kennedy Jenks Consultants on 6/16/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061441-001	TB2-061215	06/12/15 8:00	06/16/15	Trip Blank	8260-Volatile Organic Compounds-Short List
B15061441-002	D1_061215	06/12/15 8:00	06/16/15	Aqueous	Same As Above
B15061441-003	14-4_061215	06/12/15 8:15	06/16/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Preparation for TDS Solids, Total Dissolved 8260-Volatile Organic Compounds-Short List
B15061441-004	14-3_061215	06/12/15 8:45	06/16/15	Aqueous	Same As Above
B15061441-005	13-10_061215	06/12/15 9:25	06/16/15	Aqueous	8260-Volatile Organic Compounds-Short List
B15061441-006	10-2_061215	06/12/15 9:45	06/16/15	Aqueous	Same As Above
B15061441-007	10-1_061215	06/12/15 10:05	06/16/15	Aqueous	Same As Above
B15061441-008	L-87-2_061215	06/12/15 11:05	06/16/15	Aqueous	Same As Above
B15061441-009	TB1_061215	06/12/15 7:30	06/16/15	Trip Blank	Same As Above
B15061441-010	LIV_061215	06/12/15 8:35	06/16/15	Aqueous	Same As Above
B15061441-011	12-1 Port 1_061215	06/12/15 8:38	06/16/15	Aqueous	Same As Above
B15061441-012	12-1 Port 2_061215	06/12/15 8:43	06/16/15	Aqueous	Same As Above
B15061441-013	12-1 Port 3_061215	06/12/15 8:46	06/16/15	Aqueous	Same As Above
B15061441-014	12-1 Port 4_061215	06/12/15 13:25	06/16/15	Aqueous	Same As Above
B15061441-015	12-1 Port 5_061215	06/12/15 8:50	06/16/15	Aqueous	Same As Above
B15061441-016	12-10_061215	06/12/15 9:45	06/16/15	Aqueous	Same As Above
B15061441-017	13-4_061215	06/12/15 10:30	06/16/15	Aqueous	Same As Above
B15061441-018	13-5_061215	06/12/15 11:10	06/16/15	Aqueous	Same As Above
B15061441-019	13-6_061215	06/12/15 12:05	06/16/15	Aqueous	Same As Above
B15061441-020	13-7_061215	06/12/15 13:05	06/16/15	Trip Blank	Same As Above

ANALYTICAL SUMMARY REPORT

B15061441-021	14-5_061215	06/12/15 14:15	06/16/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Preparation for TDS Solids, Total Dissolved 8260-Volatile Organic Compounds-Short List
B15061441-022	TB1-061515	06/15/15 8:00	06/16/15	Trip Blank	8260-Volatile Organic Compounds-Short List
B15061441-023	LIV_061515	06/15/15 11:35	06/16/15	Aqueous	Same As Above
B15061441-024	11_061515	06/15/15 12:00	06/16/15	Aqueous	Same As Above
B15061441-025	12-8_061515	06/15/15 12:55	06/16/15	Aqueous	Same As Above
B15061441-026	TB2_061515	06/15/15 8:00	06/16/15	Trip Blank	Same As Above
B15061441-027	D1_061515	06/15/15 8:00	06/16/15	Aqueous	Same As Above
B15061441-028	90-2B_061515	06/15/15 11:00	06/16/15	Aqueous	Same As Above
B15061441-029	10-6_061515	06/15/15 11:35	06/16/15	Aqueous	Same As Above
B15061441-030	E-7_061515	06/15/15 12:15	06/16/15	Aqueous	Same As Above
B15061441-031	ISCO-2_061515	06/15/15 12:45	06/16/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-001
Client Sample ID: TB2-061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 18:03 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 18:03 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-001
Client Sample ID: TB2-061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 18:03 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 18:03 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/22/15 18:03 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/22/15 18:03 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/22/15 18:03 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/22/15 18:03 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-002
Client Sample ID: D1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Chlorobenzene	2.2	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 15:33 / nl
2-Chlorotoluene	21	ug/L		5.0		SW8260B	06/22/15 21:29 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,2-Dichlorobenzene	0.43	ug/L	J	0.50		SW8260B	06/18/15 15:33 / nl
1,3-Dichlorobenzene	0.61	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,4-Dichlorobenzene	2.5	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
cis-1,2-Dichloroethene	3.7	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 15:33 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Toluene	0.22	ug/L	J	0.50		SW8260B	06/18/15 15:33 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Trichloroethene	0.42	ug/L	J	0.50		SW8260B	06/18/15 15:33 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-002
Client Sample ID: D1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
Vinyl chloride	0.62	ug/L		0.40		SW8260B	06/18/15 15:33 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 15:33 / nl
o-Xylene	0.47	ug/L	J	0.50		SW8260B	06/18/15 15:33 / nl
Xylenes, Total	0.47	ug/L	J	0.50		SW8260B	06/18/15 15:33 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/18/15 15:33 / nl
Surr: 1,2-Dichloroethane-d4	91.0	%REC		70-130		SW8260B	06/18/15 15:33 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/18/15 15:33 / nl
Surr: p-Bromofluorobenzene	99.0	%REC		76-127		SW8260B	06/18/15 15:33 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-003
Client Sample ID: 14-4_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	309	mg/L	D	20		A2540 C	06/17/15 10:00 / nae
INORGANICS							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	06/19/15 19:38 / ajr
Bicarbonate as HCO3	232	mg/L		4		A2320 B	06/19/15 19:38 / ajr
Carbonate as CO3	ND	mg/L		4		A2320 B	06/19/15 19:38 / ajr
Chloride	17	mg/L		1		E300.0	06/23/15 06:01 / rbf
Sulfate	70	mg/L		1		E300.0	06/23/15 06:01 / rbf
Hardness as CaCO3	167	mg/L		1		A2340 B	06/17/15 11:57 / meh
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.01		E353.2	06/18/15 17:21 / bas
METALS, DISSOLVED							
Calcium	48	mg/L		1		SW6010B	06/17/15 11:57 / prw
Iron	6.91	mg/L		0.03		SW6010B	06/17/15 11:57 / prw
Magnesium	11	mg/L		1		SW6010B	06/17/15 11:57 / prw
Potassium	3	mg/L		1		SW6010B	06/17/15 11:57 / prw
Sodium	51	mg/L		1		SW6010B	06/17/15 11:57 / prw
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 05:40 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-003
Client Sample ID: 14-4_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 05:40 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Tetrachloroethene	2.5	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 05:40 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 05:40 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 05:40 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/19/15 05:40 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/19/15 05:40 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/19/15 05:40 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-004
Client Sample ID: 14-3_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	431	mg/L	D	20		A2540 C	06/17/15 10:01 / nae
INORGANICS							
Alkalinity, Total as CaCO3	235	mg/L		4		A2320 B	06/19/15 19:45 / ajr
Bicarbonate as HCO3	287	mg/L		4		A2320 B	06/19/15 19:45 / ajr
Carbonate as CO3	ND	mg/L		4		A2320 B	06/19/15 19:45 / ajr
Chloride	18	mg/L		1		E300.0	06/23/15 06:15 / rbf
Sulfate	112	mg/L	D	2		E300.0	06/23/15 06:15 / rbf
Hardness as CaCO3	290	mg/L		1		A2340 B	06/17/15 12:11 / meh
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	1.20	mg/L		0.01		E353.2	06/18/15 15:13 / bas
METALS, DISSOLVED							
Calcium	82	mg/L		1		SW6010B	06/17/15 12:11 / prw
Iron	0.15	mg/L		0.03		SW6010B	06/17/15 12:11 / prw
Magnesium	21	mg/L		1		SW6010B	06/17/15 12:11 / prw
Potassium	3	mg/L		1		SW6010B	06/17/15 12:11 / prw
Sodium	40	mg/L		1		SW6010B	06/17/15 12:11 / prw
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 06:10 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-004
Client Sample ID: 14-3_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 06:10 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Tetrachloroethene	4.6	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 06:10 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 06:10 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 06:10 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/19/15 06:10 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 06:10 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/19/15 06:10 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-005
Client Sample ID: 13-10_061215

Report Date: 06/25/15
Collection Date: 06/12/15 09:25
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 06:39 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 06:39 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-005
Client Sample ID: 13-10_061215

Report Date: 06/25/15
Collection Date: 06/12/15 09:25
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 06:39 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 06:39 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 06:39 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/19/15 06:39 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 06:39 / nl
Surr: p-Bromofluorobenzene	104	%REC		76-127		SW8260B	06/19/15 06:39 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-006
Client Sample ID: 10-2_061215

Report Date: 06/25/15
Collection Date: 06/12/15 09:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Bromobenzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Bromochloromethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Bromodichloromethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Bromoform	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Bromomethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Carbon tetrachloride	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Chlorobenzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Chlorodibromomethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Chloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Chloroform	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Chloromethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,2-Dibromoethane	ND	ug/L		3.0		SW8260B	06/20/15 02:45 / nl
2-Chlorotoluene	3.4	ug/L	J	5.0		SW8260B	06/20/15 02:45 / nl
4-Chlorotoluene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Dibromomethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,2-Dichlorobenzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,3-Dichlorobenzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,4-Dichlorobenzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Dichlorodifluoromethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1-Dichloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,2-Dichloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1-Dichloroethene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
cis-1,2-Dichloroethene	5.4	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
trans-1,2-Dichloroethene	1.6	ug/L	J	5.0		SW8260B	06/20/15 02:45 / nl
1,2-Dichloropropane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,3-Dichloropropane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
2,2-Dichloropropane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1-Dichloropropene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
cis-1,3-Dichloropropene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
trans-1,3-Dichloropropene	ND	ug/L		3.0		SW8260B	06/20/15 02:45 / nl
Ethylbenzene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Methylene chloride	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Naphthalene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Styrene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Tetrachloroethene	8240	ug/L		1000		SW8260B	06/23/15 02:25 / nl
Toluene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1,1-Trichloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1,2-Trichloroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Trichloroethene	286	ug/L		100		SW8260B	06/23/15 02:55 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-006
Client Sample ID: 10-2_061215

Report Date: 06/25/15
Collection Date: 06/12/15 09:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,2,3-Trichloropropane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Vinyl chloride	ND	ug/L		4.0		SW8260B	06/20/15 02:45 / nl
m+p-Xylenes	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
o-Xylene	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Xylenes, Total	ND	ug/L		5.0		SW8260B	06/20/15 02:45 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/20/15 02:45 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/20/15 02:45 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/20/15 02:45 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/20/15 02:45 / nl

- The reporting limit reflects a 10 times dilution. The sample was diluted due to sample matrix interference.

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-007
Client Sample ID: 10-1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 10:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 07:09 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
cis-1,2-Dichloroethene	0.11	ug/L	J	0.50		SW8260B	06/19/15 07:09 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 07:09 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Tetrachloroethene	25	ug/L		5.0		SW8260B	06/22/15 21:59 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Trichloroethene	1.9	ug/L		0.50		SW8260B	06/19/15 07:09 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-007
Client Sample ID: 10-1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 10:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 07:09 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 07:09 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/19/15 07:09 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/19/15 07:09 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 07:09 / nl
Surr: p-Bromofluorobenzene	104	%REC		76-127		SW8260B	06/19/15 07:09 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-008
Client Sample ID: L-87-2_061215

Report Date: 06/25/15
Collection Date: 06/12/15 11:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Chlorobenzene	2.4	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 07:39 / nl
2-Chlorotoluene	20	ug/L		5.0		SW8260B	06/22/15 22:28 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,2-Dichlorobenzene	0.44	ug/L	J	0.50		SW8260B	06/19/15 07:39 / nl
1,3-Dichlorobenzene	0.60	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,4-Dichlorobenzene	2.5	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
cis-1,2-Dichloroethene	3.9	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 07:39 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Toluene	0.23	ug/L	J	0.50		SW8260B	06/19/15 07:39 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Trichloroethene	0.44	ug/L	J	0.50		SW8260B	06/19/15 07:39 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-008
Client Sample ID: L-87-2_061215

Report Date: 06/25/15
Collection Date: 06/12/15 11:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
Vinyl chloride	0.62	ug/L		0.40		SW8260B	06/19/15 07:39 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 07:39 / nl
o-Xylene	0.49	ug/L	J	0.50		SW8260B	06/19/15 07:39 / nl
Xylenes, Total	0.49	ug/L	J	0.50		SW8260B	06/19/15 07:39 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/19/15 07:39 / nl
Surr: 1,2-Dichloroethane-d4	91.0	%REC		70-130		SW8260B	06/19/15 07:39 / nl
Surr: Toluene-d8	116	%REC		79-122		SW8260B	06/19/15 07:39 / nl
Surr: p-Bromofluorobenzene	94.0	%REC		76-127		SW8260B	06/19/15 07:39 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-009
Client Sample ID: TB1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 07:30
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 18:32 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 18:32 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-009
Client Sample ID: TB1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 07:30
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 18:32 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 18:32 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/22/15 18:32 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/22/15 18:32 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/22/15 18:32 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/22/15 18:32 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-010
Client Sample ID: LIV_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 08:08 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 08:08 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Methylene chloride	0.23	ug/L	J	0.50		SW8260B	06/19/15 08:08 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-010
Client Sample ID: LIV_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 08:08 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 08:08 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/19/15 08:08 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/19/15 08:08 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/19/15 08:08 / nl
Surr: p-Bromofluorobenzene	102	%REC		76-127		SW8260B	06/19/15 08:08 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-011
Client Sample ID: 12-1 Port 1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:38
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Chlorobenzene	3.3	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 08:37 / nl
2-Chlorotoluene	0.50	ug/L	J	0.50		SW8260B	06/19/15 08:37 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,2-Dichlorobenzene	0.16	ug/L	J	0.50		SW8260B	06/19/15 08:37 / nl
1,3-Dichlorobenzene	0.15	ug/L	J	0.50		SW8260B	06/19/15 08:37 / nl
1,4-Dichlorobenzene	1.1	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
cis-1,2-Dichloroethene	2.4	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
trans-1,2-Dichloroethene	1.6	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 08:37 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Tetrachloroethene	15	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Trichloroethene	4.0	ug/L		0.50		SW8260B	06/19/15 08:37 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-011
Client Sample ID: 12-1 Port 1_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:38
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Vinyl chloride	0.41	ug/L		0.40		SW8260B	06/19/15 08:37 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 08:37 / nl
Surr: Dibromofluoromethane	103	%REC		77-126		SW8260B	06/19/15 08:37 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/19/15 08:37 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 08:37 / nl
Surr: p-Bromofluorobenzene	100	%REC		76-127		SW8260B	06/19/15 08:37 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-012
Client Sample ID: 12-1 Port 2_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:43
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Chlorobenzene	1.4	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 09:07 / nl
2-Chlorotoluene	0.28	ug/L	J	0.50		SW8260B	06/19/15 09:07 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,2-Dichlorobenzene	0.16	ug/L	J	0.50		SW8260B	06/19/15 09:07 / nl
1,3-Dichlorobenzene	0.16	ug/L	J	0.50		SW8260B	06/19/15 09:07 / nl
1,4-Dichlorobenzene	1.1	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
cis-1,2-Dichloroethene	1.9	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
trans-1,2-Dichloroethene	1.2	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 09:07 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Tetrachloroethene	15	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Trichloroethene	2.9	ug/L		0.50		SW8260B	06/19/15 09:07 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-012
Client Sample ID: 12-1 Port 2_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:43
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Vinyl chloride	0.13	ug/L	J	0.40		SW8260B	06/19/15 09:07 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 09:07 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 09:07 / nl
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	06/19/15 09:07 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/19/15 09:07 / nl
Surr: p-Bromofluorobenzene	103	%REC		76-127		SW8260B	06/19/15 09:07 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-013
Client Sample ID: 12-1 Port 3_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:46
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Chlorobenzene	3.6	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 09:36 / nl
2-Chlorotoluene	0.27	ug/L	J	0.50		SW8260B	06/19/15 09:36 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,2-Dichlorobenzene	0.20	ug/L	J	0.50		SW8260B	06/19/15 09:36 / nl
1,3-Dichlorobenzene	0.27	ug/L	J	0.50		SW8260B	06/19/15 09:36 / nl
1,4-Dichlorobenzene	2.1	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
cis-1,2-Dichloroethene	2.4	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
trans-1,2-Dichloroethene	1.9	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 09:36 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Tetrachloroethene	19	ug/L		5.0		SW8260B	06/22/15 22:58 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Trichloroethene	3.8	ug/L		0.50		SW8260B	06/19/15 09:36 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-013
Client Sample ID: 12-1 Port 3_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:46
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Vinyl chloride	0.28	ug/L	J	0.40		SW8260B	06/19/15 09:36 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 09:36 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/19/15 09:36 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/19/15 09:36 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/19/15 09:36 / nl
Surr: p-Bromofluorobenzene	101	%REC		76-127		SW8260B	06/19/15 09:36 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-014
Client Sample ID: 12-1 Port 4_061215

Report Date: 06/25/15
Collection Date: 06/12/15 13:25
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Chlorobenzene	0.31	ug/L	J	0.50		SW8260B	06/19/15 10:06 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 10:06 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
cis-1,2-Dichloroethene	1.9	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
trans-1,2-Dichloroethene	1.0	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 10:06 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Tetrachloroethene	17	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Toluene	0.17	ug/L	J	0.50		SW8260B	06/19/15 10:06 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Trichloroethene	3.5	ug/L		0.50		SW8260B	06/19/15 10:06 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-014
Client Sample ID: 12-1 Port 4_061215

Report Date: 06/25/15
Collection Date: 06/12/15 13:25
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 10:06 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 10:06 / nl
Surr: Dibromofluoromethane	111	%REC		77-126		SW8260B	06/19/15 10:06 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/19/15 10:06 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 10:06 / nl
Surr: p-Bromofluorobenzene	102	%REC		76-127		SW8260B	06/19/15 10:06 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-015
Client Sample ID: 12-1 Port 5_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:50
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 20:24 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
cis-1,2-Dichloroethene	1.3	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
trans-1,2-Dichloroethene	0.26	ug/L	J	0.50		SW8260B	06/19/15 20:24 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 20:24 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Tetrachloroethene	31	ug/L		5.0		SW8260B	06/18/15 01:22 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Trichloroethene	2.5	ug/L		0.50		SW8260B	06/19/15 20:24 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-015
Client Sample ID: 12-1 Port 5_061215

Report Date: 06/25/15
Collection Date: 06/12/15 08:50
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 20:24 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 20:24 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 20:24 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/19/15 20:24 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/19/15 20:24 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/19/15 20:24 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-016
Client Sample ID: 12-10_061215

Report Date: 06/25/15
Collection Date: 06/12/15 09:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Chlorobenzene	1.9	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 20:53 / nl
2-Chlorotoluene	0.98	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,2-Dichlorobenzene	0.16	ug/L	J	0.50		SW8260B	06/19/15 20:53 / nl
1,3-Dichlorobenzene	0.25	ug/L	J	0.50		SW8260B	06/19/15 20:53 / nl
1,4-Dichlorobenzene	2.1	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
cis-1,2-Dichloroethene	2.1	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
trans-1,2-Dichloroethene	0.43	ug/L	J	0.50		SW8260B	06/19/15 20:53 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 20:53 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Tetrachloroethene	19	ug/L		5.0		SW8260B	06/18/15 01:50 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Trichloroethene	2.0	ug/L		0.50		SW8260B	06/19/15 20:53 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-016
Client Sample ID: 12-10_061215

Report Date: 06/25/15
Collection Date: 06/12/15 09:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Vinyl chloride	0.26	ug/L	J	0.40		SW8260B	06/19/15 20:53 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 20:53 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/19/15 20:53 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/19/15 20:53 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 20:53 / nl
Surr: p-Bromofluorobenzene	102	%REC		76-127		SW8260B	06/19/15 20:53 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-017
Client Sample ID: 13-4_061215

Report Date: 06/25/15
Collection Date: 06/12/15 10:30
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 21:22 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 21:22 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Tetrachloroethene	19	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Trichloroethene	0.27	ug/L	J	0.50		SW8260B	06/19/15 21:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-017
Client Sample ID: 13-4_061215

Report Date: 06/25/15
Collection Date: 06/12/15 10:30
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 21:22 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 21:22 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 21:22 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/19/15 21:22 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/19/15 21:22 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/19/15 21:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-018
Client Sample ID: 13-5_061215

Report Date: 06/25/15
Collection Date: 06/12/15 11:10
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 21:52 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 21:52 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Tetrachloroethene	15	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Trichloroethene	0.19	ug/L	J	0.50		SW8260B	06/19/15 21:52 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-018
Client Sample ID: 13-5_061215

Report Date: 06/25/15
Collection Date: 06/12/15 11:10
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 21:52 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 21:52 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 21:52 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/19/15 21:52 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/19/15 21:52 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/19/15 21:52 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-019
Client Sample ID: 13-6_061215

Report Date: 06/25/15
Collection Date: 06/12/15 12:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 22:21 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
cis-1,2-Dichloroethene	0.35	ug/L	J	0.50		SW8260B	06/19/15 22:21 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 22:21 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Tetrachloroethene	27	ug/L		5.0		SW8260B	06/18/15 03:18 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Trichloroethene	0.31	ug/L	J	0.50		SW8260B	06/19/15 22:21 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-019
Client Sample ID: 13-6_061215

Report Date: 06/25/15
Collection Date: 06/12/15 12:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 22:21 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 22:21 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 22:21 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/19/15 22:21 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 22:21 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/19/15 22:21 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-020
Client Sample ID: 13-7_061215

Report Date: 06/25/15
Collection Date: 06/12/15 13:05
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 22:50 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
cis-1,2-Dichloroethene	0.22	ug/L	J	0.50		SW8260B	06/19/15 22:50 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 22:50 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Tetrachloroethene	23	ug/L		5.0		SW8260B	06/18/15 03:47 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Trichloroethene	0.62	ug/L		0.50		SW8260B	06/19/15 22:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-020
Client Sample ID: 13-7_061215

Report Date: 06/25/15
Collection Date: 06/12/15 13:05
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 22:50 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 22:50 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/19/15 22:50 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/19/15 22:50 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 22:50 / nl
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	06/19/15 22:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-021
Client Sample ID: 14-5_061215

Report Date: 06/25/15
Collection Date: 06/12/15 14:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	394	mg/L	D	20		A2540 C	06/19/15 10:02 / qej
INORGANICS							
Alkalinity, Total as CaCO3	245	mg/L		4		A2320 B	06/19/15 19:53 / ajr
Bicarbonate as HCO3	299	mg/L		4		A2320 B	06/19/15 19:53 / ajr
Carbonate as CO3	ND	mg/L		4		A2320 B	06/19/15 19:53 / ajr
Chloride	17	mg/L		1		E300.0	06/23/15 06:28 / rbf
Sulfate	67	mg/L		1		E300.0	06/23/15 06:28 / rbf
Hardness as CaCO3	256	mg/L		1		A2340 B	06/17/15 12:15 / meh
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	2.54	mg/L		0.01		E353.2	06/18/15 15:14 / bas
METALS, DISSOLVED							
Calcium	74	mg/L		1		SW6010B	06/17/15 12:15 / prw
Iron	ND	mg/L		0.03		SW6010B	06/17/15 12:15 / prw
Magnesium	17	mg/L		1		SW6010B	06/17/15 12:15 / prw
Potassium	2	mg/L		1		SW6010B	06/17/15 12:15 / prw
Sodium	38	mg/L		1		SW6010B	06/17/15 12:15 / prw
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 23:20 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-021
Client Sample ID: 14-5_061215

Report Date: 06/25/15
Collection Date: 06/12/15 14:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 23:20 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Tetrachloroethene	30	ug/L		5.0		SW8260B	06/18/15 04:17 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Trichloroethene	0.51	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 23:20 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 23:20 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 23:20 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/19/15 23:20 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/19/15 23:20 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/19/15 23:20 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-022
Client Sample ID: TB1-061515

Report Date: 06/25/15
Collection Date: 06/15/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 19:02 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 19:02 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-022
Client Sample ID: TB1-061515

Report Date: 06/25/15
Collection Date: 06/15/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 19:02 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 19:02 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/22/15 19:02 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/22/15 19:02 / nl
Surr: Toluene-d8	118	%REC		79-122		SW8260B	06/22/15 19:02 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/22/15 19:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-023
Client Sample ID: LIV_061515

Report Date: 06/25/15
Collection Date: 06/15/15 11:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 10:35 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 10:35 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Methylene chloride	0.24	ug/L	J	0.50		SW8260B	06/19/15 10:35 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-023
Client Sample ID: LIV_061515

Report Date: 06/25/15
Collection Date: 06/15/15 11:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 10:35 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 10:35 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 10:35 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/19/15 10:35 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 10:35 / nl
Surr: p-Bromofluorobenzene	104	%REC		76-127		SW8260B	06/19/15 10:35 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-024
Client Sample ID: 11_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 11:05 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 11:05 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-024
Client Sample ID: 11_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 11:05 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 11:05 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 11:05 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/19/15 11:05 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	06/19/15 11:05 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/19/15 11:05 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-025
Client Sample ID: 12-8_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 23:49 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 23:49 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Tetrachloroethene	33	ug/L		5.0		SW8260B	06/18/15 04:46 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Trichloroethene	0.62	ug/L		0.50		SW8260B	06/19/15 23:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-025
Client Sample ID: 12-8_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 23:49 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 23:49 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/19/15 23:49 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/19/15 23:49 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 23:49 / nl
Surr: p-Bromofluorobenzene	111	%REC		76-127		SW8260B	06/19/15 23:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-026
Client Sample ID: TB2_061515

Report Date: 06/25/15
Collection Date: 06/15/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 19:31 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 19:31 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-026
Client Sample ID: TB2_061515

Report Date: 06/25/15
Collection Date: 06/15/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 19:31 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 19:31 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/22/15 19:31 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/22/15 19:31 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/22/15 19:31 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/22/15 19:31 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-027
Client Sample ID: D1_061515

Report Date: 06/25/15
Collection Date: 06/15/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/20/15 00:19 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/20/15 00:19 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Tetrachloroethene	114	ug/L		10		SW8260B	06/22/15 23:28 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Trichloroethene	0.55	ug/L		0.50		SW8260B	06/20/15 00:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-027
Client Sample ID: D1_061515

Report Date: 06/25/15
Collection Date: 06/15/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/20/15 00:19 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/20/15 00:19 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/20/15 00:19 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/20/15 00:19 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/20/15 00:19 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/20/15 00:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-028
Client Sample ID: 90-2B_061515

Report Date: 06/25/15
Collection Date: 06/15/15 11:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 11:34 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
cis-1,2-Dichloroethene	2.1	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 11:34 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Tetrachloroethene	10	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Trichloroethene	2.0	ug/L		0.50		SW8260B	06/19/15 11:34 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-028
Client Sample ID: 90-2B_061515

Report Date: 06/25/15
Collection Date: 06/15/15 11:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 11:34 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 11:34 / nl
Surr: Dibromofluoromethane	109	%REC		77-126		SW8260B	06/19/15 11:34 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/19/15 11:34 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/19/15 11:34 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/19/15 11:34 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-029
Client Sample ID: 10-6_061515

Report Date: 06/25/15
Collection Date: 06/15/15 11:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 12:03 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 12:03 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Tetrachloroethene	11	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Trichloroethene	0.35	ug/L	J	0.50		SW8260B	06/19/15 12:03 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-029
Client Sample ID: 10-6_061515

Report Date: 06/25/15
Collection Date: 06/15/15 11:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 12:03 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 12:03 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/19/15 12:03 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/19/15 12:03 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 12:03 / nl
Surr: p-Bromofluorobenzene	96.0	%REC		76-127		SW8260B	06/19/15 12:03 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-030
Client Sample ID: E-7_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/20/15 02:16 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/20/15 02:16 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Tetrachloroethene	1790	ug/L		100		SW8260B	06/22/15 23:57 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Trichloroethene	2.2	ug/L		0.50		SW8260B	06/20/15 02:16 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-030
Client Sample ID: E-7_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/20/15 02:16 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/20/15 02:16 / nl
Surr: Dibromofluoromethane	113	%REC		77-126		SW8260B	06/20/15 02:16 / nl
Surr: 1,2-Dichloroethane-d4	101	%REC		70-130		SW8260B	06/20/15 02:16 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/20/15 02:16 / nl
Surr: p-Bromofluorobenzene	104	%REC		76-127		SW8260B	06/20/15 02:16 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-031
Client Sample ID: ISCO-2_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/20/15 00:48 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/20/15 00:48 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Tetrachloroethene	128	ug/L		25		SW8260B	06/18/15 05:44 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Trichloroethene	0.56	ug/L		0.50		SW8260B	06/20/15 00:48 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061441-031
Client Sample ID: ISCO-2_061515

Report Date: 06/25/15
Collection Date: 06/15/15 12:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/20/15 00:48 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/20/15 00:48 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/20/15 00:48 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/20/15 00:48 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/20/15 00:48 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/20/15 00:48 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

DATES REPORT

Work Order: B15061441
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/25/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061441-001A	TB2-061215	6/12/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-002A	D1_061215	6/12/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/17/2015
B15061441-002A	D1_061215	6/12/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-002A	D1_061215	6/12/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-003A	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Alkalinity		NA	6/19/2015
B15061441-003A	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061441-003A	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Solids, Total Dissolved		06/17/2015 A2540 C [90576]	6/17/2015
B15061441-003B	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Hardness as CaCO3		NA	6/18/2015
B15061441-003B	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Hardness as CaCO3		NA	6/17/2015
B15061441-003B	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/17/2015
B15061441-003C	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/18/2015
B15061441-003C	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/18/2015
B15061441-003D	14-4_061215	6/12/2015 8:15:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-004A	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Alkalinity		NA	6/19/2015
B15061441-004A	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061441-004A	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Solids, Total Dissolved		06/17/2015 A2540 C [90576]	6/17/2015
B15061441-004B	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Hardness as CaCO3		NA	6/18/2015
B15061441-004B	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Hardness as CaCO3		NA	6/17/2015
B15061441-004B	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/17/2015
B15061441-004C	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/18/2015
B15061441-004D	14-3_061215	6/12/2015 8:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-005A	13-10_061215	6/12/2015 9:25:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-006A	10-2_061215	6/12/2015 9:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/20/2015
B15061441-006A	10-2_061215	6/12/2015 9:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/23/2015
B15061441-006A	10-2_061215	6/12/2015 9:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/23/2015
B15061441-007A	10-1_061215	6/12/2015 10:05:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015

DATES REPORT

Work Order: B15061441
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/25/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061441-007A	10-1_061215	6/12/2015 10:05:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-008A	L-87-2_061215	6/12/2015 11:05:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-008A	L-87-2_061215	6/12/2015 11:05:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-009A	TB1_061215	6/12/2015 7:30:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-010A	LIV_061215	6/12/2015 8:35:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-011A	12-1 Port 1_061215	6/12/2015 8:38:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-012A	12-1 Port 2_061215	6/12/2015 8:43:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-013A	12-1 Port 3_061215	6/12/2015 8:46:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-013A	12-1 Port 3_061215	6/12/2015 8:46:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-014A	12-1 Port 4_061215	6/12/2015 1:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-015A	12-1 Port 5_061215	6/12/2015 8:50:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-015A	12-1 Port 5_061215	6/12/2015 8:50:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-016A	12-10_061215	6/12/2015 9:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-016A	12-10_061215	6/12/2015 9:45:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-017A	13-4_061215	6/12/2015 10:30:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-017A	13-4_061215	6/12/2015 10:30:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-018A	13-5_061215	6/12/2015 11:10:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-018A	13-5_061215	6/12/2015 11:10:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-019A	13-6_061215	6/12/2015 12:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-019A	13-6_061215	6/12/2015 12:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-020A	13-7_061215	6/12/2015 1:05:00 PM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-020A	13-7_061215	6/12/2015 1:05:00 PM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/19/2015

DATES REPORT

Work Order: B15061441
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/25/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061441-021A	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Alkalinity		NA	6/19/2015
B15061441-021A	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061441-021A	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Solids, Total Dissolved		06/17/2015 A2540 C [90576]	6/17/2015
B15061441-021A	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Solids, Total Dissolved		06/19/2015 A2540 C [90665]	6/19/2015
B15061441-021B	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Hardness as CaCO3		NA	6/17/2015
B15061441-021B	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Hardness as CaCO3		NA	6/18/2015
B15061441-021B	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/17/2015
B15061441-021C	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/18/2015
B15061441-021D	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-021D	14-5_061215	6/12/2015 2:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-022A	TB1-061515	6/15/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-023A	LIV_061515	6/15/2015 11:35:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-024A	11_061515	6/15/2015 12:00:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-025A	12-8_061515	6/15/2015 12:55:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-025A	12-8_061515	6/15/2015 12:55:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-026A	TB2_061515	6/15/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-027A	D1_061515	6/15/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061441-027A	D1_061515	6/15/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/17/2015
B15061441-027A	D1_061515	6/15/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/20/2015
B15061441-028A	90-2B_061515	6/15/2015 11:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-029A	10-6_061515	6/15/2015 11:35:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061441-030A	E-7_061515	6/15/2015 12:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061441-030A	E-7_061515	6/15/2015 12:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/20/2015
B15061441-030A	E-7_061515	6/15/2015 12:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/22/2015

DATES REPORT

Work Order: B15061441

Client: Kennedy Jenks Consultants

Project: BNSF Livingston Shop Complex -

Report Date: 06/25/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061441-031A	ISCO-2_061515	6/15/2015 12:45:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/20/2015
B15061441-031A	ISCO-2_061515	6/15/2015 12:45:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Batch: R244856	
Lab ID: MBLK		Method Blank				Run: MAN-TECH_150619B			06/19/15 18:15	
Alkalinity, Total as CaCO3		ND	mg/L	1.0						
Lab ID: LCS		Laboratory Control Sample				Run: MAN-TECH_150619B			06/19/15 18:22	
Alkalinity, Total as CaCO3		101	mg/L	4.0	101	90	110			
Lab ID: B15061325-018ADUP	3	Sample Duplicate				Run: MAN-TECH_150619B			06/19/15 18:37	
Alkalinity, Total as CaCO3		690	mg/L	4.0				1.3	10	
Bicarbonate as HCO3		753	mg/L	4.0				0.0	10	
Carbonate as CO3		43.9	mg/L	4.0				12	10	R
Lab ID: B15061325-019AMS		Sample Matrix Spike				Run: MAN-TECH_150619B			06/19/15 18:52	
Alkalinity, Total as CaCO3		637	mg/L	4.0	91	80	120			
Lab ID: B15061457-003ADUP	3	Sample Duplicate				Run: MAN-TECH_150619B			06/19/15 20:06	
Alkalinity, Total as CaCO3		229	mg/L	4.0				0.9	10	
Bicarbonate as HCO3		280	mg/L	4.0				0.9	10	
Carbonate as CO3		ND	mg/L	4.0					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 90576
Lab ID: MB-90576		Method Blank				Run: BAL #SD-15_150617B				06/17/15 09:56
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-90576		Laboratory Control Sample				Run: BAL #SD-15_150617B				06/17/15 09:57
Solids, Total Dissolved TDS @ 180 C		999	mg/L	10	100	90	110			
Lab ID: B15061441-004A DUP		Sample Duplicate				Run: BAL #SD-15_150617B				06/17/15 10:01
Solids, Total Dissolved TDS @ 180 C		428	mg/L	17				0.6	5	
Method: A2540 C										Batch: 90665
Lab ID: MB-90665		Method Blank				Run: BAL #SD-15_150619B				06/19/15 10:00
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-90665		Laboratory Control Sample				Run: BAL #SD-15_150619B				06/19/15 10:00
Solids, Total Dissolved TDS @ 180 C		999	mg/L	11	95	90	110			
Lab ID: B15061305-001A DUP		Sample Duplicate				Run: BAL #SD-15_150619B				06/19/15 10:00
Solids, Total Dissolved TDS @ 180 C		2730	mg/L	51				0.6	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**								Analytical Run: IC METROHM 2_150622A		
Lab ID:	**ICV**	2	Initial Calibration Verification Standard								06/22/15 12:03
Chloride			2.21	mg/L	1.0	98	90	110			
Sulfate			8.68	mg/L	1.0	96	90	110			
Method:	**E300.0**										Batch: R244928
Lab ID:	**MB**	2	Method Blank				Run: IC METROHM 2_150622A				06/22/15 11:49
Chloride			0.10	mg/L	0.02						
Sulfate			ND	mg/L	0.2						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_150622A				06/22/15 12:16
Chloride			2.97	mg/L	1.0	96	90	110			
Sulfate			8.82	mg/L	1.0	98	90	110			
Lab ID:	**B15061350-008AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_150622A				06/23/15 04:40
Chloride			15.0	mg/L	1.0	94	90	110			
Sulfate			52.7	mg/L	1.0	98	90	110			
Lab ID:	**B15061350-008AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_150622A				06/23/15 04:54
Chloride			15.0	mg/L	1.0	94	90	110	0.0	20	
Sulfate			52.7	mg/L	1.0	98	90	110	0.1	20	
Lab ID:	**B15061500-001AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_150622A				06/23/15 07:49
Chloride			15.5	mg/L	1.0	95	90	110			
Sulfate			47.4	mg/L	1.0	98	90	110			
Lab ID:	**B15061500-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_150622A				06/23/15 08:02
Chloride			15.4	mg/L	1.0	94	90	110	0.8	20	
Sulfate			47.1	mg/L	1.0	97	90	110	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA203-B_150618B	
Lab ID: ICV		Initial Calibration Verification Standard							06/18/15 12:29	
Nitrogen, Nitrate+Nitrite as N		0.558	mg/L	0.010	99	90	110			
Method: E353.2									Batch: R244737	
Lab ID: MBLK		Method Blank				Run: FIA203-B_150618B			06/18/15 12:30	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.010						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-B_150618B			06/18/15 12:31	
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.010	101	90	110			
Lab ID: B15061441-003CMS		Sample Matrix Spike				Run: FIA203-B_150618B			06/18/15 17:22	
Nitrogen, Nitrate+Nitrite as N		0.870	mg/L	0.010	68	90	110			S
Lab ID: B15061441-003CMSD		Sample Matrix Spike Duplicate				Run: FIA203-B_150618B			06/18/15 17:23	
Nitrogen, Nitrate+Nitrite as N		0.847	mg/L	0.010	66	90	110	2.7	10	S

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**SW6010B**									Analytical Run: ICP203-B_150617A	
Lab ID:	**QCS**	5	Initial Calibration Verification Standard							06/17/15 11:12	
Calcium			38.6	mg/L	1.0	97	90	110			
Iron			3.92	mg/L	0.030	98	90	110			
Magnesium			38.1	mg/L	1.0	95	90	110			
Potassium			38.0	mg/L	1.0	95	90	110			
Sodium			39.6	mg/L	1.0	99	90	110			
Lab ID:	**ICSA**	5	Interference Check Sample A							06/17/15 11:15	
Calcium			465	mg/L	1.0	93	80	120			
Iron			185	mg/L	0.030	92	80	120			
Magnesium			506	mg/L	1.0	101	80	120			
Potassium			-0.0113	mg/L	1.0						
Sodium			0.0186	mg/L	1.0						
Lab ID:	**ICSAB**	5	Interference Check Sample AB							06/17/15 11:19	
Calcium			457	mg/L	1.0	91	80	120			
Iron			183	mg/L	0.030	91	80	120			
Magnesium			499	mg/L	1.0	100	80	120			
Potassium			19.1	mg/L	1.0	95	80	120			
Sodium			19.6	mg/L	1.0	98	80	120			
Method:	**SW6010B**									Batch: R244651	
Lab ID:	**MB-6500DIS150617A**	5	Method Blank				Run: ICP203-B_150617A			06/17/15 11:01	
Calcium			ND	mg/L	0.08						
Iron			0.006	mg/L	0.003						
Magnesium			ND	mg/L	0.006						
Potassium			ND	mg/L	0.04						
Sodium			ND	mg/L	0.01						
Lab ID:	**LFB-6500DIS150617A**	5	Laboratory Fortified Blank				Run: ICP203-B_150617A			06/17/15 11:05	
Calcium			49.1	mg/L	1.0	98	80	120			
Iron			4.98	mg/L	0.030	99	80	120			
Magnesium			49.2	mg/L	1.0	98	80	120			
Potassium			48.8	mg/L	1.0	98	80	120			
Sodium			50.5	mg/L	1.0	101	80	120			
Lab ID:	**B15061441-003BDIL**	5	Serial Dilution				Run: ICP203-B_150617A			06/17/15 12:01	
Calcium			49.0	mg/L	1.0		0	0	1.9	10	
Iron			7.15	mg/L	0.030		0	0	3.4	10	
Magnesium			11.6	mg/L	1.0		0	0	1.3	10	
Potassium			3.13	mg/L	1.0		0	0	3.4	10	
Sodium			53.2	mg/L	1.2		0	0	4.8	10	
Lab ID:	**B15061441-003BMS2**	5	Sample Matrix Spike				Run: ICP203-B_150617A			06/17/15 12:04	
Calcium			96.8	mg/L	1.0	97	75	125			
Iron			11.9	mg/L	0.030	100	75	125			
Magnesium			62.1	mg/L	1.0	101	75	125			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B										Batch: R244651
Lab ID: B15061441-003BMS2	5	Sample Matrix Spike				Run: ICP203-B_150617A			06/17/15 12:04	
Potassium		50.7	mg/L	1.0	95	75	125			
Sodium		102	mg/L	1.0	102	75	125			
Lab ID: B15061441-003BMSD	5	Sample Matrix Spike Duplicate				Run: ICP203-B_150617A			06/17/15 12:08	
Calcium		96.1	mg/L	1.0	96	75	125	0.7	20	
Iron		11.8	mg/L	0.030	98	75	125	0.8	20	
Magnesium		61.7	mg/L	1.0	101	75	125	0.7	20	
Potassium		51.2	mg/L	1.0	96	75	125	1.1	20	
Sodium		103	mg/L	1.0	104	75	125	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: R244660	
Lab ID: CCV-061715	Continuing Calibration Verification Standard							06/17/15 09:53	
Tetrachloroethene	5.76	ug/L	1.0	115	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	105	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: CCV-A-061715	Continuing Calibration Verification Standard							06/17/15 23:25	
Tetrachloroethene	5.64	ug/L	1.0	113	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Method: SW8260B								Batch: R244660	
Lab ID: LCS-A-061715	Laboratory Control Sample				Run: SV5972.I_150617A			06/17/15 23:54	
Tetrachloroethene	5.92	ug/L	1.0	118	78	137			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-A-061715	Method Blank				Run: SV5972.I_150617A			06/18/15 00:52	
Tetrachloroethene	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	106	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061441-015A_MS	Sample Matrix Spike				Run: SV5972.I_150617A			06/18/15 10:32	
Tetrachloroethene	88.8	ug/L	5.0	116	78	137			
Surr: 1,2-Dichloroethane-d4			10	96	70	130			
Surr: Dibromofluoromethane			10	108	77	126			
Surr: p-Bromofluorobenzene			10	100	76	127			
Surr: Toluene-d8			10	114	79	122			
Lab ID: B15061441-015A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150617A			06/18/15 10:56	
Tetrachloroethene	88.0	ug/L	5.0	114	78	137	0.9	20	
Surr: 1,2-Dichloroethane-d4			10	96	70	130			
Surr: Dibromofluoromethane			10	109	77	126			
Surr: p-Bromofluorobenzene			10	100	76	127			
Surr: Toluene-d8			10	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244748
Lab ID: CCV-061815	Continuing Calibration Verification Standard								06/18/15 13:36
Benzene	4.80	ug/L	1.0	96	70	130			
Bromobenzene	5.40	ug/L	1.0	108	70	130			
Bromochloromethane	5.52	ug/L	1.0	110	70	130			
Bromodichloromethane	4.88	ug/L	1.0	98	70	130			
Bromoform	5.08	ug/L	1.0	102	70	130			
Bromomethane	5.76	ug/L	1.0	115	70	130			
Carbon tetrachloride	4.76	ug/L	1.0	95	70	130			
Chlorobenzene	5.36	ug/L	1.0	107	70	130			
Chlorodibromomethane	5.12	ug/L	1.0	102	70	130			
Chloroethane	5.60	ug/L	1.0	112	70	130			
Chloroform	4.72	ug/L	1.0	94	80	120			
Chloromethane	4.12	ug/L	1.0	82	70	130			
1,2-Dibromoethane	5.12	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.32	ug/L	1.0	106	70	130			
Dibromomethane	5.40	ug/L	1.0	108	70	130			
1,2-Dichlorobenzene	5.32	ug/L	1.0	106	70	130			
4-Chlorotoluene	4.76	ug/L	1.0	95	70	130			
1,3-Dichlorobenzene	5.16	ug/L	1.0	103	70	130			
1,4-Dichlorobenzene	4.96	ug/L	1.0	99	70	130			
Dichlorodifluoromethane	6.44	ug/L	1.0	129	70	130			
1,1-Dichloroethane	4.84	ug/L	1.0	97	70	130			
1,2-Dichloroethane	4.40	ug/L	1.0	88	70	130			
1,1-Dichloroethene	5.08	ug/L	1.0	102	80	120			
cis-1,2-Dichloroethene	5.16	ug/L	1.0	103	70	130			
trans-1,2-Dichloroethene	5.76	ug/L	1.0	115	70	130			
1,2-Dichloropropane	4.84	ug/L	1.0	97	80	120			
1,3-Dichloropropane	5.08	ug/L	1.0	102	70	130			
2,2-Dichloropropane	5.00	ug/L	1.0	100	70	130			
1,1-Dichloropropene	4.80	ug/L	1.0	96	70	130			
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	70	130			
trans-1,3-Dichloropropene	4.32	ug/L	1.0	86	70	130			
Ethylbenzene	5.28	ug/L	1.0	106	80	120			
Methyl tert-butyl ether (MTBE)	4.80	ug/L	1.0	96	70	130			
Methylene chloride	4.40	ug/L	1.0	88	70	130			
Naphthalene	3.93	ug/L	1.0	79	70	130			
Styrene	5.28	ug/L	1.0	106	70	130			
1,1,1,2-Tetrachloroethane	5.28	ug/L	1.0	106	70	130			
1,1,2,2-Tetrachloroethane	4.44	ug/L	1.0	89	70	130			
Tetrachloroethene	5.88	ug/L	1.0	118	70	130			
Toluene	5.24	ug/L	1.0	105	80	120			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	70	130			
1,1,2-Trichloroethane	5.08	ug/L	1.0	102	70	130			
Trichloroethene	5.44	ug/L	1.0	109	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: R244748	
Lab ID: CCV-061815	Continuing Calibration Verification Standard							06/18/15 13:36	
Trichlorofluoromethane	5.76	ug/L	1.0	115	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.56	ug/L	1.0	111	70	130			
1,2,3-Trichloropropane	4.92	ug/L	1.0	98	70	130			
Vinyl chloride	5.60	ug/L	1.0	112	80	120			
m+p-Xylenes	10.7	ug/L	1.0	107	70	130			
o-Xylene	5.36	ug/L	1.0	107	70	130			
Xylenes, Total	16.1	ug/L	1.0	107	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	93	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: CCV-A-061815	Continuing Calibration Verification Standard							06/19/15 02:45	
Benzene	4.72	ug/L	1.0	94	70	130			
Bromobenzene	5.40	ug/L	1.0	108	70	130			
Bromochloromethane	5.48	ug/L	1.0	110	70	130			
Bromodichloromethane	4.80	ug/L	1.0	96	70	130			
Bromoform	4.80	ug/L	1.0	96	70	130			
Bromomethane	5.20	ug/L	1.0	104	70	130			
Carbon tetrachloride	4.76	ug/L	1.0	95	70	130			
Chlorobenzene	5.24	ug/L	1.0	105	70	130			
Chlorodibromomethane	5.24	ug/L	1.0	105	70	130			
Chloroethane	5.20	ug/L	1.0	104	70	130			
Chloroform	4.68	ug/L	1.0	94	80	120			
Chloromethane	4.00	ug/L	1.0	80	70	130			
1,2-Dibromoethane	5.04	ug/L	1.0	101	70	130			
2-Chlorotoluene	5.16	ug/L	1.0	103	70	130			
Dibromomethane	5.20	ug/L	1.0	104	70	130			
1,2-Dichlorobenzene	5.20	ug/L	1.0	104	70	130			
4-Chlorotoluene	4.60	ug/L	1.0	92	70	130			
1,3-Dichlorobenzene	5.08	ug/L	1.0	102	70	130			
1,4-Dichlorobenzene	4.92	ug/L	1.0	98	70	130			
Dichlorodifluoromethane	6.88	ug/L	1.0	138	70	130			S
1,1-Dichloroethane	4.84	ug/L	1.0	97	70	130			
1,2-Dichloroethane	4.36	ug/L	1.0	87	70	130			
1,1-Dichloroethene	4.80	ug/L	1.0	96	80	120			
cis-1,2-Dichloroethene	5.00	ug/L	1.0	100	70	130			
trans-1,2-Dichloroethene	5.44	ug/L	1.0	109	70	130			
1,2-Dichloropropane	4.80	ug/L	1.0	96	80	120			
1,3-Dichloropropane	4.88	ug/L	1.0	98	70	130			
2,2-Dichloropropane	4.28	ug/L	1.0	86	70	130			
1,1-Dichloropropene	4.64	ug/L	1.0	93	70	130			
cis-1,3-Dichloropropene	4.52	ug/L	1.0	90	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244748
Lab ID: CCV-A-061815	Continuing Calibration Verification Standard								06/19/15 02:45
trans-1,3-Dichloropropene	4.24	ug/L	1.0	85	70	130			
Ethylbenzene	5.16	ug/L	1.0	103	80	120			
Methyl tert-butyl ether (MTBE)	4.88	ug/L	1.0	98	70	130			
Methylene chloride	4.24	ug/L	1.0	85	70	130			
Naphthalene	3.61	ug/L	1.0	72	70	130			
Styrene	5.16	ug/L	1.0	103	70	130			
1,1,1,2-Tetrachloroethane	5.24	ug/L	1.0	105	70	130			
1,1,2,2-Tetrachloroethane	4.20	ug/L	1.0	84	70	130			
Tetrachloroethene	5.96	ug/L	1.0	119	70	130			
Toluene	5.16	ug/L	1.0	103	80	120			
1,1,1-Trichloroethane	4.80	ug/L	1.0	96	70	130			
1,1,2-Trichloroethane	5.08	ug/L	1.0	102	70	130			
Trichloroethene	5.36	ug/L	1.0	107	70	130			
Trichlorofluoromethane	5.84	ug/L	1.0	117	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.60	ug/L	1.0	112	70	130			
1,2,3-Trichloropropane	4.88	ug/L	1.0	98	70	130			
Vinyl chloride	5.56	ug/L	1.0	111	80	120			
m+p-Xylenes	10.3	ug/L	1.0	103	70	130			
o-Xylene	5.24	ug/L	1.0	105	70	130			
Xylenes, Total	15.6	ug/L	1.0	104	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: CCV-B-061815	Continuing Calibration Verification Standard								06/19/15 15:32
Benzene	4.68	ug/L	1.0	94	70	130			
Bromobenzene	5.28	ug/L	1.0	106	70	130			
Bromochloromethane	5.52	ug/L	1.0	110	70	130			
Bromodichloromethane	4.88	ug/L	1.0	98	70	130			
Bromoform	4.84	ug/L	1.0	97	70	130			
Bromomethane	4.68	ug/L	1.0	94	70	130			
Carbon tetrachloride	4.72	ug/L	1.0	94	70	130			
Chlorobenzene	5.24	ug/L	1.0	105	70	130			
Chlorodibromomethane	5.16	ug/L	1.0	103	70	130			
Chloroethane	5.16	ug/L	1.0	103	70	130			
Chloroform	4.72	ug/L	1.0	94	80	120			
Chloromethane	4.20	ug/L	1.0	84	70	130			
1,2-Dibromoethane	5.24	ug/L	1.0	105	70	130			
2-Chlorotoluene	5.12	ug/L	1.0	102	70	130			
Dibromomethane	5.36	ug/L	1.0	107	70	130			
1,2-Dichlorobenzene	5.20	ug/L	1.0	104	70	130			
4-Chlorotoluene	4.68	ug/L	1.0	94	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244748
Lab ID: CCV-B-061815	Continuing Calibration Verification Standard								06/19/15 15:32
1,3-Dichlorobenzene	5.04	ug/L	1.0	101	70	130			
1,4-Dichlorobenzene	4.92	ug/L	1.0	98	70	130			
Dichlorodifluoromethane	6.64	ug/L	1.0	133	70	130			S
1,1-Dichloroethane	5.00	ug/L	1.0	100	70	130			
1,2-Dichloroethane	4.40	ug/L	1.0	88	70	130			
1,1-Dichloroethene	5.08	ug/L	1.0	102	80	120			
cis-1,2-Dichloroethene	5.04	ug/L	1.0	101	70	130			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	70	130			
1,2-Dichloropropane	4.80	ug/L	1.0	96	80	120			
1,3-Dichloropropane	5.00	ug/L	1.0	100	70	130			
2,2-Dichloropropane	4.60	ug/L	1.0	92	70	130			
1,1-Dichloropropene	4.68	ug/L	1.0	94	70	130			
cis-1,3-Dichloropropene	4.64	ug/L	1.0	93	70	130			
trans-1,3-Dichloropropene	4.44	ug/L	1.0	89	70	130			
Ethylbenzene	5.20	ug/L	1.0	104	80	120			
Methyl tert-butyl ether (MTBE)	5.36	ug/L	1.0	107	70	130			
Methylene chloride	4.56	ug/L	1.0	91	70	130			
Naphthalene	3.78	ug/L	1.0	76	70	130			
Styrene	5.20	ug/L	1.0	104	70	130			
1,1,1,2-Tetrachloroethane	5.24	ug/L	1.0	105	70	130			
1,1,2,2-Tetrachloroethane	4.40	ug/L	1.0	88	70	130			
Tetrachloroethene	5.72	ug/L	1.0	114	70	130			
Toluene	5.24	ug/L	1.0	105	80	120			
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	70	130			
1,1,2-Trichloroethane	5.04	ug/L	1.0	101	70	130			
Trichloroethene	5.24	ug/L	1.0	105	70	130			
Trichlorofluoromethane	5.76	ug/L	1.0	115	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.08	ug/L	1.0	102	70	130			
1,2,3-Trichloropropane	5.12	ug/L	1.0	102	70	130			
Vinyl chloride	5.56	ug/L	1.0	111	80	120			
m+p-Xylenes	10.2	ug/L	1.0	102	70	130			
o-Xylene	5.12	ug/L	1.0	102	70	130			
Xylenes, Total	15.4	ug/L	1.0	102	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Method: SW8260B									Batch: R244748
Lab ID: LCS-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/18/15 14:05
Benzene	4.88	ug/L	1.0	98	71	133			
Bromobenzene	5.68	ug/L	1.0	114	78	133			
Bromochloromethane	5.76	ug/L	1.0	115	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/18/15 14:05
Bromodichloromethane	5.32	ug/L	1.0	106	67	138			
Bromoform	5.60	ug/L	1.0	112	64	136			
Bromomethane	6.24	ug/L	1.0	125	60	138			
Carbon tetrachloride	4.92	ug/L	1.0	98	61	144			
Chlorobenzene	5.48	ug/L	1.0	110	78	136			
Chlorodibromomethane	5.60	ug/L	1.0	112	72	136			
Chloroethane	5.44	ug/L	1.0	109	64	136			
Chloroform	4.84	ug/L	1.0	97	69	133			
Chloromethane	4.12	ug/L	1.0	82	63	149			
1,2-Dibromoethane	5.52	ug/L	1.0	110	75	131			
2-Chlorotoluene	5.68	ug/L	1.0	114	74	135			
Dibromomethane	5.60	ug/L	1.0	112	72	133			
1,2-Dichlorobenzene	5.68	ug/L	1.0	114	78	129			
4-Chlorotoluene	5.08	ug/L	1.0	102	79	135			
1,3-Dichlorobenzene	5.60	ug/L	1.0	112	79	132			
1,4-Dichlorobenzene	5.44	ug/L	1.0	109	78	131			
Dichlorodifluoromethane	6.44	ug/L	1.0	129	55	141			
1,1-Dichloroethane	5.12	ug/L	1.0	102	72	130			
1,2-Dichloroethane	4.76	ug/L	1.0	95	57	146			
1,1-Dichloroethene	5.24	ug/L	1.0	105	66	142			
cis-1,2-Dichloroethene	5.36	ug/L	1.0	107	74	133			
trans-1,2-Dichloroethene	6.00	ug/L	1.0	120	76	138			
1,2-Dichloropropane	5.08	ug/L	1.0	102	72	135			
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134			
2,2-Dichloropropane	4.92	ug/L	1.0	98	42	167			
1,1-Dichloropropene	5.20	ug/L	1.0	104	72	140			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	75	132			
trans-1,3-Dichloropropene	4.84	ug/L	1.0	97	77	145			
Ethylbenzene	5.56	ug/L	1.0	111	78	131			
Methyl tert-butyl ether (MTBE)	5.00	ug/L	1.0	100	58	151			
Methylene chloride	4.48	ug/L	1.0	90	73	126			
Naphthalene	4.88	ug/L	1.0	98	55	139			
Styrene	5.76	ug/L	1.0	115	76	134			
1,1,1,2-Tetrachloroethane	5.60	ug/L	1.0	112	75	135			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	72	132			
Tetrachloroethene	6.04	ug/L	1.0	121	78	137			
Toluene	5.44	ug/L	1.0	109	78	134			
1,1,1-Trichloroethane	5.00	ug/L	1.0	100	64	141			
1,1,2-Trichloroethane	5.36	ug/L	1.0	107	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	5.64	ug/L	1.0	113	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.68	ug/L	1.0	134	60	140			
1,2,3-Trichloropropane	5.56	ug/L	1.0	111	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/18/15 14:05
Vinyl chloride	5.56	ug/L	1.0	111	66	140			
m+p-Xylenes	11.0	ug/L	1.0	110	78	133			
o-Xylene	5.56	ug/L	1.0	111	79	136			
Xylenes, Total	16.6	ug/L	1.0	111	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-061815	Method Blank				Run: SV5972.I_150618A				06/18/15 15:03
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: MB-061815	Method Blank				Run: SV5972.I_150618A				06/18/15 15:03
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	93	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	110	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061457-002A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 00:18
Benzene	4.68	ug/L	1.0	94	71	133			
Bromobenzene	5.08	ug/L	1.0	102	78	133			
Bromochloromethane	5.64	ug/L	1.0	113	68	131			
Bromodichloromethane	5.08	ug/L	1.0	102	67	138			
Bromoform	4.92	ug/L	1.0	98	64	136			
Bromomethane	3.85	ug/L	1.0	77	60	138			
Carbon tetrachloride	4.80	ug/L	1.0	96	61	144			
Chlorobenzene	5.16	ug/L	1.0	103	78	136			
Chlorodibromomethane	5.52	ug/L	1.0	110	72	136			
Chloroethane	4.48	ug/L	1.0	90	64	136			
Chloroform	4.72	ug/L	1.0	94	69	133			
Chloromethane	3.12	ug/L	1.0	62	63	149			S
1,2-Dibromoethane	5.28	ug/L	1.0	106	75	131			
2-Chlorotoluene	4.92	ug/L	1.0	98	74	135			
Dibromomethane	5.32	ug/L	1.0	106	72	133			
1,2-Dichlorobenzene	5.04	ug/L	1.0	101	78	129			
4-Chlorotoluene	4.36	ug/L	1.0	87	79	135			
1,3-Dichlorobenzene	4.88	ug/L	1.0	98	79	132			
1,4-Dichlorobenzene	4.72	ug/L	1.0	94	78	131			
Dichlorodifluoromethane	5.40	ug/L	1.0	108	55	141			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061457-002A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 00:18
1,1-Dichloroethane	4.92	ug/L	1.0	98	72	130			
1,2-Dichloroethane	4.56	ug/L	1.0	91	57	146			
1,1-Dichloroethene	5.12	ug/L	1.0	102	66	142			
cis-1,2-Dichloroethene	5.12	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.64	ug/L	1.0	113	76	138			
1,2-Dichloropropane	4.88	ug/L	1.0	98	72	135			
1,3-Dichloropropane	4.92	ug/L	1.0	98	75	134			
2,2-Dichloropropane	4.84	ug/L	1.0	97	42	167			
1,1-Dichloropropene	4.92	ug/L	1.0	98	72	140			
cis-1,3-Dichloropropene	4.84	ug/L	1.0	97	75	132			
trans-1,3-Dichloropropene	5.04	ug/L	1.0	101	77	145			
Ethylbenzene	5.12	ug/L	1.0	102	78	131			
Methyl tert-butyl ether (MTBE)	4.92	ug/L	1.0	98	58	151			
Methylene chloride	4.40	ug/L	1.0	83	73	126			
Naphthalene	4.08	ug/L	1.0	82	55	139			
Styrene	5.40	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.48	ug/L	1.0	90	72	132			
Tetrachloroethene	5.80	ug/L	1.0	116	78	137			
Toluene	5.24	ug/L	1.0	105	78	134			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	64	141			
1,1,2-Trichloroethane	5.00	ug/L	1.0	100	72	133			
Trichloroethene	5.32	ug/L	1.0	106	75	138			
Trichlorofluoromethane	5.36	ug/L	1.0	107	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.84	ug/L	1.0	137	60	140			
1,2,3-Trichloropropane	5.20	ug/L	1.0	104	67	133			
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	10.3	ug/L	1.0	103	78	133			
o-Xylene	5.16	ug/L	1.0	103	79	136			
Xylenes, Total	15.4	ug/L	1.0	103	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061457-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A				06/19/15 00:47
Benzene	4.76	ug/L	1.0	95	71	133	1.7	20	
Bromobenzene	5.76	ug/L	1.0	115	78	133	13	20	
Bromochloromethane	5.60	ug/L	1.0	112	68	131	0.7	20	
Bromodichloromethane	5.28	ug/L	1.0	106	67	138	3.9	20	
Bromoform	5.52	ug/L	1.0	110	64	136	11	20	
Bromomethane	4.56	ug/L	1.0	91	60	138	17	20	
Carbon tetrachloride	4.72	ug/L	1.0	94	61	144	1.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061457-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 00:47	
Chlorobenzene	5.32	ug/L	1.0	106	78	136	3.1	20	
Chlorodibromomethane	5.72	ug/L	1.0	114	72	136	3.6	20	
Chloroethane	4.52	ug/L	1.0	90	64	136	0.9	20	
Chloroform	4.72	ug/L	1.0	94	69	133	0.0	20	
Chloromethane	3.44	ug/L	1.0	69	63	149	9.7	20	
1,2-Dibromoethane	5.48	ug/L	1.0	110	75	131	3.7	20	
2-Chlorotoluene	5.28	ug/L	1.0	106	74	135	7.1	20	
Dibromomethane	5.48	ug/L	1.0	110	72	133	3.0	20	
1,2-Dichlorobenzene	5.40	ug/L	1.0	108	78	129	6.9	20	
4-Chlorotoluene	4.60	ug/L	1.0	92	79	135	5.4	20	
1,3-Dichlorobenzene	5.20	ug/L	1.0	104	79	132	6.3	20	
1,4-Dichlorobenzene	5.24	ug/L	1.0	105	78	131	10	20	
Dichlorodifluoromethane	5.60	ug/L	1.0	112	55	141	3.6	20	
1,1-Dichloroethane	4.96	ug/L	1.0	99	72	130	0.8	20	
1,2-Dichloroethane	4.64	ug/L	1.0	93	57	146	1.7	20	
1,1-Dichloroethene	5.04	ug/L	1.0	101	66	142	1.6	20	
cis-1,2-Dichloroethene	5.36	ug/L	1.0	107	74	133	4.6	20	
trans-1,2-Dichloroethene	5.76	ug/L	1.0	115	76	138	2.1	20	
1,2-Dichloropropane	4.88	ug/L	1.0	98	72	135	0.0	20	
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134	4.8	20	
2,2-Dichloropropane	4.76	ug/L	1.0	95	42	167	1.7	20	
1,1-Dichloropropene	4.88	ug/L	1.0	98	72	140	0.8	20	
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	75	132	5.6	20	
trans-1,3-Dichloropropene	5.24	ug/L	1.0	105	77	145	3.9	20	
Ethylbenzene	5.16	ug/L	1.0	103	78	131	0.8	20	
Methyl tert-butyl ether (MTBE)	5.12	ug/L	1.0	102	58	151	4.0	20	
Methylene chloride	4.48	ug/L	1.0	85	73	126	1.8	20	
Naphthalene	4.76	ug/L	1.0	95	55	139	15	20	
Styrene	5.40	ug/L	1.0	108	76	134	0.0	20	
1,1,1,2-Tetrachloroethane	5.60	ug/L	1.0	112	75	135	2.2	20	
1,1,2,2-Tetrachloroethane	5.08	ug/L	1.0	102	72	132	13	20	
Tetrachloroethene	5.64	ug/L	1.0	113	78	137	2.8	20	
Toluene	5.24	ug/L	1.0	105	78	134	0.0	20	
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	64	141	1.7	20	
1,1,2-Trichloroethane	5.28	ug/L	1.0	106	72	133	5.4	20	
Trichloroethene	5.48	ug/L	1.0	110	75	138	3.0	20	
Trichlorofluoromethane	5.36	ug/L	1.0	107	58	139	0.0	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.68	ug/L	1.0	134	60	140	2.4	20	
1,2,3-Trichloropropane	5.64	ug/L	1.0	113	67	133	8.1	20	
Vinyl chloride	5.16	ug/L	1.0	103	66	140	2.4	20	
m+p-Xylenes	10.2	ug/L	1.0	102	78	133	0.8	20	
o-Xylene	5.20	ug/L	1.0	104	79	136	0.8	20	
Xylenes, Total	15.4	ug/L	1.0	103	78	136			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061457-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A				06/19/15 00:47
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: LCS-A-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 03:14
Benzene	4.68	ug/L	1.0	94	71	133			
Bromobenzene	5.48	ug/L	1.0	110	78	133			
Bromochloromethane	5.76	ug/L	1.0	115	68	131			
Bromodichloromethane	5.12	ug/L	1.0	102	67	138			
Bromoform	5.20	ug/L	1.0	104	64	136			
Bromomethane	5.12	ug/L	1.0	102	60	138			
Carbon tetrachloride	4.64	ug/L	1.0	93	61	144			
Chlorobenzene	5.24	ug/L	1.0	105	78	136			
Chlorodibromomethane	5.68	ug/L	1.0	114	72	136			
Chloroethane	4.84	ug/L	1.0	97	64	136			
Chloroform	4.68	ug/L	1.0	94	69	133			
Chloromethane	3.43	ug/L	1.0	69	63	149			
1,2-Dibromoethane	5.28	ug/L	1.0	106	75	131			
2-Chlorotoluene	5.24	ug/L	1.0	105	74	135			
Dibromomethane	5.40	ug/L	1.0	108	72	133			
1,2-Dichlorobenzene	5.40	ug/L	1.0	108	78	129			
4-Chlorotoluene	4.56	ug/L	1.0	91	79	135			
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	79	132			
1,4-Dichlorobenzene	5.08	ug/L	1.0	102	78	131			
Dichlorodifluoromethane	5.04	ug/L	1.0	101	55	141			
1,1-Dichloroethane	5.04	ug/L	1.0	101	72	130			
1,2-Dichloroethane	4.68	ug/L	1.0	94	57	146			
1,1-Dichloroethene	5.08	ug/L	1.0	102	66	142			
cis-1,2-Dichloroethene	5.24	ug/L	1.0	105	74	133			
trans-1,2-Dichloroethene	5.72	ug/L	1.0	114	76	138			
1,2-Dichloropropane	4.80	ug/L	1.0	96	72	135			
1,3-Dichloropropane	5.08	ug/L	1.0	102	75	134			
2,2-Dichloropropane	4.16	ug/L	1.0	83	42	167			
1,1-Dichloropropene	4.76	ug/L	1.0	95	72	140			
cis-1,3-Dichloropropene	4.80	ug/L	1.0	96	75	132			
trans-1,3-Dichloropropene	4.88	ug/L	1.0	98	77	145			
Ethylbenzene	5.04	ug/L	1.0	101	78	131			
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151			
Methylene chloride	4.48	ug/L	1.0	90	73	126			
Naphthalene	4.64	ug/L	1.0	93	55	139			
Styrene	5.40	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	5.36	ug/L	1.0	107	75	135			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-A-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 03:14
1,1,2,2-Tetrachloroethane	4.44	ug/L	1.0	89	72	132			
Tetrachloroethene	5.76	ug/L	1.0	115	78	137			
Toluene	5.08	ug/L	1.0	102	78	134			
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	64	141			
1,1,2-Trichloroethane	5.28	ug/L	1.0	106	72	133			
Trichloroethene	5.36	ug/L	1.0	107	75	138			
Trichlorofluoromethane	4.88	ug/L	1.0	98	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.32	ug/L	1.0	126	60	140			
1,2,3-Trichloropropane	5.60	ug/L	1.0	112	67	133			
Vinyl chloride	4.92	ug/L	1.0	98	66	140			
m+p-Xylenes	10.0	ug/L	1.0	100	78	133			
o-Xylene	5.12	ug/L	1.0	102	79	136			
Xylenes, Total	15.2	ug/L	1.0	101	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-A-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 04:13
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: MB-A-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 04:13
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	93	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	109	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: B15061441-005A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 13:30
Benzene	4.48	ug/L	1.0	90	71	133			
Bromobenzene	4.92	ug/L	1.0	98	78	133			
Bromochloromethane	5.44	ug/L	1.0	109	68	131			
Bromodichloromethane	4.84	ug/L	1.0	97	67	138			
Bromoform	4.60	ug/L	1.0	92	64	136			
Bromomethane	3.92	ug/L	1.0	78	60	138			
Carbon tetrachloride	4.64	ug/L	1.0	93	61	144			
Chlorobenzene	5.08	ug/L	1.0	102	78	136			
Chlorodibromomethane	5.28	ug/L	1.0	106	72	136			
Chloroethane	5.28	ug/L	1.0	106	64	136			
Chloroform	4.60	ug/L	1.0	92	69	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-005A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 13:30
Chloromethane	3.15	ug/L	1.0	63	63	149			
1,2-Dibromoethane	5.08	ug/L	1.0	102	75	131			
2-Chlorotoluene	4.88	ug/L	1.0	98	74	135			
Dibromomethane	5.12	ug/L	1.0	102	72	133			
1,2-Dichlorobenzene	4.88	ug/L	1.0	98	78	129			
4-Chlorotoluene	4.28	ug/L	1.0	86	79	135			
1,3-Dichlorobenzene	4.88	ug/L	1.0	98	79	132			
1,4-Dichlorobenzene	4.68	ug/L	1.0	94	78	131			
Dichlorodifluoromethane	5.56	ug/L	1.0	111	55	141			
1,1-Dichloroethane	4.92	ug/L	1.0	98	72	130			
1,2-Dichloroethane	4.40	ug/L	1.0	88	57	146			
1,1-Dichloroethene	4.84	ug/L	1.0	97	66	142			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.52	ug/L	1.0	110	76	138			
1,2-Dichloropropane	4.68	ug/L	1.0	94	72	135			
1,3-Dichloropropane	4.72	ug/L	1.0	94	75	134			
2,2-Dichloropropane	4.80	ug/L	1.0	96	42	167			
1,1-Dichloropropene	4.80	ug/L	1.0	96	72	140			
cis-1,3-Dichloropropene	4.52	ug/L	1.0	90	75	132			
trans-1,3-Dichloropropene	4.64	ug/L	1.0	93	77	145			
Ethylbenzene	4.96	ug/L	1.0	99	78	131			
Methyl tert-butyl ether (MTBE)	5.00	ug/L	1.0	100	58	151			
Methylene chloride	4.16	ug/L	1.0	83	73	126			
Naphthalene	3.88	ug/L	1.0	78	55	139			
Styrene	5.00	ug/L	1.0	100	76	134			
1,1,1,2-Tetrachloroethane	5.24	ug/L	1.0	105	75	135			
1,1,2,2-Tetrachloroethane	4.12	ug/L	1.0	82	72	132			
Tetrachloroethene	5.68	ug/L	1.0	114	78	137			
Toluene	4.96	ug/L	1.0	99	78	134			
1,1,1-Trichloroethane	4.64	ug/L	1.0	93	64	141			
1,1,2-Trichloroethane	4.92	ug/L	1.0	98	72	133			
Trichloroethene	5.04	ug/L	1.0	101	75	138			
Trichlorofluoromethane	5.28	ug/L	1.0	106	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.48	ug/L	1.0	130	60	140			
1,2,3-Trichloropropane	4.92	ug/L	1.0	98	67	133			
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	9.92	ug/L	1.0	99	78	133			
o-Xylene	5.00	ug/L	1.0	100	79	136			
Xylenes, Total	14.9	ug/L	1.0	99	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	98	76	127			
Surr: Toluene-d8			1.0	113	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Batch: R244748	
Lab ID: B15061441-005A_MS	Sample Matrix Spike				Run: SV5972.I_150618A			06/19/15 13:30	
Lab ID: B15061441-005A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 13:59	
Benzene	4.72	ug/L	1.0	94	71	133	5.2	20	
Bromobenzene	5.52	ug/L	1.0	110	78	133	11	20	
Bromochloromethane	5.72	ug/L	1.0	114	68	131	5.0	20	
Bromodichloromethane	5.16	ug/L	1.0	103	67	138	6.4	20	
Bromoform	5.12	ug/L	1.0	102	64	136	11	20	
Bromomethane	4.84	ug/L	1.0	97	60	138	21	20	R
Carbon tetrachloride	4.84	ug/L	1.0	97	61	144	4.2	20	
Chlorobenzene	5.36	ug/L	1.0	107	78	136	5.4	20	
Chlorodibromomethane	5.56	ug/L	1.0	111	72	136	5.2	20	
Chloroethane	5.44	ug/L	1.0	109	64	136	3.0	20	
Chloroform	4.72	ug/L	1.0	94	69	133	2.6	20	
Chloromethane	3.39	ug/L	1.0	68	63	149	7.3	20	
1,2-Dibromoethane	5.60	ug/L	1.0	112	75	131	9.7	20	
2-Chlorotoluene	5.36	ug/L	1.0	107	74	135	9.4	20	
Dibromomethane	5.48	ug/L	1.0	110	72	133	6.8	20	
1,2-Dichlorobenzene	5.40	ug/L	1.0	108	78	129	10	20	
4-Chlorotoluene	4.72	ug/L	1.0	94	79	135	9.8	20	
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132	9.4	20	
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131	12	20	
Dichlorodifluoromethane	5.64	ug/L	1.0	113	55	141	1.4	20	
1,1-Dichloroethane	5.00	ug/L	1.0	100	72	130	1.6	20	
1,2-Dichloroethane	4.60	ug/L	1.0	92	57	146	4.4	20	
1,1-Dichloroethene	5.08	ug/L	1.0	102	66	142	4.8	20	
cis-1,2-Dichloroethene	5.20	ug/L	1.0	104	74	133	2.3	20	
trans-1,2-Dichloroethene	6.04	ug/L	1.0	121	76	138	9.0	20	
1,2-Dichloropropane	4.96	ug/L	1.0	99	72	135	5.8	20	
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134	6.6	20	
2,2-Dichloropropane	4.80	ug/L	1.0	96	42	167	0.0	20	
1,1-Dichloropropene	4.96	ug/L	1.0	99	72	140	3.3	20	
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	75	132	7.7	20	
trans-1,3-Dichloropropene	5.08	ug/L	1.0	102	77	145	9.1	20	
Ethylbenzene	5.24	ug/L	1.0	105	78	131	5.5	20	
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151	1.6	20	
Methylene chloride	4.44	ug/L	1.0	89	73	126	6.5	20	
Naphthalene	4.72	ug/L	1.0	94	55	139	20	20	
Styrene	5.36	ug/L	1.0	107	76	134	6.9	20	
1,1,1,2-Tetrachloroethane	5.40	ug/L	1.0	108	75	135	3.0	20	
1,1,2,2-Tetrachloroethane	4.76	ug/L	1.0	95	72	132	14	20	
Tetrachloroethene	5.96	ug/L	1.0	119	78	137	4.8	20	
Toluene	5.16	ug/L	1.0	103	78	134	4.0	20	
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	64	141	2.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-005A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A				06/19/15 13:59
1,1,2-Trichloroethane	5.24	ug/L	1.0	105	72	133	6.3	20	
Trichloroethene	5.36	ug/L	1.0	107	75	138	6.2	20	
Trichlorofluoromethane	5.40	ug/L	1.0	108	58	139	2.2	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.72	ug/L	1.0	134	60	140	3.6	20	
1,2,3-Trichloropropane	5.24	ug/L	1.0	105	67	133	6.3	20	
Vinyl chloride	5.20	ug/L	1.0	104	66	140	3.1	20	
m+p-Xylenes	10.5	ug/L	1.0	105	78	133	5.9	20	
o-Xylene	5.20	ug/L	1.0	104	79	136	3.9	20	
Xylenes, Total	15.7	ug/L	1.0	105	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: LCS-B-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 16:00
Benzene	5.00	ug/L	1.0	100	71	133			
Bromobenzene	5.76	ug/L	1.0	115	78	133			
Bromochloromethane	6.00	ug/L	1.0	120	68	131			
Bromodichloromethane	5.40	ug/L	1.0	108	67	138			
Bromoform	5.44	ug/L	1.0	109	64	136			
Bromomethane	4.68	ug/L	1.0	94	60	138			
Carbon tetrachloride	5.00	ug/L	1.0	100	61	144			
Chlorobenzene	5.52	ug/L	1.0	110	78	136			
Chlorodibromomethane	5.76	ug/L	1.0	115	72	136			
Chloroethane	4.72	ug/L	1.0	94	64	136			
Chloroform	4.96	ug/L	1.0	99	69	133			
Chloromethane	3.50	ug/L	1.0	70	63	149			
1,2-Dibromoethane	5.64	ug/L	1.0	113	75	131			
2-Chlorotoluene	5.68	ug/L	1.0	114	74	135			
Dibromomethane	4.92	ug/L	1.0	98	72	133			
1,2-Dichlorobenzene	5.68	ug/L	1.0	114	78	129			
4-Chlorotoluene	5.12	ug/L	1.0	102	79	135			
1,3-Dichlorobenzene	5.72	ug/L	1.0	114	79	132			
1,4-Dichlorobenzene	5.44	ug/L	1.0	109	78	131			
Dichlorodifluoromethane	5.12	ug/L	1.0	102	55	141			
1,1-Dichloroethane	5.32	ug/L	1.0	106	72	130			
1,2-Dichloroethane	4.92	ug/L	1.0	98	57	146			
1,1-Dichloroethene	5.44	ug/L	1.0	109	66	142			
cis-1,2-Dichloroethene	5.56	ug/L	1.0	111	74	133			
trans-1,2-Dichloroethene	6.12	ug/L	1.0	122	76	138			
1,2-Dichloropropane	5.16	ug/L	1.0	103	72	135			
1,3-Dichloropropane	5.28	ug/L	1.0	106	75	134			
2,2-Dichloropropane	4.60	ug/L	1.0	92	42	167			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-B-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 16:00
1,1-Dichloropropene	5.28	ug/L	1.0	106	72	140			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.52	ug/L	1.0	110	78	131			
Methyl tert-butyl ether (MTBE)	5.36	ug/L	1.0	107	58	151			
Methylene chloride	4.76	ug/L	1.0	95	73	126			
Naphthalene	4.96	ug/L	1.0	99	55	139			
Styrene	5.68	ug/L	1.0	114	76	134			
1,1,1,2-Tetrachloroethane	5.76	ug/L	1.0	115	75	135			
1,1,2,2-Tetrachloroethane	4.88	ug/L	1.0	98	72	132			
Tetrachloroethene	6.08	ug/L	1.0	122	78	137			
Toluene	5.44	ug/L	1.0	109	78	134			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	64	141			
1,1,2-Trichloroethane	5.56	ug/L	1.0	111	72	133			
Trichloroethene	5.64	ug/L	1.0	113	75	138			
Trichlorofluoromethane	5.04	ug/L	1.0	101	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.88	ug/L	1.0	138	60	140			
1,2,3-Trichloropropane	5.80	ug/L	1.0	116	67	133			
Vinyl chloride	4.92	ug/L	1.0	98	66	140			
m+p-Xylenes	11.0	ug/L	1.0	110	78	133			
o-Xylene	5.52	ug/L	1.0	110	79	136			
Xylenes, Total	16.5	ug/L	1.0	110	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: MB-B-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 16:59
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: MB-B-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 16:59
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	109	76	127			
Surr: Toluene-d8			1.0	117	79	122			
Lab ID: B15061441-024A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 17:28
Benzene	5.12	ug/L	1.0	102	71	133			
Bromobenzene	5.56	ug/L	1.0	111	78	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-024A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 17:28
Bromochloromethane	6.16	ug/L	1.0	123	68	131			
Bromodichloromethane	5.56	ug/L	1.0	111	67	138			
Bromoform	5.36	ug/L	1.0	107	64	136			
Bromomethane	4.04	ug/L	1.0	81	60	138			
Carbon tetrachloride	5.36	ug/L	1.0	107	61	144			
Chlorobenzene	5.80	ug/L	1.0	116	78	136			
Chlorodibromomethane	6.04	ug/L	1.0	121	72	136			
Chloroethane	4.00	ug/L	1.0	80	64	136			
Chloroform	5.16	ug/L	1.0	103	69	133			
Chloromethane	2.94	ug/L	1.0	59	63	149			S
1,2-Dibromoethane	5.72	ug/L	1.0	114	75	131			
2-Chlorotoluene	5.64	ug/L	1.0	113	74	135			
Dibromomethane	6.00	ug/L	1.0	120	72	133			
1,2-Dichlorobenzene	5.60	ug/L	1.0	112	78	129			
4-Chlorotoluene	4.88	ug/L	1.0	98	79	135			
1,3-Dichlorobenzene	5.48	ug/L	1.0	110	79	132			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131			
Dichlorodifluoromethane	4.68	ug/L	1.0	94	55	141			
1,1-Dichloroethane	5.64	ug/L	1.0	113	72	130			
1,2-Dichloroethane	4.96	ug/L	1.0	99	57	146			
1,1-Dichloroethene	5.60	ug/L	1.0	112	66	142			
cis-1,2-Dichloroethene	5.68	ug/L	1.0	114	74	133			
trans-1,2-Dichloroethene	6.36	ug/L	1.0	127	76	138			
1,2-Dichloropropane	5.36	ug/L	1.0	107	72	135			
1,3-Dichloropropane	5.52	ug/L	1.0	110	75	134			
2,2-Dichloropropane	5.16	ug/L	1.0	103	42	167			
1,1-Dichloropropene	5.44	ug/L	1.0	109	72	140			
cis-1,3-Dichloropropene	5.16	ug/L	1.0	103	75	132			
trans-1,3-Dichloropropene	5.44	ug/L	1.0	109	77	145			
Ethylbenzene	5.72	ug/L	1.0	114	78	131			
Methyl tert-butyl ether (MTBE)	4.92	ug/L	1.0	98	58	151			
Methylene chloride	4.88	ug/L	1.0	98	73	126			
Naphthalene	4.32	ug/L	1.0	86	55	139			
Styrene	5.80	ug/L	1.0	116	76	134			
1,1,1,2-Tetrachloroethane	5.92	ug/L	1.0	118	75	135			
1,1,2,2-Tetrachloroethane	5.04	ug/L	1.0	101	72	132			
Tetrachloroethene	6.44	ug/L	1.0	129	78	137			
Toluene	5.68	ug/L	1.0	114	78	134			
1,1,1-Trichloroethane	5.28	ug/L	1.0	106	64	141			
1,1,2-Trichloroethane	5.64	ug/L	1.0	113	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	4.44	ug/L	1.0	89	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.56	ug/L	1.0	131	60	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-024A_MS	Sample Matrix Spike				Run: SV5972.I_150618A			06/19/15 17:28	
1,2,3-Trichloropropane	5.52	ug/L	1.0	110	67	133			
Vinyl chloride	4.40	ug/L	1.0	88	66	140			
m+p-Xylenes	11.4	ug/L	1.0	114	78	133			
o-Xylene	5.72	ug/L	1.0	114	79	136			
Xylenes, Total	17.2	ug/L	1.0	114	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061441-024A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 17:57	
Benzene	4.84	ug/L	1.0	97	71	133	5.6	20	
Bromobenzene	5.64	ug/L	1.0	113	78	133	1.4	20	
Bromochloromethane	5.80	ug/L	1.0	116	68	131	6.0	20	
Bromodichloromethane	5.52	ug/L	1.0	110	67	138	0.7	20	
Bromoform	5.20	ug/L	1.0	104	64	136	3.0	20	
Bromomethane	4.44	ug/L	1.0	89	60	138	9.4	20	
Carbon tetrachloride	4.88	ug/L	1.0	98	61	144	9.4	20	
Chlorobenzene	5.52	ug/L	1.0	110	78	136	4.9	20	
Chlorodibromomethane	5.84	ug/L	1.0	117	72	136	3.4	20	
Chloroethane	4.04	ug/L	1.0	81	64	136	1.1	20	
Chloroform	4.88	ug/L	1.0	98	69	133	5.6	20	
Chloromethane	3.16	ug/L	1.0	63	63	149	7.2	20	
1,2-Dibromoethane	5.60	ug/L	1.0	112	75	131	2.1	20	
2-Chlorotoluene	5.36	ug/L	1.0	107	74	135	5.1	20	
Dibromomethane	5.80	ug/L	1.0	116	72	133	3.4	20	
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129	1.4	20	
4-Chlorotoluene	4.84	ug/L	1.0	97	79	135	0.8	20	
1,3-Dichlorobenzene	5.52	ug/L	1.0	110	79	132	0.7	20	
1,4-Dichlorobenzene	5.16	ug/L	1.0	103	78	131	2.3	20	
Dichlorodifluoromethane	4.96	ug/L	1.0	99	55	141	5.8	20	
1,1-Dichloroethane	5.16	ug/L	1.0	103	72	130	8.9	20	
1,2-Dichloroethane	4.88	ug/L	1.0	98	57	146	1.6	20	
1,1-Dichloroethene	4.92	ug/L	1.0	98	66	142	13	20	
cis-1,2-Dichloroethene	5.28	ug/L	1.0	106	74	133	7.3	20	
trans-1,2-Dichloroethene	5.72	ug/L	1.0	114	76	138	11	20	
1,2-Dichloropropane	5.20	ug/L	1.0	104	72	135	3.0	20	
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134	6.7	20	
2,2-Dichloropropane	4.80	ug/L	1.0	96	42	167	7.2	20	
1,1-Dichloropropene	5.12	ug/L	1.0	102	72	140	6.1	20	
cis-1,3-Dichloropropene	4.96	ug/L	1.0	99	75	132	4.0	20	
trans-1,3-Dichloropropene	5.20	ug/L	1.0	104	77	145	4.5	20	
Ethylbenzene	5.52	ug/L	1.0	110	78	131	3.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-024A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 17:57	
Methyl tert-butyl ether (MTBE)	4.60	ug/L	1.0	92	58	151	6.7	20	
Methylene chloride	4.28	ug/L	1.0	86	73	126	13	20	
Naphthalene	4.80	ug/L	1.0	96	55	139	11	20	
Styrene	5.68	ug/L	1.0	114	76	134	2.1	20	
1,1,1,2-Tetrachloroethane	5.64	ug/L	1.0	113	75	135	4.8	20	
1,1,2,2-Tetrachloroethane	4.80	ug/L	1.0	96	72	132	4.9	20	
Tetrachloroethene	6.12	ug/L	1.0	122	78	137	5.1	20	
Toluene	5.40	ug/L	1.0	108	78	134	5.1	20	
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	64	141	4.7	20	
1,1,2-Trichloroethane	5.48	ug/L	1.0	110	72	133	2.9	20	
Trichloroethene	5.72	ug/L	1.0	114	75	138	0.0	20	
Trichlorofluoromethane	4.68	ug/L	1.0	94	58	139	5.3	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.32	ug/L	1.0	126	60	140	3.7	20	
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133	1.5	20	
Vinyl chloride	4.56	ug/L	1.0	91	66	140	3.6	20	
m+p-Xylenes	11.0	ug/L	1.0	110	78	133	3.9	20	
o-Xylene	5.52	ug/L	1.0	110	79	136	3.6	20	
Xylenes, Total	16.5	ug/L	1.0	110	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244951
Lab ID: CCV-062215	Continuing Calibration Verification Standard								06/22/15 16:02
Benzene	5.12	ug/L	1.0	102	70	130			
Bromobenzene	5.68	ug/L	1.0	114	70	130			
Bromochloromethane	5.80	ug/L	1.0	116	70	130			
Bromodichloromethane	5.32	ug/L	1.0	106	70	130			
Bromoform	5.44	ug/L	1.0	109	70	130			
Bromomethane	5.44	ug/L	1.0	109	70	130			
Carbon tetrachloride	5.12	ug/L	1.0	102	70	130			
Chlorobenzene	5.56	ug/L	1.0	111	70	130			
Chlorodibromomethane	5.64	ug/L	1.0	113	70	130			
Chloroethane	5.08	ug/L	1.0	102	70	130			
Chloroform	4.96	ug/L	1.0	99	80	120			
Chloromethane	4.44	ug/L	1.0	89	70	130			
1,2-Dibromoethane	5.64	ug/L	1.0	113	70	130			
2-Chlorotoluene	5.52	ug/L	1.0	110	70	130			
Dibromomethane	5.52	ug/L	1.0	110	70	130			
1,2-Dichlorobenzene	5.56	ug/L	1.0	111	70	130			
4-Chlorotoluene	4.96	ug/L	1.0	99	70	130			
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	70	130			
1,4-Dichlorobenzene	5.12	ug/L	1.0	102	70	130			
Dichlorodifluoromethane	6.44	ug/L	1.0	129	70	130			
1,1-Dichloroethane	5.40	ug/L	1.0	108	70	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	70	130			
1,1-Dichloroethene	5.12	ug/L	1.0	102	80	120			
cis-1,2-Dichloroethene	5.40	ug/L	1.0	108	70	130			
trans-1,2-Dichloroethene	5.92	ug/L	1.0	118	70	130			
1,2-Dichloropropane	5.32	ug/L	1.0	106	80	120			
1,3-Dichloropropane	5.44	ug/L	1.0	109	70	130			
2,2-Dichloropropane	5.76	ug/L	1.0	115	70	130			
1,1-Dichloropropene	5.04	ug/L	1.0	101	70	130			
cis-1,3-Dichloropropene	5.32	ug/L	1.0	106	70	130			
trans-1,3-Dichloropropene	5.12	ug/L	1.0	102	70	130			
Ethylbenzene	5.52	ug/L	1.0	110	80	120			
Methyl tert-butyl ether (MTBE)	5.48	ug/L	1.0	110	70	130			
Methylene chloride	4.56	ug/L	1.0	91	70	130			
Naphthalene	3.61	ug/L	1.0	72	70	130			
Styrene	5.52	ug/L	1.0	110	70	130			
1,1,1,2-Tetrachloroethane	5.56	ug/L	1.0	111	70	130			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	70	130			
Tetrachloroethene	6.24	ug/L	1.0	125	70	130			
Toluene	5.60	ug/L	1.0	112	80	120			
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	70	130			
1,1,2-Trichloroethane	5.52	ug/L	1.0	110	70	130			
Trichloroethene	5.72	ug/L	1.0	114	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244951
Lab ID: CCV-062215	Continuing Calibration Verification Standard								06/22/15 16:02
Trichlorofluoromethane	5.44	ug/L	1.0	109	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.84	ug/L	1.0	117	70	130			
1,2,3-Trichloropropane	5.20	ug/L	1.0	104	70	130			
Vinyl chloride	5.52	ug/L	1.0	110	80	120			
m+p-Xylenes	11.2	ug/L	1.0	112	70	130			
o-Xylene	5.44	ug/L	1.0	109	70	130			
Xylenes, Total	16.6	ug/L	1.0	111	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Method: SW8260B									Batch: R244951
Lab ID: LCS-062215	Laboratory Control Sample				Run: SV5972.I_150622A				06/22/15 16:35
Benzene	4.72	ug/L	1.0	94	71	133			
Bromobenzene	5.32	ug/L	1.0	106	78	133			
Bromochloromethane	5.60	ug/L	1.0	112	68	131			
Bromodichloromethane	5.20	ug/L	1.0	104	67	138			
Bromoform	5.28	ug/L	1.0	106	64	136			
Bromomethane	4.56	ug/L	1.0	91	60	138			
Carbon tetrachloride	4.76	ug/L	1.0	95	61	144			
Chlorobenzene	5.28	ug/L	1.0	106	78	136			
Chlorodibromomethane	5.44	ug/L	1.0	109	72	136			
Chloroethane	4.12	ug/L	1.0	82	64	136			
Chloroform	4.68	ug/L	1.0	94	69	133			
Chloromethane	3.20	ug/L	1.0	64	63	149			
1,2-Dibromoethane	5.32	ug/L	1.0	106	75	131			
2-Chlorotoluene	5.44	ug/L	1.0	109	74	135			
Dibromomethane	5.52	ug/L	1.0	110	72	133			
1,2-Dichlorobenzene	5.44	ug/L	1.0	109	78	129			
4-Chlorotoluene	4.80	ug/L	1.0	96	79	135			
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	79	132			
1,4-Dichlorobenzene	5.20	ug/L	1.0	104	78	131			
Dichlorodifluoromethane	4.48	ug/L	1.0	90	55	141			
1,1-Dichloroethane	5.00	ug/L	1.0	100	72	130			
1,2-Dichloroethane	4.52	ug/L	1.0	90	57	146			
1,1-Dichloroethene	4.88	ug/L	1.0	98	66	142			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138			
1,2-Dichloropropane	4.92	ug/L	1.0	98	72	135			
1,3-Dichloropropane	4.96	ug/L	1.0	99	75	134			
2,2-Dichloropropane	5.04	ug/L	1.0	101	42	167			
1,1-Dichloropropene	4.96	ug/L	1.0	99	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: LCS-062215	Laboratory Control Sample				Run: SV5972.I_150622A				06/22/15 16:35
cis-1,3-Dichloropropene	5.08	ug/L	1.0	102	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.28	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.44	ug/L	1.0	89	58	151			
Methylene chloride	4.16	ug/L	1.0	83	73	126			
Naphthalene	4.20	ug/L	1.0	84	55	139			
Styrene	5.36	ug/L	1.0	107	76	134			
1,1,1,2-Tetrachloroethane	5.44	ug/L	1.0	109	75	135			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	72	132			
Tetrachloroethene	5.92	ug/L	1.0	118	78	137			
Toluene	5.24	ug/L	1.0	105	78	134			
1,1,1-Trichloroethane	4.72	ug/L	1.0	94	64	141			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	72	133			
Trichloroethene	5.40	ug/L	1.0	108	75	138			
Trichlorofluoromethane	4.24	ug/L	1.0	85	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	7.12	ug/L	1.0	142	60	140			S
1,2,3-Trichloropropane	5.12	ug/L	1.0	102	67	133			
Vinyl chloride	4.36	ug/L	1.0	87	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.28	ug/L	1.0	106	79	136			
Xylenes, Total	16.1	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	107	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: MB-062215	Method Blank				Run: SV5972.I_150622A				06/22/15 17:34
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: MB-062215	Method Blank				Run: SV5972.I_150622A				06/22/15 17:34
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	1.79	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	107	76	127			
Surr: Toluene-d8			1.0	118	79	122			
Lab ID: B15061457-028A_MS	Sample Matrix Spike				Run: SV5972.I_150622A				06/23/15 01:26
Benzene	920	ug/L	100	92	71	133			
Bromobenzene	1020	ug/L	100	102	78	133			
Bromochloromethane	1160	ug/L	100	116	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: B15061457-028A_MS	Sample Matrix Spike				Run: SV5972.I_150622A				06/23/15 01:26
Bromodichloromethane	1100	ug/L	100	110	67	138			
Bromoform	1020	ug/L	100	102	64	136			
Bromomethane	1000	ug/L	100	100	60	138			
Carbon tetrachloride	872	ug/L	100	87	61	144			
Chlorobenzene	1010	ug/L	100	101	78	136			
Chlorodibromomethane	1170	ug/L	100	117	72	136			
Chloroethane	984	ug/L	100	98	64	136			
Chloroform	960	ug/L	100	96	69	133			
Chloromethane	771	ug/L	100	77	63	149			
1,2-Dibromoethane	1140	ug/L	100	114	75	131			
2-Chlorotoluene	952	ug/L	100	95	74	135			
Dibromomethane	1170	ug/L	100	117	72	133			
1,2-Dichlorobenzene	976	ug/L	100	98	78	129			
4-Chlorotoluene	816	ug/L	100	82	79	135			
1,3-Dichlorobenzene	936	ug/L	100	94	79	132			
1,4-Dichlorobenzene	904	ug/L	100	90	78	131			
Dichlorodifluoromethane	1030	ug/L	100	103	55	141			
1,1-Dichloroethane	1020	ug/L	100	102	72	130			
1,2-Dichloroethane	984	ug/L	100	98	57	146			
1,1-Dichloroethene	904	ug/L	100	90	66	142			
cis-1,2-Dichloroethene	1040	ug/L	100	104	74	133			
trans-1,2-Dichloroethene	1060	ug/L	100	106	76	138			
1,2-Dichloropropane	1060	ug/L	100	106	72	135			
1,3-Dichloropropane	1060	ug/L	100	106	75	134			
2,2-Dichloropropane	688	ug/L	100	69	42	167			
1,1-Dichloropropene	888	ug/L	100	89	72	140			
cis-1,3-Dichloropropene	968	ug/L	100	97	75	132			
trans-1,3-Dichloropropene	1010	ug/L	100	101	77	145			
Ethylbenzene	976	ug/L	100	98	78	131			
Methyl tert-butyl ether (MTBE)	1020	ug/L	100	102	58	151			
Methylene chloride	936	ug/L	100	94	73	126			
Naphthalene	670	ug/L	100	67	55	139			
Styrene	1010	ug/L	100	101	76	134			
1,1,1,2-Tetrachloroethane	1120	ug/L	100	112	75	135			
1,1,2,2-Tetrachloroethane	968	ug/L	100	97	72	132			
Tetrachloroethene	1780	ug/L	100	114	78	137			
Toluene	1010	ug/L	100	101	78	134			
1,1,1-Trichloroethane	920	ug/L	100	92	64	141			
1,1,2-Trichloroethane	1140	ug/L	100	114	72	133			
Trichloroethene	1030	ug/L	100	103	75	138			
Trichlorofluoromethane	1010	ug/L	100	101	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	1100	ug/L	100	110	60	140			
1,2,3-Trichloropropane	1060	ug/L	100	106	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Batch: R244951	
Lab ID: B15061457-028A_MS	Sample Matrix Spike				Run: SV5972.I_150622A			06/23/15 01:26	
Vinyl chloride	1050	ug/L	100	105	66	140			
m+p-Xylenes	1960	ug/L	100	98	78	133			
o-Xylene	968	ug/L	100	97	79	136			
Xylenes, Total	2930	ug/L	100	98	78	136			
Surr: 1,2-Dichloroethane-d4			200	110	70	130			
Surr: Dibromofluoromethane			200	116	77	126			
Surr: p-Bromofluorobenzene			200	97	76	127			
Surr: Toluene-d8			200	116	79	122			
Lab ID: B15061457-028A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150622A			06/23/15 01:55	
Benzene	944	ug/L	100	94	71	133	2.6	20	
Bromobenzene	1060	ug/L	100	106	78	133	4.6	20	
Bromochloromethane	1190	ug/L	100	119	68	131	2.7	20	
Bromodichloromethane	1120	ug/L	100	112	67	138	2.2	20	
Bromoform	1120	ug/L	100	112	64	136	9.7	20	
Bromomethane	742	ug/L	100	74	60	138	30	20	R
Carbon tetrachloride	888	ug/L	100	89	61	144	1.8	20	
Chlorobenzene	1080	ug/L	100	108	78	136	6.9	20	
Chlorodibromomethane	1210	ug/L	100	121	72	136	3.4	20	
Chloroethane	570	ug/L	100	57	64	136	53	20	SR
Chloroform	984	ug/L	100	98	69	133	2.5	20	
Chloromethane	482	ug/L	100	48	63	149	46	20	SR
1,2-Dibromoethane	1150	ug/L	100	115	75	131	1.4	20	
2-Chlorotoluene	1020	ug/L	100	102	74	135	6.5	20	
Dibromomethane	1230	ug/L	100	123	72	133	5.3	20	
1,2-Dichlorobenzene	1090	ug/L	100	109	78	129	11	20	
4-Chlorotoluene	896	ug/L	100	90	79	135	9.3	20	
1,3-Dichlorobenzene	1030	ug/L	100	103	79	132	9.8	20	
1,4-Dichlorobenzene	1010	ug/L	100	101	78	131	11	20	
Dichlorodifluoromethane	603	ug/L	100	60	55	141	52	20	R
1,1-Dichloroethane	1020	ug/L	100	102	72	130	0.0	20	
1,2-Dichloroethane	984	ug/L	100	98	57	146	0.0	20	
1,1-Dichloroethene	936	ug/L	100	94	66	142	3.5	20	
cis-1,2-Dichloroethene	1030	ug/L	100	103	74	133	0.8	20	
trans-1,2-Dichloroethene	1100	ug/L	100	110	76	138	3.7	20	
1,2-Dichloropropane	1070	ug/L	100	107	72	135	1.5	20	
1,3-Dichloropropane	1120	ug/L	100	112	75	134	5.9	20	
2,2-Dichloropropane	685	ug/L	100	68	42	167	0.5	20	
1,1-Dichloropropene	904	ug/L	100	90	72	140	1.8	20	
cis-1,3-Dichloropropene	1000	ug/L	100	100	75	132	3.3	20	
trans-1,3-Dichloropropene	1030	ug/L	100	103	77	145	2.4	20	
Ethylbenzene	1010	ug/L	100	101	78	131	3.2	20	
Methyl tert-butyl ether (MTBE)	1040	ug/L	100	104	58	151	2.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/25/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061441

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: B15061457-028A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150622A			06/23/15 01:55	
Methylene chloride	912	ug/L	100	91	73	126	2.6	20	
Naphthalene	824	ug/L	100	82	55	139	21	20	R
Styrene	1060	ug/L	100	106	76	134	4.7	20	
1,1,1,2-Tetrachloroethane	1150	ug/L	100	115	75	135	2.8	20	
1,1,2,2-Tetrachloroethane	1080	ug/L	100	108	72	132	11	20	
Tetrachloroethene	1800	ug/L	100	116	78	137	1.3	20	
Toluene	1030	ug/L	100	103	78	134	2.4	20	
1,1,1-Trichloroethane	920	ug/L	100	92	64	141	0.0	20	
1,1,2-Trichloroethane	1180	ug/L	100	118	72	133	3.4	20	
Trichloroethene	1050	ug/L	100	105	75	138	1.5	20	
Trichlorofluoromethane	582	ug/L	100	58	58	139	54	20	R
1,1,2-Trichloro-1,2,2-trifluoroethane	1150	ug/L	100	115	60	140	4.3	20	
1,2,3-Trichloropropane	1180	ug/L	100	118	67	133	11	20	
Vinyl chloride	610	ug/L	100	61	66	140	53	20	SR
m+p-Xylenes	2070	ug/L	100	104	78	133	5.6	20	
o-Xylene	1020	ug/L	100	102	79	136	4.8	20	
Xylenes, Total	3090	ug/L	100	103	78	136			
Surr: 1,2-Dichloroethane-d4			200	104	70	130			
Surr: Dibromofluoromethane			200	117	77	126			
Surr: p-Bromofluorobenzene			200	100	76	127			
Surr: Toluene-d8			200	117	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

S - Spike recovery outside of advisory limits.

SAMPLE ID: **B15061441-003A** 6/24/2015

CATIONS	mg/L	meq/L	ANIONS	mg/L	meq/L
Acidity(as CaCO3)			Cl	**17**	0.47
Ca	**48**	2.40	SO4	**70**	1.45
Mg	**11**	0.94	T. Alkalinity	**190**	3.80
K	**3**	0.08	HCO3	232	
Na	**51**	2.21	CO3	<1	
Al					
Fe					
Mn					
Hardness (as CaCO3)	167		OH	<1	
Hardness, grains/gal.	9.77		NO3	**0.9**	0.06
NH4+			PO4		
Si	**7.9**		F	**0.6**	0.03
Other Metals			CN		
Hardness (Ca as CaCO3)	120		Br	**<0.1**	0.00
Total Cations		5.62	Total Anions		5.82

BALANCE, %	-1.72
BALANCE, "sigma"	1.00

	Measured	Calculated
Sample pH		
Conductivity (umho/cm)	**559**	527
TDS	**309**	340
TDS Ratio	0.91	

Salinity	0.28
Cl as NaCl	27
Carbonate Hardness	167
Non-carbonate Hardness	0
Free CO2	
Total CO2	
SAR	1.71
Langlier Saturation Index	
Ryznar Index	
Aggressive Index	
Temp	20

Estimated Ionic Strength (from Cond) 0.008944

Anion/Cation Balance (%)		**-1.72**	Range ± 5%
Anion/Cation Difference (meq/L)		**0.20**	
EC/Cation Ratio		**0.99**	Range 0.8 - 1.2
EC/Anion Ratio		**0.96**	Range 0.8 - 1.2
EC/Calc EC Ratio		**1.06**	Range 0.8 - 1.2
Conductivity		**TDS/Calc TDS Ratio**	
559	SC<1000	**0.91**	Range 0.9 - 1.2

Sample B15061441-003A Reported in Run MISC-WC CALC_150624B

SAMPLE ID: **B15061441-004A** 6/24/2015

CATIONS	mg/L	meq/L	ANIONS	mg/L	meq/L
Acidity(as CaCO3)			Cl	**18**	0.50
Ca	**82**	4.09	SO4	**112**	2.33
Mg	**21**	1.71	T. Alkalinity	**235**	4.70
K	**3**	0.07	HCO3	287	
Na	**40**	1.76	CO3	<1	
Al					
Fe					
Mn					
Hardness (as CaCO3)	290		OH	<1	
Hardness, grains/gal.	17.0		NO3	**1.5**	0.10
NH4+			PO4		
Si	**8.2**		F	**0.6**	0.03
Other Metals			CN		
Hardness (Ca as CaCO3)	205		Br	**<0.1**	0.00
Total Cations		7.63	Total Anions		7.67

BALANCE, %	-0.23
BALANCE, "sigma"	0.16

	Measured	Calculated
Sample pH		
Conductivity (umho/cm)	**716**	698
TDS	**431**	446
TDS Ratio	0.97	

Salinity	0.36
Cl as NaCl	29
Carbonate Hardness	235
Non-carbonate Hardness	55
Free CO2	
Total CO2	
SAR	1.03
Langlier Saturation Index	
Ryznar Index	
Aggressive Index	
Temp	20

Estimated Ionic Strength (from Cond) 0.011456

Anion/Cation Balance (%)		**-0.23**	Range ± 5%
Anion/Cation Difference (meq/L)		**0.04**	
EC/Cation Ratio		**0.94**	Range 0.8 - 1.2
EC/Anion Ratio		**0.93**	Range 0.8 - 1.2
EC/Calc EC Ratio		**1.03**	Range 0.8 - 1.2
Conductivity		**TDS/Calc TDS Ratio**	
716	SC<1000	**0.97**	Range 0.9 - 1.2

Sample B15061441-004A Reported in Run MISC-WC CALC_150624B

SAMPLE ID: **B15061441-021A** 6/24/2015

CATIONS	mg/L	meq/L	ANIONS	mg/L	meq/L
Acidity(as CaCO3)			Cl	**17**	0.49
Ca	**74**	3.70	SO4	**67**	1.39
Mg	**17**	1.41	T. Alkalinity	**245**	4.90
K	**2**	0.05	HCO3	299	
Na	**38**	1.67	CO3	<1	
Al					
Fe					
Mn					
Hardness (as CaCO3)	256		OH	<1	
Hardness, grains/gal.	14.9		NO3	**2.5**	0.18
NH4+			PO4		
Si	**9.6**		F	**0.5**	0.03
Other Metals			CN		
Hardness (Ca as CaCO3)	185		Br	**<0.1**	0.00
Total Cations		6.82	Total Anions		6.99

BALANCE, %	-1.18
BALANCE, "sigma"	0.76

	Measured	Calculated
Sample pH		
Conductivity (umho/cm)	**658**	620
TDS	**394**	400
TDS Ratio	0.99	

Salinity	0.33
Cl as NaCl	29
Carbonate Hardness	245
Non-carbonate Hardness	10
Free CO2	
Total CO2	
SAR	1.04
Langlier Saturation Index	
Ryznar Index	
Aggressive Index	
Temp	20

Estimated Ionic Strength (from Cond) 0.010528

Anion/Cation Balance (%)		**-1.18**	Range ± 5%
Anion/Cation Difference (meq/L)		**0.16**	
EC/Cation Ratio		**0.96**	Range 0.8 - 1.2
EC/Anion Ratio		**0.94**	Range 0.8 - 1.2
EC/Calc EC Ratio		**1.06**	Range 0.8 - 1.2
Conductivity		**TDS/Calc TDS Ratio**	
658	SC<1000	**0.99**	Range 0.9 - 1.2

Sample B15061441-021A Reported in Run MISC-WC CALC_150624B

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061441

Login completed by:	Randa Nees	Date Received:	6/16/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/17/2015	Carrier name:	Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temp Blank temperature for Cooler 1 was 2.6°C and Cooler 2 was 1.5°C.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH — Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp: SEE ABOVE °C
On Ice: (Yes) No
Custody Seal: (Y) N
Intact: (Y) N
Signature Match: (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	TB2-061215	6/12/15	0800	1 - W	X										X			L15061441-001
2	D1_061215	6/12/15	0800	3 - W	X										X			002
3	14-4_061215	6/12/15	0815	6 - W	X	X	X	X	X	X	X				X			003
4	14-3_061215	6/12/15	0845	6 - W	X	X	X	X	X	X	X				X			004
5	13-10_061215	6/12/15	0925	3 - W	X										X			005
6	10-2_061215	6/1215	0945	3 - W	X										X			006
7	10-1_061215	6/12/15	1005	3 - W	X										X			007
8	L-87-2_061215	6/12/15	1105	3 - W	X										X			008
9																		
10																		

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

RUSH: Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp TB SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	TB1_061215	6/12/15	0730	1 - W	X										X			B1506141-009
2	LIV_061215	6/12/15	0835	3 - W	X										X			010
3	12-1 Port 1_061215	6/12/15	0838	3 - W	X										X			011
4	12-1 Port 2_061215	6/12/15	0843	3 - W	X										X			012
5	12-1 Port 3_061215	6/12/15	0846	3 - W	X										X			013
6	12-1 Port 4_061215	6/12/15	1325	3 - W	X										X			014
7	12-1 Port 5_061215	6/12/15	0850	3 - W	X										X			015
8	12-10_061215	6/12/15	0945	3 - W	X										X			016
9	13-4_061215	6/12/15	1030	3 - W	X										X			017
10	13-5_061215	6/12/15	1110	3 - W	X										X			018

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____ Lab Disposal: _____			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00am	Signature:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH	
1	13-6_061215	6/12/15	1205	3 - W	X										X		
2	13-7_061215	6/12/15	1305	3 - W	X										X		
3	14-5_061215	6/12/15	1415	6 - W	X	X	X	X	X	X	X				X		
4	TB1_061515	6/15/15	0800	~~3~~ 1 - W	X												
5	LIV_061515	6/15/15	1135	3 -W	X												
6	11_061515	6/15/15	1200	3 -W	X												
7	12-8_061515	6/15/15	1255	3 - W	X												
8																	
9																	
10																	

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GRD RTN

Cooler ID(s): 1: 2.6 °C 2: 1.5 °C

Receipt Temp TB SEE ABOVE °C

On Ice: (Yes) No

Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

LABORATORY USE ONLY: B15D6,1441-019, 020, 021, 022, 023, 024, 025

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00am	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

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Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT(Electronic Data)
☐ POTW/WWTP Format:_____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
1	TB2_061515	6/15/15	0800	1 - W	X										X			1506144 1-026
2	D1_061515	6/15/15	0800	3 - W	X										X			027
3	90-2B_061515	6/15/15	1100	3 - W	X										X			028
4	10-6_061515	6/15/15	1135	3 - W	X										X			029
5	E-7_061515	6/15/15	1215	3 - W	X										X			030
6	ISCO-2_061515	6/15/15	1245	3 - W	X										X			031
7																		
8																		
9																		
10																		

RUSH

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GROUND

Cooler ID(s): 1: 2.6°C 2: 1.5°C

Receipt Temp TB SEE ABOVE °C

On Ice: (Yes) No

Custody Seal (Y) N C

Intact (Y) N

Signature Match (Y) N

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

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ANALYTICAL SUMMARY REPORT

June 26, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15061457 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - GWMD-2R

Energy Laboratories Inc Billings MT received the following 28 samples for Kennedy Jenks Consultants on 6/16/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15061457-001	TB1_061015	06/10/15 8:00	06/16/15	Trip Blank	8260-Volatile Organic Compounds-Short List
B15061457-002	RX_061015	06/10/15 13:15	06/16/15	Aqueous	Same As Above
B15061457-003	ISCO-7_061015	06/10/15 13:50	06/16/15	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Hardness as CaCO3 Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Preparation for TDS Solids, Total Dissolved 8260-Volatile Organic Compounds-Short List
B15061457-004	89-9_061015	06/10/15 14:45	06/16/15	Aqueous	8260-Volatile Organic Compounds-Short List
B15061457-005	MW-10_061015	06/10/15 16:30	06/16/15	Aqueous	Same As Above
B15061457-006	D1_061115	06/11/15 8:00	06/16/15	Aqueous	Same As Above
B15061457-007	D2_061115	06/11/15 8:00	06/16/15	Aqueous	Same As Above
B15061457-008	D3_061115	06/11/15 8:00	06/16/15	Aqueous	Same As Above
B15061457-009	RX_061115	06/11/15 8:00	06/16/15	Aqueous	Same As Above
B15061457-010	MW-5RR_061115	06/11/15 8:40	06/16/15	Aqueous	Same As Above
B15061457-011	TB2_061015	06/10/15 8:00	06/16/15	Trip Blank	Same As Above
B15061457-012	12-3_061015	06/10/15 12:20	06/16/15	Aqueous	Same As Above
B15061457-013	10-4_061015	06/10/15 12:50	06/16/15	Aqueous	Same As Above
B15061457-014	10-5_061015	06/10/15 13:25	06/16/15	Aqueous	Same As Above
B15061457-015	12-2-061015	06/10/15 17:15	06/16/15	Aqueous	Same As Above
B15061457-016	TB2_061115	06/11/15 8:00	06/16/15	Trip Blank	Same As Above
B15061457-017	ISCO-24R_061115	06/11/15 14:05	06/16/15	Aqueous	Same As Above
B15061457-018	10-8_061115	06/11/15 15:45	06/16/15	Aqueous	Same As Above
B15061457-019	92-2_061115	06/11/15 16:35	06/16/15	Aqueous	Same As Above
B15061457-020	12-5_061115	06/11/15 17:15	06/16/15	Aqueous	Same As Above
B15061457-021	90-3_061115	06/11/15 9:35	06/16/15	Aqueous	Same As Above
B15061457-022	89-1_061115	06/11/15 10:10	06/16/15	Aqueous	Same As Above

ANALYTICAL SUMMARY REPORT

B15061457-023	12-4_061115	06/11/15 11:10	06/16/15	Aqueous	Same As Above
B15061457-024	89-2_061115	06/11/15 11:55	06/16/15	Aqueous	Same As Above
B15061457-025	13-1_061115	06/11/15 12:55	06/16/15	Aqueous	Same As Above
B15061457-026	13-8_061115	06/11/15 13:35	06/16/15	Aqueous	Same As Above
B15061457-027	13-2_061115	06/11/15 14:20	06/16/15	Aqueous	Same As Above
B15061457-028	13-3_061115	06/11/15 16:35	06/16/15	Aqueous	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-001
Client Sample ID: TB1_061015

Report Date: 06/26/15
Collection Date: 06/10/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 20:01 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 20:01 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-001
Client Sample ID: TB1_061015

Report Date: 06/26/15
Collection Date: 06/10/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 20:01 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 20:01 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/22/15 20:01 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/22/15 20:01 / nl
Surr: Toluene-d8	117	%REC		79-122		SW8260B	06/22/15 20:01 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/22/15 20:01 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-002
Client Sample ID: RX_061015

Report Date: 06/26/15
Collection Date: 06/10/15 13:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 16:02 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 16:02 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Methylene chloride	0.23	ug/L	J	0.50		SW8260B	06/18/15 16:02 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-002
Client Sample ID: RX_061015

Report Date: 06/26/15
Collection Date: 06/10/15 13:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 16:02 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 16:02 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/18/15 16:02 / nl
Surr: 1,2-Dichloroethane-d4	91.0	%REC		70-130		SW8260B	06/18/15 16:02 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/18/15 16:02 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/18/15 16:02 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-003
Client Sample ID: ISCO-7_061015

Report Date: 06/26/15
Collection Date: 06/10/15 13:50
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	377	mg/L	D	20		A2540 C	06/17/15 09:52 / nae
INORGANICS							
Alkalinity, Total as CaCO3	227	mg/L		4		A2320 B	06/19/15 20:00 / ajr
Bicarbonate as HCO3	277	mg/L		4		A2320 B	06/19/15 20:00 / ajr
Carbonate as CO3	ND	mg/L		4		A2320 B	06/19/15 20:00 / ajr
Chloride	19	mg/L		1		E300.0	06/23/15 06:42 / rbf
Sulfate	72	mg/L		1		E300.0	06/23/15 06:42 / rbf
Hardness as CaCO3	249	mg/L		1		A2340 B	06/17/15 12:39 / meh
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	3.04	mg/L		0.01		E353.2	06/18/15 15:15 / bas
METALS, DISSOLVED							
Calcium	72	mg/L		1		E200.7	06/17/15 12:39 / prw
Iron	ND	mg/L		0.02		E200.7	06/17/15 12:39 / prw
Magnesium	17	mg/L		1		E200.7	06/17/15 12:39 / prw
Potassium	2	mg/L		1		E200.7	06/17/15 12:39 / prw
Sodium	38	mg/L		1		E200.7	06/17/15 12:39 / prw
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 16:31 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-003
Client Sample ID: ISCO-7_061015

Report Date: 06/26/15
Collection Date: 06/10/15 13:50
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 16:31 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 16:31 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 16:31 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/18/15 16:31 / nl
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	06/18/15 16:31 / nl
Surr: Toluene-d8	111	%REC		79-122		SW8260B	06/18/15 16:31 / nl
Surr: p-Bromofluorobenzene	105	%REC		76-127		SW8260B	06/18/15 16:31 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-004
Client Sample ID: 89-9_061015

Report Date: 06/26/15
Collection Date: 06/10/15 14:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 17:01 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
cis-1,2-Dichloroethene	0.15	ug/L	J	0.50		SW8260B	06/18/15 17:01 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 17:01 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Tetrachloroethene	18	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Trichloroethene	0.50	ug/L		0.50		SW8260B	06/18/15 17:01 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-004
Client Sample ID: 89-9_061015

Report Date: 06/26/15
Collection Date: 06/10/15 14:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 17:01 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 17:01 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/18/15 17:01 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/18/15 17:01 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/18/15 17:01 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/18/15 17:01 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-005
Client Sample ID: MW-10_061015

Report Date: 06/26/15
Collection Date: 06/10/15 16:30
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Bromodichloromethane	0.45	ug/L	J	0.50		SW8260B	06/18/15 17:30 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Chloroform	1.1	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 17:30 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 17:30 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Tetrachloroethene	0.66	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-005
Client Sample ID: MW-10_061015

Report Date: 06/26/15
Collection Date: 06/10/15 16:30
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 17:30 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 17:30 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 17:30 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/18/15 17:30 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/18/15 17:30 / nl
Surr: p-Bromofluorobenzene	105	%REC		76-127		SW8260B	06/18/15 17:30 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-006
Client Sample ID: D1_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Chlorobenzene	0.12	ug/L	J	0.50		SW8260B	06/19/15 12:32 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 12:32 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
cis-1,2-Dichloroethene	1.1	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 12:32 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Methylene chloride	0.22	ug/L	J	0.50		SW8260B	06/19/15 12:32 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Tetrachloroethene	6.2	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Trichloroethene	1.5	ug/L		0.50		SW8260B	06/19/15 12:32 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-006
Client Sample ID: D1_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 12:32 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 12:32 / nl
Surr: Dibromofluoromethane	111	%REC		77-126		SW8260B	06/19/15 12:32 / nl
Surr: 1,2-Dichloroethane-d4	103	%REC		70-130		SW8260B	06/19/15 12:32 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/19/15 12:32 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/19/15 12:32 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-007
Client Sample ID: D2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 13:01 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 13:01 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Methylene chloride	0.19	ug/L	J	0.50		SW8260B	06/19/15 13:01 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-007
Client Sample ID: D2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 13:01 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 13:01 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/19/15 13:01 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/19/15 13:01 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/19/15 13:01 / nl
Surr: p-Bromofluorobenzene	109	%REC		76-127		SW8260B	06/19/15 13:01 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-008
Client Sample ID: D3_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/20/15 01:17 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/20/15 01:17 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Tetrachloroethene	670	ug/L		100		SW8260B	06/23/15 00:27 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Trichloroethene	2.6	ug/L		0.50		SW8260B	06/20/15 01:17 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-008
Client Sample ID: D3_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/20/15 01:17 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/20/15 01:17 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/20/15 01:17 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/20/15 01:17 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/20/15 01:17 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/20/15 01:17 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-009
Client Sample ID: RX_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 19:25 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 19:25 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Methylene chloride	0.25	ug/L	J	0.50		SW8260B	06/19/15 19:25 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-009
Client Sample ID: RX_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 19:25 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 19:25 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/19/15 19:25 / nl
Surr: 1,2-Dichloroethane-d4	100	%REC		70-130		SW8260B	06/19/15 19:25 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 19:25 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/19/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-010
Client Sample ID: MW-5RR_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:40
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Chlorobenzene	0.12	ug/L	J	0.50		SW8260B	06/19/15 19:54 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 19:54 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
cis-1,2-Dichloroethene	1.1	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 19:54 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Tetrachloroethene	7.5	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Trichloroethene	1.7	ug/L		0.50		SW8260B	06/19/15 19:54 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-010
Client Sample ID: MW-5RR_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:40
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 19:54 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 19:54 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 19:54 / nl
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	06/19/15 19:54 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 19:54 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/19/15 19:54 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-011
Client Sample ID: TB2_061015

Report Date: 06/26/15
Collection Date: 06/10/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 20:30 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 20:30 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-011
Client Sample ID: TB2_061015

Report Date: 06/26/15
Collection Date: 06/10/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 20:30 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 20:30 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/22/15 20:30 / nl
Surr: 1,2-Dichloroethane-d4	97.0	%REC		70-130		SW8260B	06/22/15 20:30 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/22/15 20:30 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/22/15 20:30 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-012
Client Sample ID: 12-3_061015

Report Date: 06/26/15
Collection Date: 06/10/15 12:20
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Bromodichloromethane	0.41	ug/L	J	0.50		SW8260B	06/18/15 17:58 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Chloroform	0.30	ug/L	J	0.50		SW8260B	06/18/15 17:58 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 17:58 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 17:58 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-012
Client Sample ID: 12-3_061015

Report Date: 06/26/15
Collection Date: 06/10/15 12:20
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 17:58 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 17:58 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 17:58 / nl
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	06/18/15 17:58 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/18/15 17:58 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/18/15 17:58 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-013
Client Sample ID: 10-4_061015

Report Date: 06/26/15
Collection Date: 06/10/15 12:50
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 19:25 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
cis-1,2-Dichloroethene	0.35	ug/L	J	0.50		SW8260B	06/18/15 19:25 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 19:25 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Tetrachloroethene	38	ug/L		5.0		SW8260B	06/18/15 06:14 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Trichloroethene	2.1	ug/L		0.50		SW8260B	06/18/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-013
Client Sample ID: 10-4_061015

Report Date: 06/26/15
Collection Date: 06/10/15 12:50
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 19:25 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 19:25 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/18/15 19:25 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/18/15 19:25 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/18/15 19:25 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/18/15 19:25 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-014
Client Sample ID: 10-5_061015

Report Date: 06/26/15
Collection Date: 06/10/15 13:25
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 18:27 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
cis-1,2-Dichloroethene	0.17	ug/L	J	0.50		SW8260B	06/18/15 18:27 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 18:27 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-014
Client Sample ID: 10-5_061015

Report Date: 06/26/15
Collection Date: 06/10/15 13:25
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 18:27 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 18:27 / nl
Surr: Dibromofluoromethane	104	%REC		77-126		SW8260B	06/18/15 18:27 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/18/15 18:27 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/18/15 18:27 / nl
Surr: p-Bromofluorobenzene	107	%REC		76-127		SW8260B	06/18/15 18:27 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-015
Client Sample ID: 12-2-061015

Report Date: 06/26/15
Collection Date: 06/10/15 17:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 18:56 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 18:56 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-015
Client Sample ID: 12-2-061015

Report Date: 06/26/15
Collection Date: 06/10/15 17:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 18:56 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 18:56 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/18/15 18:56 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/18/15 18:56 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/18/15 18:56 / nl
Surr: p-Bromofluorobenzene	107	%REC		76-127		SW8260B	06/18/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-016
Client Sample ID: TB2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/22/15 21:00 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/22/15 21:00 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-016
Client Sample ID: TB2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 08:00
DateReceived: 06/16/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/22/15 21:00 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/22/15 21:00 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/22/15 21:00 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/22/15 21:00 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/22/15 21:00 / nl
Surr: p-Bromofluorobenzene	110	%REC		76-127		SW8260B	06/22/15 21:00 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-017
Client Sample ID: ISCO-24R_061115

Report Date: 06/26/15
Collection Date: 06/11/15 14:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 19:54 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 19:54 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Tetrachloroethene	126	ug/L		5.0		SW8260B	06/18/15 06:43 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Trichloroethene	0.56	ug/L		0.50		SW8260B	06/18/15 19:54 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-017
Client Sample ID: ISCO-24R_061115

Report Date: 06/26/15
Collection Date: 06/11/15 14:05
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 19:54 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 19:54 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	06/18/15 19:54 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/18/15 19:54 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/18/15 19:54 / nl
Surr: p-Bromofluorobenzene	105	%REC		76-127		SW8260B	06/18/15 19:54 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-018
Client Sample ID: 10-8_061115

Report Date: 06/26/15
Collection Date: 06/11/15 15:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 18:56 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 18:56 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Tetrachloroethene	0.15	ug/L	J	0.50		SW8260B	06/19/15 18:56 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-018
Client Sample ID: 10-8_061115

Report Date: 06/26/15
Collection Date: 06/11/15 15:45
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 18:56 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 18:56 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 18:56 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/19/15 18:56 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/19/15 18:56 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/19/15 18:56 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-019
Client Sample ID: 92-2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 16:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 20:53 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
cis-1,2-Dichloroethene	0.12	ug/L	J	0.50		SW8260B	06/18/15 20:53 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 20:53 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Tetrachloroethene	4.4	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Trichloroethene	0.27	ug/L	J	0.50		SW8260B	06/18/15 20:53 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-019
Client Sample ID: 92-2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 16:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 20:53 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 20:53 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 20:53 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/18/15 20:53 / nl
Surr: Toluene-d8	115	%REC		79-122		SW8260B	06/18/15 20:53 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/18/15 20:53 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-020
Client Sample ID: 12-5_061115

Report Date: 06/26/15
Collection Date: 06/11/15 17:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 21:22 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 21:22 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-020
Client Sample ID: 12-5_061115

Report Date: 06/26/15
Collection Date: 06/11/15 17:15
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 21:22 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 21:22 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 21:22 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/18/15 21:22 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/18/15 21:22 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/18/15 21:22 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-021
Client Sample ID: 90-3_061115

Report Date: 06/26/15
Collection Date: 06/11/15 09:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 21:51 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
cis-1,2-Dichloroethene	0.60	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 21:51 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Tetrachloroethene	15	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Trichloroethene	1.0	ug/L		0.50		SW8260B	06/18/15 21:51 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-021
Client Sample ID: 90-3_061115

Report Date: 06/26/15
Collection Date: 06/11/15 09:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 21:51 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 21:51 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 21:51 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/18/15 21:51 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/18/15 21:51 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/18/15 21:51 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-022
Client Sample ID: 89-1_061115

Report Date: 06/26/15
Collection Date: 06/11/15 10:10
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 22:21 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 22:21 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Tetrachloroethene	1.0	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-022
Client Sample ID: 89-1_061115

Report Date: 06/26/15
Collection Date: 06/11/15 10:10
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 22:21 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 22:21 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/18/15 22:21 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/18/15 22:21 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/18/15 22:21 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/18/15 22:21 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-023
Client Sample ID: 12-4_061115

Report Date: 06/26/15
Collection Date: 06/11/15 11:10
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 22:50 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 22:50 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-023
Client Sample ID: 12-4_061115

Report Date: 06/26/15
Collection Date: 06/11/15 11:10
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 22:50 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 22:50 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 22:50 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	06/18/15 22:50 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/18/15 22:50 / nl
Surr: p-Bromofluorobenzene	105	%REC		76-127		SW8260B	06/18/15 22:50 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-024
Client Sample ID: 89-2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 11:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 23:19 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 23:19 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-024
Client Sample ID: 89-2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 11:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 23:19 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 23:19 / nl
Surr: Dibromofluoromethane	106	%REC		77-126		SW8260B	06/18/15 23:19 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/18/15 23:19 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/18/15 23:19 / nl
Surr: p-Bromofluorobenzene	108	%REC		76-127		SW8260B	06/18/15 23:19 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-025
Client Sample ID: 13-1_061115

Report Date: 06/26/15
Collection Date: 06/11/15 12:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/18/15 23:49 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/18/15 23:49 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-025
Client Sample ID: 13-1_061115

Report Date: 06/26/15
Collection Date: 06/11/15 12:55
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/18/15 23:49 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/18/15 23:49 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/18/15 23:49 / nl
Surr: 1,2-Dichloroethane-d4	94.0	%REC		70-130		SW8260B	06/18/15 23:49 / nl
Surr: Toluene-d8	112	%REC		79-122		SW8260B	06/18/15 23:49 / nl
Surr: p-Bromofluorobenzene	105	%REC		76-127		SW8260B	06/18/15 23:49 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-026
Client Sample ID: 13-8_061115

Report Date: 06/26/15
Collection Date: 06/11/15 13:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 04:42 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 04:42 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-026
Client Sample ID: 13-8_061115

Report Date: 06/26/15
Collection Date: 06/11/15 13:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 04:42 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 04:42 / nl
Surr: Dibromofluoromethane	107	%REC		77-126		SW8260B	06/19/15 04:42 / nl
Surr: 1,2-Dichloroethane-d4	95.0	%REC		70-130		SW8260B	06/19/15 04:42 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 04:42 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/19/15 04:42 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-027
Client Sample ID: 13-2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 14:20
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/19/15 05:11 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/19/15 05:11 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Tetrachloroethene	1.1	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Trichloroethene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-027
Client Sample ID: 13-2_061115

Report Date: 06/26/15
Collection Date: 06/11/15 14:20
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/19/15 05:11 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/19/15 05:11 / nl
Surr: Dibromofluoromethane	105	%REC		77-126		SW8260B	06/19/15 05:11 / nl
Surr: 1,2-Dichloroethane-d4	96.0	%REC		70-130		SW8260B	06/19/15 05:11 / nl
Surr: Toluene-d8	114	%REC		79-122		SW8260B	06/19/15 05:11 / nl
Surr: p-Bromofluorobenzene	127	%REC		76-127		SW8260B	06/19/15 05:11 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-028
Client Sample ID: 13-3_061115

Report Date: 06/26/15
Collection Date: 06/11/15 16:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Bromoform	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Chloroform	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	06/20/15 01:47 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	06/20/15 01:47 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Styrene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Tetrachloroethene	638	ug/L		100		SW8260B	06/23/15 00:56 / nl
Toluene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Trichloroethene	2.6	ug/L		0.50		SW8260B	06/20/15 01:47 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - GWMD-2R
Lab ID: B15061457-028
Client Sample ID: 13-3_061115

Report Date: 06/26/15
Collection Date: 06/11/15 16:35
DateReceived: 06/16/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	06/20/15 01:47 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	06/20/15 01:47 / nl
Surr: Dibromofluoromethane	110	%REC		77-126		SW8260B	06/20/15 01:47 / nl
Surr: 1,2-Dichloroethane-d4	99.0	%REC		70-130		SW8260B	06/20/15 01:47 / nl
Surr: Toluene-d8	113	%REC		79-122		SW8260B	06/20/15 01:47 / nl
Surr: p-Bromofluorobenzene	106	%REC		76-127		SW8260B	06/20/15 01:47 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

DATES REPORT

Work Order: B15061457
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/26/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061457-001A	TB1_061015	6/10/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061457-002A	RX_061015	6/10/2015 1:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-003A	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Alkalinity		NA	6/19/2015
B15061457-003A	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Anions by Ion Chromatography		NA	6/23/2015
B15061457-003A	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Solids, Total Dissolved		06/17/2015 A2540 C [90575]	6/17/2015
B15061457-003B	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Hardness as CaCO3		NA	6/17/2015
B15061457-003B	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Hardness as CaCO3		NA	6/18/2015
B15061457-003B	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Metals by ICP/ICPMS, Dissolved		NA	6/17/2015
B15061457-003C	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	Nitrogen, Nitrate + Nitrite		NA	6/18/2015
B15061457-003D	ISCO-7_061015	6/10/2015 1:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-004A	89-9_061015	6/10/2015 2:45:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-005A	MW-10_061015	6/10/2015 4:30:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-006A	D1_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-006A	D1_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/17/2015
B15061457-007A	D2_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/17/2015
B15061457-007A	D2_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-008A	D3_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/17/2015
B15061457-008A	D3_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/20/2015
B15061457-008A	D3_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/23/2015
B15061457-009A	RX_061115	6/11/2015 8:00:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-010A	MW-5RR_061115	6/11/2015 8:40:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-011A	TB2_061015	6/10/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061457-012A	12-3_061015	6/10/2015 12:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-013A	10-4_061015	6/10/2015 12:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015

DATES REPORT

Work Order: B15061457
Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex -
Report Date: 06/26/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15061457-013A	10-4_061015	6/10/2015 12:50:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-014A	10-5_061015	6/10/2015 1:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-015A	12-2-061015	6/10/2015 5:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-016A	TB2_061115	6/11/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	6/22/2015
B15061457-017A	ISCO-24R_061115	6/11/2015 2:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-017A	ISCO-24R_061115	6/11/2015 2:05:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-018A	10-8_061115	6/11/2015 3:45:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-018A	10-8_061115	6/11/2015 3:45:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-019A	92-2_061115	6/11/2015 4:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-020A	12-5_061115	6/11/2015 5:15:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-021A	90-3_061115	6/11/2015 9:35:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-022A	89-1_061115	6/11/2015 10:10:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-023A	12-4_061115	6/11/2015 11:10:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-024A	89-2_061115	6/11/2015 11:55:00 AM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-025A	13-1_061115	6/11/2015 12:55:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-026A	13-8_061115	6/11/2015 1:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-027A	13-2_061115	6/11/2015 2:20:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/19/2015
B15061457-028A	13-3_061115	6/11/2015 4:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/23/2015
B15061457-028A	13-3_061115	6/11/2015 4:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/18/2015
B15061457-028A	13-3_061115	6/11/2015 4:35:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	6/20/2015

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R244856
Lab ID: MBLK		Method Blank				Run: MAN-TECH_150619B			06/19/15 18:15	
Alkalinity, Total as CaCO3		ND	mg/L	1.0						
Lab ID: LCS		Laboratory Control Sample				Run: MAN-TECH_150619B			06/19/15 18:22	
Alkalinity, Total as CaCO3		101	mg/L	4.0	101	90	110			
Lab ID: B15061325-019AMS		Sample Matrix Spike				Run: MAN-TECH_150619B			06/19/15 18:52	
Alkalinity, Total as CaCO3		637	mg/L	4.0	91	80	120			
Lab ID: B15061457-003ADUP	3	Sample Duplicate				Run: MAN-TECH_150619B			06/19/15 20:06	
Alkalinity, Total as CaCO3		229	mg/L	4.0				0.9	10	
Bicarbonate as HCO3		280	mg/L	4.0				0.9	10	
Carbonate as CO3		ND	mg/L	4.0					10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C										Batch: 90575
Lab ID: MB-90575		Method Blank				Run: BAL #SD-15_150617B				06/17/15 09:45
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-90575		Laboratory Control Sample				Run: BAL #SD-15_150617B				06/17/15 09:45
Solids, Total Dissolved TDS @ 180 C		1010	mg/L	10	104	90	110			
Lab ID: B15061332-005A DUP		Sample Duplicate				Run: BAL #SD-15_150617B				06/17/15 09:51
Solids, Total Dissolved TDS @ 180 C		2750	mg/L	46				2.7	5	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**E300.0**							Analytical Run: IC METROHM 2_150622A			
Lab ID:	**ICV**	2	Initial Calibration Verification Standard							06/22/15 12:03	
Chloride			2.21	mg/L	1.0	98	90	110			
Sulfate			8.68	mg/L	1.0	96	90	110			
Method:	**E300.0**									Batch: R244928	
Lab ID:	**MB**	2	Method Blank				Run: IC METROHM 2_150622A			06/22/15 11:49	
Chloride			0.10	mg/L	0.02						
Sulfate			ND	mg/L	0.2						
Lab ID:	**LFB**	2	Laboratory Fortified Blank				Run: IC METROHM 2_150622A			06/22/15 12:16	
Chloride			2.97	mg/L	1.0	96	90	110			
Sulfate			8.82	mg/L	1.0	98	90	110			
Lab ID:	**B15061500-001AMS**	2	Sample Matrix Spike				Run: IC METROHM 2_150622A			06/23/15 07:49	
Chloride			15.5	mg/L	1.0	95	90	110			
Sulfate			47.4	mg/L	1.0	98	90	110			
Lab ID:	**B15061500-001AMSD**	2	Sample Matrix Spike Duplicate				Run: IC METROHM 2_150622A			06/23/15 08:02	
Chloride			15.4	mg/L	1.0	94	90	110	0.8	20	
Sulfate			47.1	mg/L	1.0	97	90	110	0.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA203-B_150618B	
Lab ID: ICV		Initial Calibration Verification Standard							06/18/15 12:29	
Nitrogen, Nitrate+Nitrite as N		0.558	mg/L	0.010	99	90	110			
Method: E353.2									Batch: R244737	
Lab ID: MBLK		Method Blank				Run: FIA203-B_150618B			06/18/15 12:30	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.010						
Lab ID: LFB		Laboratory Fortified Blank				Run: FIA203-B_150618B			06/18/15 12:31	
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.010	101	90	110			
Lab ID: B15061506-001AMS		Sample Matrix Spike				Run: FIA203-B_150618B			06/18/15 16:04	
Nitrogen, Nitrate+Nitrite as N		7.02	mg/L	0.020	100	90	110			
Lab ID: B15061506-001AMSD		Sample Matrix Spike Duplicate				Run: FIA203-B_150618B			06/18/15 16:05	
Nitrogen, Nitrate+Nitrite as N		7.04	mg/L	0.020	101	90	110	0.3	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP203-B_150617A	
Lab ID: ICV	5	Continuing Calibration Verification Standard							06/17/15 10:54	
Calcium		24.6	mg/L	1.0	99	95	105			
Iron		2.47	mg/L	0.020	99	95	105			
Magnesium		24.5	mg/L	1.0	98	95	105			
Potassium		24.3	mg/L	1.0	97	95	105			
Sodium		24.6	mg/L	1.0	99	95	105			
Method: E200.7										Batch: R244651
Lab ID: MB-6500DIS150617A	5	Method Blank				Run: ICP203-B_150617A			06/17/15 11:01	
Calcium		ND	mg/L	0.08						
Iron		0.006	mg/L	0.003						
Magnesium		ND	mg/L	0.006						
Potassium		ND	mg/L	0.04						
Sodium		ND	mg/L	0.01						
Lab ID: LFB-6500DIS150617A	5	Laboratory Fortified Blank				Run: ICP203-B_150617A			06/17/15 11:05	
Calcium		49.1	mg/L	1.0	98	85	115			
Iron		4.98	mg/L	0.020	99	85	115			
Magnesium		49.2	mg/L	1.0	98	85	115			
Potassium		48.8	mg/L	1.0	98	85	115			
Sodium		50.5	mg/L	1.0	101	85	115			
Lab ID: B15061360-001CMS2	5	Sample Matrix Spike				Run: ICP203-B_150617A			06/17/15 12:32	
Calcium		246	mg/L	1.0	96	70	130			
Iron		10.0	mg/L	0.020	99	70	130			
Magnesium		161	mg/L	1.0	102	70	130			
Potassium		102	mg/L	1.0	97	70	130			
Sodium		191	mg/L	1.0	104	70	130			
Lab ID: B15061360-001CMSD	5	Sample Matrix Spike Duplicate				Run: ICP203-B_150617A			06/17/15 12:35	
Calcium		240	mg/L	1.0	90	70	130	2.4	20	
Iron		9.79	mg/L	0.020	97	70	130	2.5	20	
Magnesium		158	mg/L	1.0	99	70	130	2.0	20	
Potassium		99.1	mg/L	1.0	94	70	130	2.8	20	
Sodium		187	mg/L	1.0	100	70	130	2.2	20	
Lab ID: B15061466-001BMS2	5	Sample Matrix Spike				Run: ICP203-B_150617A			06/17/15 12:46	
Calcium		63.4	mg/L	1.0	92	70	130			
Iron		4.73	mg/L	0.020	94	70	130			
Magnesium		54.2	mg/L	1.0	97	70	130			
Potassium		47.8	mg/L	1.0	92	70	130			
Sodium		55.2	mg/L	1.0	100	70	130			
Lab ID: B15061466-001BMSD	5	Sample Matrix Spike Duplicate				Run: ICP203-B_150617A			06/17/15 12:49	
Calcium		66.4	mg/L	1.0	98	70	130	4.6	20	
Iron		4.97	mg/L	0.020	99	70	130	4.8	20	
Magnesium		56.8	mg/L	1.0	102	70	130	4.8	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/24/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **E200.7**									Batch: R244651	
Lab ID: **B15061466-001BMSD**	5	Sample Matrix Spike Duplicate				Run: ICP203-B_150617A			06/17/15 12:49	
Potassium		50.1	mg/L	1.0	97	70	130	4.8	20	
Sodium		58.2	mg/L	1.0	106	70	130	5.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244660
Lab ID: CCV-A-061715	Continuing Calibration Verification Standard								06/17/15 23:25
Tetrachloroethene	5.64	ug/L	1.0	113	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Method: SW8260B									Batch: R244660
Lab ID: LCS-A-061715	Laboratory Control Sample				Run: SV5972.I_150617A				06/17/15 23:54
Tetrachloroethene	5.92	ug/L	1.0	118	78	137			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-A-061715	Method Blank				Run: SV5972.I_150617A				06/18/15 00:52
Tetrachloroethene	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	106	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061441-015A_MS	Sample Matrix Spike				Run: SV5972.I_150617A				06/18/15 10:32
Tetrachloroethene	88.8	ug/L	5.0	116	78	137			
Surr: 1,2-Dichloroethane-d4			10	96	70	130			
Surr: Dibromofluoromethane			10	108	77	126			
Surr: p-Bromofluorobenzene			10	100	76	127			
Surr: Toluene-d8			10	114	79	122			
Lab ID: B15061441-015A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150617A				06/18/15 10:56
Tetrachloroethene	88.0	ug/L	5.0	114	78	137	0.9	20	
Surr: 1,2-Dichloroethane-d4			10	96	70	130			
Surr: Dibromofluoromethane			10	109	77	126			
Surr: p-Bromofluorobenzene			10	100	76	127			
Surr: Toluene-d8			10	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244748
Lab ID: CCV-061815	Continuing Calibration Verification Standard								06/18/15 13:36
Benzene	4.80	ug/L	1.0	96	70	130			
Bromobenzene	5.40	ug/L	1.0	108	70	130			
Bromochloromethane	5.52	ug/L	1.0	110	70	130			
Bromodichloromethane	4.88	ug/L	1.0	98	70	130			
Bromoform	5.08	ug/L	1.0	102	70	130			
Bromomethane	5.76	ug/L	1.0	115	70	130			
Carbon tetrachloride	4.76	ug/L	1.0	95	70	130			
Chlorobenzene	5.36	ug/L	1.0	107	70	130			
Chlorodibromomethane	5.12	ug/L	1.0	102	70	130			
Chloroethane	5.60	ug/L	1.0	112	70	130			
Chloroform	4.72	ug/L	1.0	94	80	120			
Chloromethane	4.12	ug/L	1.0	82	70	130			
1,2-Dibromoethane	5.12	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.32	ug/L	1.0	106	70	130			
Dibromomethane	5.40	ug/L	1.0	108	70	130			
1,2-Dichlorobenzene	5.32	ug/L	1.0	106	70	130			
4-Chlorotoluene	4.76	ug/L	1.0	95	70	130			
1,3-Dichlorobenzene	5.16	ug/L	1.0	103	70	130			
1,4-Dichlorobenzene	4.96	ug/L	1.0	99	70	130			
Dichlorodifluoromethane	6.44	ug/L	1.0	129	70	130			
1,1-Dichloroethane	4.84	ug/L	1.0	97	70	130			
1,2-Dichloroethane	4.40	ug/L	1.0	88	70	130			
1,1-Dichloroethene	5.08	ug/L	1.0	102	80	120			
cis-1,2-Dichloroethene	5.16	ug/L	1.0	103	70	130			
trans-1,2-Dichloroethene	5.76	ug/L	1.0	115	70	130			
1,2-Dichloropropane	4.84	ug/L	1.0	97	80	120			
1,3-Dichloropropane	5.08	ug/L	1.0	102	70	130			
2,2-Dichloropropane	5.00	ug/L	1.0	100	70	130			
1,1-Dichloropropene	4.80	ug/L	1.0	96	70	130			
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	70	130			
trans-1,3-Dichloropropene	4.32	ug/L	1.0	86	70	130			
Ethylbenzene	5.28	ug/L	1.0	106	80	120			
Methyl tert-butyl ether (MTBE)	4.80	ug/L	1.0	96	70	130			
Methylene chloride	4.40	ug/L	1.0	88	70	130			
Naphthalene	3.93	ug/L	1.0	79	70	130			
Styrene	5.28	ug/L	1.0	106	70	130			
1,1,1,2-Tetrachloroethane	5.28	ug/L	1.0	106	70	130			
1,1,2,2-Tetrachloroethane	4.44	ug/L	1.0	89	70	130			
Tetrachloroethene	5.88	ug/L	1.0	118	70	130			
Toluene	5.24	ug/L	1.0	105	80	120			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	70	130			
1,1,2-Trichloroethane	5.08	ug/L	1.0	102	70	130			
Trichloroethene	5.44	ug/L	1.0	109	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Analytical Run: R244748	
Lab ID: CCV-061815	Continuing Calibration Verification Standard							06/18/15 13:36	
Trichlorofluoromethane	5.76	ug/L	1.0	115	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.56	ug/L	1.0	111	70	130			
1,2,3-Trichloropropane	4.92	ug/L	1.0	98	70	130			
Vinyl chloride	5.60	ug/L	1.0	112	80	120			
m+p-Xylenes	10.7	ug/L	1.0	107	70	130			
o-Xylene	5.36	ug/L	1.0	107	70	130			
Xylenes, Total	16.1	ug/L	1.0	107	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	93	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: CCV-A-061815	Continuing Calibration Verification Standard							06/19/15 02:45	
Benzene	4.72	ug/L	1.0	94	70	130			
Bromobenzene	5.40	ug/L	1.0	108	70	130			
Bromochloromethane	5.48	ug/L	1.0	110	70	130			
Bromodichloromethane	4.80	ug/L	1.0	96	70	130			
Bromoform	4.80	ug/L	1.0	96	70	130			
Bromomethane	5.20	ug/L	1.0	104	70	130			
Carbon tetrachloride	4.76	ug/L	1.0	95	70	130			
Chlorobenzene	5.24	ug/L	1.0	105	70	130			
Chlorodibromomethane	5.24	ug/L	1.0	105	70	130			
Chloroethane	5.20	ug/L	1.0	104	70	130			
Chloroform	4.68	ug/L	1.0	94	80	120			
Chloromethane	4.00	ug/L	1.0	80	70	130			
1,2-Dibromoethane	5.04	ug/L	1.0	101	70	130			
2-Chlorotoluene	5.16	ug/L	1.0	103	70	130			
Dibromomethane	5.20	ug/L	1.0	104	70	130			
1,2-Dichlorobenzene	5.20	ug/L	1.0	104	70	130			
4-Chlorotoluene	4.60	ug/L	1.0	92	70	130			
1,3-Dichlorobenzene	5.08	ug/L	1.0	102	70	130			
1,4-Dichlorobenzene	4.92	ug/L	1.0	98	70	130			
Dichlorodifluoromethane	6.88	ug/L	1.0	138	70	130			S
1,1-Dichloroethane	4.84	ug/L	1.0	97	70	130			
1,2-Dichloroethane	4.36	ug/L	1.0	87	70	130			
1,1-Dichloroethene	4.80	ug/L	1.0	96	80	120			
cis-1,2-Dichloroethene	5.00	ug/L	1.0	100	70	130			
trans-1,2-Dichloroethene	5.44	ug/L	1.0	109	70	130			
1,2-Dichloropropane	4.80	ug/L	1.0	96	80	120			
1,3-Dichloropropane	4.88	ug/L	1.0	98	70	130			
2,2-Dichloropropane	4.28	ug/L	1.0	86	70	130			
1,1-Dichloropropene	4.64	ug/L	1.0	93	70	130			
cis-1,3-Dichloropropene	4.52	ug/L	1.0	90	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244748
Lab ID: CCV-A-061815	Continuing Calibration Verification Standard								06/19/15 02:45
trans-1,3-Dichloropropene	4.24	ug/L	1.0	85	70	130			
Ethylbenzene	5.16	ug/L	1.0	103	80	120			
Methyl tert-butyl ether (MTBE)	4.88	ug/L	1.0	98	70	130			
Methylene chloride	4.24	ug/L	1.0	85	70	130			
Naphthalene	3.61	ug/L	1.0	72	70	130			
Styrene	5.16	ug/L	1.0	103	70	130			
1,1,1,2-Tetrachloroethane	5.24	ug/L	1.0	105	70	130			
1,1,2,2-Tetrachloroethane	4.20	ug/L	1.0	84	70	130			
Tetrachloroethene	5.96	ug/L	1.0	119	70	130			
Toluene	5.16	ug/L	1.0	103	80	120			
1,1,1-Trichloroethane	4.80	ug/L	1.0	96	70	130			
1,1,2-Trichloroethane	5.08	ug/L	1.0	102	70	130			
Trichloroethene	5.36	ug/L	1.0	107	70	130			
Trichlorofluoromethane	5.84	ug/L	1.0	117	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.60	ug/L	1.0	112	70	130			
1,2,3-Trichloropropane	4.88	ug/L	1.0	98	70	130			
Vinyl chloride	5.56	ug/L	1.0	111	80	120			
m+p-Xylenes	10.3	ug/L	1.0	103	70	130			
o-Xylene	5.24	ug/L	1.0	105	70	130			
Xylenes, Total	15.6	ug/L	1.0	104	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: CCV-B-061815	Continuing Calibration Verification Standard								06/19/15 15:32
Benzene	4.68	ug/L	1.0	94	70	130			
Bromobenzene	5.28	ug/L	1.0	106	70	130			
Bromochloromethane	5.52	ug/L	1.0	110	70	130			
Bromodichloromethane	4.88	ug/L	1.0	98	70	130			
Bromoform	4.84	ug/L	1.0	97	70	130			
Bromomethane	4.68	ug/L	1.0	94	70	130			
Carbon tetrachloride	4.72	ug/L	1.0	94	70	130			
Chlorobenzene	5.24	ug/L	1.0	105	70	130			
Chlorodibromomethane	5.16	ug/L	1.0	103	70	130			
Chloroethane	5.16	ug/L	1.0	103	70	130			
Chloroform	4.72	ug/L	1.0	94	80	120			
Chloromethane	4.20	ug/L	1.0	84	70	130			
1,2-Dibromoethane	5.24	ug/L	1.0	105	70	130			
2-Chlorotoluene	5.12	ug/L	1.0	102	70	130			
Dibromomethane	5.36	ug/L	1.0	107	70	130			
1,2-Dichlorobenzene	5.20	ug/L	1.0	104	70	130			
4-Chlorotoluene	4.68	ug/L	1.0	94	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244748
Lab ID: CCV-B-061815	Continuing Calibration Verification Standard								06/19/15 15:32
1,3-Dichlorobenzene	5.04	ug/L	1.0	101	70	130			
1,4-Dichlorobenzene	4.92	ug/L	1.0	98	70	130			
Dichlorodifluoromethane	6.64	ug/L	1.0	133	70	130			S
1,1-Dichloroethane	5.00	ug/L	1.0	100	70	130			
1,2-Dichloroethane	4.40	ug/L	1.0	88	70	130			
1,1-Dichloroethene	5.08	ug/L	1.0	102	80	120			
cis-1,2-Dichloroethene	5.04	ug/L	1.0	101	70	130			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	70	130			
1,2-Dichloropropane	4.80	ug/L	1.0	96	80	120			
1,3-Dichloropropane	5.00	ug/L	1.0	100	70	130			
2,2-Dichloropropane	4.60	ug/L	1.0	92	70	130			
1,1-Dichloropropene	4.68	ug/L	1.0	94	70	130			
cis-1,3-Dichloropropene	4.64	ug/L	1.0	93	70	130			
trans-1,3-Dichloropropene	4.44	ug/L	1.0	89	70	130			
Ethylbenzene	5.20	ug/L	1.0	104	80	120			
Methyl tert-butyl ether (MTBE)	5.36	ug/L	1.0	107	70	130			
Methylene chloride	4.56	ug/L	1.0	91	70	130			
Naphthalene	3.78	ug/L	1.0	76	70	130			
Styrene	5.20	ug/L	1.0	104	70	130			
1,1,1,2-Tetrachloroethane	5.24	ug/L	1.0	105	70	130			
1,1,2,2-Tetrachloroethane	4.40	ug/L	1.0	88	70	130			
Tetrachloroethene	5.72	ug/L	1.0	114	70	130			
Toluene	5.24	ug/L	1.0	105	80	120			
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	70	130			
1,1,2-Trichloroethane	5.04	ug/L	1.0	101	70	130			
Trichloroethene	5.24	ug/L	1.0	105	70	130			
Trichlorofluoromethane	5.76	ug/L	1.0	115	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.08	ug/L	1.0	102	70	130			
1,2,3-Trichloropropane	5.12	ug/L	1.0	102	70	130			
Vinyl chloride	5.56	ug/L	1.0	111	80	120			
m+p-Xylenes	10.2	ug/L	1.0	102	70	130			
o-Xylene	5.12	ug/L	1.0	102	70	130			
Xylenes, Total	15.4	ug/L	1.0	102	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Method: SW8260B									Batch: R244748
Lab ID: LCS-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/18/15 14:05
Benzene	4.88	ug/L	1.0	98	71	133			
Bromobenzene	5.68	ug/L	1.0	114	78	133			
Bromochloromethane	5.76	ug/L	1.0	115	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/18/15 14:05
Bromodichloromethane	5.32	ug/L	1.0	106	67	138			
Bromoform	5.60	ug/L	1.0	112	64	136			
Bromomethane	6.24	ug/L	1.0	125	60	138			
Carbon tetrachloride	4.92	ug/L	1.0	98	61	144			
Chlorobenzene	5.48	ug/L	1.0	110	78	136			
Chlorodibromomethane	5.60	ug/L	1.0	112	72	136			
Chloroethane	5.44	ug/L	1.0	109	64	136			
Chloroform	4.84	ug/L	1.0	97	69	133			
Chloromethane	4.12	ug/L	1.0	82	63	149			
1,2-Dibromoethane	5.52	ug/L	1.0	110	75	131			
2-Chlorotoluene	5.68	ug/L	1.0	114	74	135			
Dibromomethane	5.60	ug/L	1.0	112	72	133			
1,2-Dichlorobenzene	5.68	ug/L	1.0	114	78	129			
4-Chlorotoluene	5.08	ug/L	1.0	102	79	135			
1,3-Dichlorobenzene	5.60	ug/L	1.0	112	79	132			
1,4-Dichlorobenzene	5.44	ug/L	1.0	109	78	131			
Dichlorodifluoromethane	6.44	ug/L	1.0	129	55	141			
1,1-Dichloroethane	5.12	ug/L	1.0	102	72	130			
1,2-Dichloroethane	4.76	ug/L	1.0	95	57	146			
1,1-Dichloroethene	5.24	ug/L	1.0	105	66	142			
cis-1,2-Dichloroethene	5.36	ug/L	1.0	107	74	133			
trans-1,2-Dichloroethene	6.00	ug/L	1.0	120	76	138			
1,2-Dichloropropane	5.08	ug/L	1.0	102	72	135			
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134			
2,2-Dichloropropane	4.92	ug/L	1.0	98	42	167			
1,1-Dichloropropene	5.20	ug/L	1.0	104	72	140			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	75	132			
trans-1,3-Dichloropropene	4.84	ug/L	1.0	97	77	145			
Ethylbenzene	5.56	ug/L	1.0	111	78	131			
Methyl tert-butyl ether (MTBE)	5.00	ug/L	1.0	100	58	151			
Methylene chloride	4.48	ug/L	1.0	90	73	126			
Naphthalene	4.88	ug/L	1.0	98	55	139			
Styrene	5.76	ug/L	1.0	115	76	134			
1,1,1,2-Tetrachloroethane	5.60	ug/L	1.0	112	75	135			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	72	132			
Tetrachloroethene	6.04	ug/L	1.0	121	78	137			
Toluene	5.44	ug/L	1.0	109	78	134			
1,1,1-Trichloroethane	5.00	ug/L	1.0	100	64	141			
1,1,2-Trichloroethane	5.36	ug/L	1.0	107	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	5.64	ug/L	1.0	113	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.68	ug/L	1.0	134	60	140			
1,2,3-Trichloropropane	5.56	ug/L	1.0	111	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/18/15 14:05
Vinyl chloride	5.56	ug/L	1.0	111	66	140			
m+p-Xylenes	11.0	ug/L	1.0	110	78	133			
o-Xylene	5.56	ug/L	1.0	111	79	136			
Xylenes, Total	16.6	ug/L	1.0	111	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-061815	Method Blank				Run: SV5972.I_150618A				06/18/15 15:03
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: MB-061815	Method Blank				Run: SV5972.I_150618A				06/18/15 15:03
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	93	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	110	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061457-002A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 00:18
Benzene	4.68	ug/L	1.0	94	71	133			
Bromobenzene	5.08	ug/L	1.0	102	78	133			
Bromochloromethane	5.64	ug/L	1.0	113	68	131			
Bromodichloromethane	5.08	ug/L	1.0	102	67	138			
Bromoform	4.92	ug/L	1.0	98	64	136			
Bromomethane	3.85	ug/L	1.0	77	60	138			
Carbon tetrachloride	4.80	ug/L	1.0	96	61	144			
Chlorobenzene	5.16	ug/L	1.0	103	78	136			
Chlorodibromomethane	5.52	ug/L	1.0	110	72	136			
Chloroethane	4.48	ug/L	1.0	90	64	136			
Chloroform	4.72	ug/L	1.0	94	69	133			
Chloromethane	3.12	ug/L	1.0	62	63	149			S
1,2-Dibromoethane	5.28	ug/L	1.0	106	75	131			
2-Chlorotoluene	4.92	ug/L	1.0	98	74	135			
Dibromomethane	5.32	ug/L	1.0	106	72	133			
1,2-Dichlorobenzene	5.04	ug/L	1.0	101	78	129			
4-Chlorotoluene	4.36	ug/L	1.0	87	79	135			
1,3-Dichlorobenzene	4.88	ug/L	1.0	98	79	132			
1,4-Dichlorobenzene	4.72	ug/L	1.0	94	78	131			
Dichlorodifluoromethane	5.40	ug/L	1.0	108	55	141			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061457-002A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 00:18
1,1-Dichloroethane	4.92	ug/L	1.0	98	72	130			
1,2-Dichloroethane	4.56	ug/L	1.0	91	57	146			
1,1-Dichloroethene	5.12	ug/L	1.0	102	66	142			
cis-1,2-Dichloroethene	5.12	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.64	ug/L	1.0	113	76	138			
1,2-Dichloropropane	4.88	ug/L	1.0	98	72	135			
1,3-Dichloropropane	4.92	ug/L	1.0	98	75	134			
2,2-Dichloropropane	4.84	ug/L	1.0	97	42	167			
1,1-Dichloropropene	4.92	ug/L	1.0	98	72	140			
cis-1,3-Dichloropropene	4.84	ug/L	1.0	97	75	132			
trans-1,3-Dichloropropene	5.04	ug/L	1.0	101	77	145			
Ethylbenzene	5.12	ug/L	1.0	102	78	131			
Methyl tert-butyl ether (MTBE)	4.92	ug/L	1.0	98	58	151			
Methylene chloride	4.40	ug/L	1.0	83	73	126			
Naphthalene	4.08	ug/L	1.0	82	55	139			
Styrene	5.40	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	5.48	ug/L	1.0	110	75	135			
1,1,2,2-Tetrachloroethane	4.48	ug/L	1.0	90	72	132			
Tetrachloroethene	5.80	ug/L	1.0	116	78	137			
Toluene	5.24	ug/L	1.0	105	78	134			
1,1,1-Trichloroethane	4.84	ug/L	1.0	97	64	141			
1,1,2-Trichloroethane	5.00	ug/L	1.0	100	72	133			
Trichloroethene	5.32	ug/L	1.0	106	75	138			
Trichlorofluoromethane	5.36	ug/L	1.0	107	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.84	ug/L	1.0	137	60	140			
1,2,3-Trichloropropane	5.20	ug/L	1.0	104	67	133			
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	10.3	ug/L	1.0	103	78	133			
o-Xylene	5.16	ug/L	1.0	103	79	136			
Xylenes, Total	15.4	ug/L	1.0	103	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	95	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: B15061457-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A				06/19/15 00:47
Benzene	4.76	ug/L	1.0	95	71	133	1.7	20	
Bromobenzene	5.76	ug/L	1.0	115	78	133	13	20	
Bromochloromethane	5.60	ug/L	1.0	112	68	131	0.7	20	
Bromodichloromethane	5.28	ug/L	1.0	106	67	138	3.9	20	
Bromoform	5.52	ug/L	1.0	110	64	136	11	20	
Bromomethane	4.56	ug/L	1.0	91	60	138	17	20	
Carbon tetrachloride	4.72	ug/L	1.0	94	61	144	1.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061457-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 00:47	
Chlorobenzene	5.32	ug/L	1.0	106	78	136	3.1	20	
Chlorodibromomethane	5.72	ug/L	1.0	114	72	136	3.6	20	
Chloroethane	4.52	ug/L	1.0	90	64	136	0.9	20	
Chloroform	4.72	ug/L	1.0	94	69	133	0.0	20	
Chloromethane	3.44	ug/L	1.0	69	63	149	9.7	20	
1,2-Dibromoethane	5.48	ug/L	1.0	110	75	131	3.7	20	
2-Chlorotoluene	5.28	ug/L	1.0	106	74	135	7.1	20	
Dibromomethane	5.48	ug/L	1.0	110	72	133	3.0	20	
1,2-Dichlorobenzene	5.40	ug/L	1.0	108	78	129	6.9	20	
4-Chlorotoluene	4.60	ug/L	1.0	92	79	135	5.4	20	
1,3-Dichlorobenzene	5.20	ug/L	1.0	104	79	132	6.3	20	
1,4-Dichlorobenzene	5.24	ug/L	1.0	105	78	131	10	20	
Dichlorodifluoromethane	5.60	ug/L	1.0	112	55	141	3.6	20	
1,1-Dichloroethane	4.96	ug/L	1.0	99	72	130	0.8	20	
1,2-Dichloroethane	4.64	ug/L	1.0	93	57	146	1.7	20	
1,1-Dichloroethene	5.04	ug/L	1.0	101	66	142	1.6	20	
cis-1,2-Dichloroethene	5.36	ug/L	1.0	107	74	133	4.6	20	
trans-1,2-Dichloroethene	5.76	ug/L	1.0	115	76	138	2.1	20	
1,2-Dichloropropane	4.88	ug/L	1.0	98	72	135	0.0	20	
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134	4.8	20	
2,2-Dichloropropane	4.76	ug/L	1.0	95	42	167	1.7	20	
1,1-Dichloropropene	4.88	ug/L	1.0	98	72	140	0.8	20	
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	75	132	5.6	20	
trans-1,3-Dichloropropene	5.24	ug/L	1.0	105	77	145	3.9	20	
Ethylbenzene	5.16	ug/L	1.0	103	78	131	0.8	20	
Methyl tert-butyl ether (MTBE)	5.12	ug/L	1.0	102	58	151	4.0	20	
Methylene chloride	4.48	ug/L	1.0	85	73	126	1.8	20	
Naphthalene	4.76	ug/L	1.0	95	55	139	15	20	
Styrene	5.40	ug/L	1.0	108	76	134	0.0	20	
1,1,1,2-Tetrachloroethane	5.60	ug/L	1.0	112	75	135	2.2	20	
1,1,2,2-Tetrachloroethane	5.08	ug/L	1.0	102	72	132	13	20	
Tetrachloroethene	5.64	ug/L	1.0	113	78	137	2.8	20	
Toluene	5.24	ug/L	1.0	105	78	134	0.0	20	
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	64	141	1.7	20	
1,1,2-Trichloroethane	5.28	ug/L	1.0	106	72	133	5.4	20	
Trichloroethene	5.48	ug/L	1.0	110	75	138	3.0	20	
Trichlorofluoromethane	5.36	ug/L	1.0	107	58	139	0.0	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.68	ug/L	1.0	134	60	140	2.4	20	
1,2,3-Trichloropropane	5.64	ug/L	1.0	113	67	133	8.1	20	
Vinyl chloride	5.16	ug/L	1.0	103	66	140	2.4	20	
m+p-Xylenes	10.2	ug/L	1.0	102	78	133	0.8	20	
o-Xylene	5.20	ug/L	1.0	104	79	136	0.8	20	
Xylenes, Total	15.4	ug/L	1.0	103	78	136			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061457-002A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A				06/19/15 00:47
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: LCS-A-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 03:14
Benzene	4.68	ug/L	1.0	94	71	133			
Bromobenzene	5.48	ug/L	1.0	110	78	133			
Bromochloromethane	5.76	ug/L	1.0	115	68	131			
Bromodichloromethane	5.12	ug/L	1.0	102	67	138			
Bromoform	5.20	ug/L	1.0	104	64	136			
Bromomethane	5.12	ug/L	1.0	102	60	138			
Carbon tetrachloride	4.64	ug/L	1.0	93	61	144			
Chlorobenzene	5.24	ug/L	1.0	105	78	136			
Chlorodibromomethane	5.68	ug/L	1.0	114	72	136			
Chloroethane	4.84	ug/L	1.0	97	64	136			
Chloroform	4.68	ug/L	1.0	94	69	133			
Chloromethane	3.43	ug/L	1.0	69	63	149			
1,2-Dibromoethane	5.28	ug/L	1.0	106	75	131			
2-Chlorotoluene	5.24	ug/L	1.0	105	74	135			
Dibromomethane	5.40	ug/L	1.0	108	72	133			
1,2-Dichlorobenzene	5.40	ug/L	1.0	108	78	129			
4-Chlorotoluene	4.56	ug/L	1.0	91	79	135			
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	79	132			
1,4-Dichlorobenzene	5.08	ug/L	1.0	102	78	131			
Dichlorodifluoromethane	5.04	ug/L	1.0	101	55	141			
1,1-Dichloroethane	5.04	ug/L	1.0	101	72	130			
1,2-Dichloroethane	4.68	ug/L	1.0	94	57	146			
1,1-Dichloroethene	5.08	ug/L	1.0	102	66	142			
cis-1,2-Dichloroethene	5.24	ug/L	1.0	105	74	133			
trans-1,2-Dichloroethene	5.72	ug/L	1.0	114	76	138			
1,2-Dichloropropane	4.80	ug/L	1.0	96	72	135			
1,3-Dichloropropane	5.08	ug/L	1.0	102	75	134			
2,2-Dichloropropane	4.16	ug/L	1.0	83	42	167			
1,1-Dichloropropene	4.76	ug/L	1.0	95	72	140			
cis-1,3-Dichloropropene	4.80	ug/L	1.0	96	75	132			
trans-1,3-Dichloropropene	4.88	ug/L	1.0	98	77	145			
Ethylbenzene	5.04	ug/L	1.0	101	78	131			
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151			
Methylene chloride	4.48	ug/L	1.0	90	73	126			
Naphthalene	4.64	ug/L	1.0	93	55	139			
Styrene	5.40	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	5.36	ug/L	1.0	107	75	135			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-A-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 03:14
1,1,2,2-Tetrachloroethane	4.44	ug/L	1.0	89	72	132			
Tetrachloroethene	5.76	ug/L	1.0	115	78	137			
Toluene	5.08	ug/L	1.0	102	78	134			
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	64	141			
1,1,2-Trichloroethane	5.28	ug/L	1.0	106	72	133			
Trichloroethene	5.36	ug/L	1.0	107	75	138			
Trichlorofluoromethane	4.88	ug/L	1.0	98	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.32	ug/L	1.0	126	60	140			
1,2,3-Trichloropropane	5.60	ug/L	1.0	112	67	133			
Vinyl chloride	4.92	ug/L	1.0	98	66	140			
m+p-Xylenes	10.0	ug/L	1.0	100	78	133			
o-Xylene	5.12	ug/L	1.0	102	79	136			
Xylenes, Total	15.2	ug/L	1.0	101	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	113	79	122			
Lab ID: MB-A-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 04:13
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: MB-A-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 04:13
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	93	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	109	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: B15061441-005A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 13:30
Benzene	4.48	ug/L	1.0	90	71	133			
Bromobenzene	4.92	ug/L	1.0	98	78	133			
Bromochloromethane	5.44	ug/L	1.0	109	68	131			
Bromodichloromethane	4.84	ug/L	1.0	97	67	138			
Bromoform	4.60	ug/L	1.0	92	64	136			
Bromomethane	3.92	ug/L	1.0	78	60	138			
Carbon tetrachloride	4.64	ug/L	1.0	93	61	144			
Chlorobenzene	5.08	ug/L	1.0	102	78	136			
Chlorodibromomethane	5.28	ug/L	1.0	106	72	136			
Chloroethane	5.28	ug/L	1.0	106	64	136			
Chloroform	4.60	ug/L	1.0	92	69	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-005A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 13:30
Chloromethane	3.15	ug/L	1.0	63	63	149			
1,2-Dibromoethane	5.08	ug/L	1.0	102	75	131			
2-Chlorotoluene	4.88	ug/L	1.0	98	74	135			
Dibromomethane	5.12	ug/L	1.0	102	72	133			
1,2-Dichlorobenzene	4.88	ug/L	1.0	98	78	129			
4-Chlorotoluene	4.28	ug/L	1.0	86	79	135			
1,3-Dichlorobenzene	4.88	ug/L	1.0	98	79	132			
1,4-Dichlorobenzene	4.68	ug/L	1.0	94	78	131			
Dichlorodifluoromethane	5.56	ug/L	1.0	111	55	141			
1,1-Dichloroethane	4.92	ug/L	1.0	98	72	130			
1,2-Dichloroethane	4.40	ug/L	1.0	88	57	146			
1,1-Dichloroethene	4.84	ug/L	1.0	97	66	142			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.52	ug/L	1.0	110	76	138			
1,2-Dichloropropane	4.68	ug/L	1.0	94	72	135			
1,3-Dichloropropane	4.72	ug/L	1.0	94	75	134			
2,2-Dichloropropane	4.80	ug/L	1.0	96	42	167			
1,1-Dichloropropene	4.80	ug/L	1.0	96	72	140			
cis-1,3-Dichloropropene	4.52	ug/L	1.0	90	75	132			
trans-1,3-Dichloropropene	4.64	ug/L	1.0	93	77	145			
Ethylbenzene	4.96	ug/L	1.0	99	78	131			
Methyl tert-butyl ether (MTBE)	5.00	ug/L	1.0	100	58	151			
Methylene chloride	4.16	ug/L	1.0	83	73	126			
Naphthalene	3.88	ug/L	1.0	78	55	139			
Styrene	5.00	ug/L	1.0	100	76	134			
1,1,1,2-Tetrachloroethane	5.24	ug/L	1.0	105	75	135			
1,1,2,2-Tetrachloroethane	4.12	ug/L	1.0	82	72	132			
Tetrachloroethene	5.68	ug/L	1.0	114	78	137			
Toluene	4.96	ug/L	1.0	99	78	134			
1,1,1-Trichloroethane	4.64	ug/L	1.0	93	64	141			
1,1,2-Trichloroethane	4.92	ug/L	1.0	98	72	133			
Trichloroethene	5.04	ug/L	1.0	101	75	138			
Trichlorofluoromethane	5.28	ug/L	1.0	106	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.48	ug/L	1.0	130	60	140			
1,2,3-Trichloropropane	4.92	ug/L	1.0	98	67	133			
Vinyl chloride	5.04	ug/L	1.0	101	66	140			
m+p-Xylenes	9.92	ug/L	1.0	99	78	133			
o-Xylene	5.00	ug/L	1.0	100	79	136			
Xylenes, Total	14.9	ug/L	1.0	99	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	98	76	127			
Surr: Toluene-d8			1.0	113	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B								Batch: R244748	
Lab ID: B15061441-005A_MS	Sample Matrix Spike				Run: SV5972.I_150618A			06/19/15 13:30	
Lab ID: B15061441-005A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 13:59	
Benzene	4.72	ug/L	1.0	94	71	133	5.2	20	
Bromobenzene	5.52	ug/L	1.0	110	78	133	11	20	
Bromochloromethane	5.72	ug/L	1.0	114	68	131	5.0	20	
Bromodichloromethane	5.16	ug/L	1.0	103	67	138	6.4	20	
Bromoform	5.12	ug/L	1.0	102	64	136	11	20	
Bromomethane	4.84	ug/L	1.0	97	60	138	21	20	R
Carbon tetrachloride	4.84	ug/L	1.0	97	61	144	4.2	20	
Chlorobenzene	5.36	ug/L	1.0	107	78	136	5.4	20	
Chlorodibromomethane	5.56	ug/L	1.0	111	72	136	5.2	20	
Chloroethane	5.44	ug/L	1.0	109	64	136	3.0	20	
Chloroform	4.72	ug/L	1.0	94	69	133	2.6	20	
Chloromethane	3.39	ug/L	1.0	68	63	149	7.3	20	
1,2-Dibromoethane	5.60	ug/L	1.0	112	75	131	9.7	20	
2-Chlorotoluene	5.36	ug/L	1.0	107	74	135	9.4	20	
Dibromomethane	5.48	ug/L	1.0	110	72	133	6.8	20	
1,2-Dichlorobenzene	5.40	ug/L	1.0	108	78	129	10	20	
4-Chlorotoluene	4.72	ug/L	1.0	94	79	135	9.8	20	
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132	9.4	20	
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131	12	20	
Dichlorodifluoromethane	5.64	ug/L	1.0	113	55	141	1.4	20	
1,1-Dichloroethane	5.00	ug/L	1.0	100	72	130	1.6	20	
1,2-Dichloroethane	4.60	ug/L	1.0	92	57	146	4.4	20	
1,1-Dichloroethene	5.08	ug/L	1.0	102	66	142	4.8	20	
cis-1,2-Dichloroethene	5.20	ug/L	1.0	104	74	133	2.3	20	
trans-1,2-Dichloroethene	6.04	ug/L	1.0	121	76	138	9.0	20	
1,2-Dichloropropane	4.96	ug/L	1.0	99	72	135	5.8	20	
1,3-Dichloropropane	5.04	ug/L	1.0	101	75	134	6.6	20	
2,2-Dichloropropane	4.80	ug/L	1.0	96	42	167	0.0	20	
1,1-Dichloropropene	4.96	ug/L	1.0	99	72	140	3.3	20	
cis-1,3-Dichloropropene	4.88	ug/L	1.0	98	75	132	7.7	20	
trans-1,3-Dichloropropene	5.08	ug/L	1.0	102	77	145	9.1	20	
Ethylbenzene	5.24	ug/L	1.0	105	78	131	5.5	20	
Methyl tert-butyl ether (MTBE)	5.08	ug/L	1.0	102	58	151	1.6	20	
Methylene chloride	4.44	ug/L	1.0	89	73	126	6.5	20	
Naphthalene	4.72	ug/L	1.0	94	55	139	20	20	
Styrene	5.36	ug/L	1.0	107	76	134	6.9	20	
1,1,1,2-Tetrachloroethane	5.40	ug/L	1.0	108	75	135	3.0	20	
1,1,2,2-Tetrachloroethane	4.76	ug/L	1.0	95	72	132	14	20	
Tetrachloroethene	5.96	ug/L	1.0	119	78	137	4.8	20	
Toluene	5.16	ug/L	1.0	103	78	134	4.0	20	
1,1,1-Trichloroethane	4.76	ug/L	1.0	95	64	141	2.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-005A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A				06/19/15 13:59
1,1,2-Trichloroethane	5.24	ug/L	1.0	105	72	133	6.3	20	
Trichloroethene	5.36	ug/L	1.0	107	75	138	6.2	20	
Trichlorofluoromethane	5.40	ug/L	1.0	108	58	139	2.2	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.72	ug/L	1.0	134	60	140	3.6	20	
1,2,3-Trichloropropane	5.24	ug/L	1.0	105	67	133	6.3	20	
Vinyl chloride	5.20	ug/L	1.0	104	66	140	3.1	20	
m+p-Xylenes	10.5	ug/L	1.0	105	78	133	5.9	20	
o-Xylene	5.20	ug/L	1.0	104	79	136	3.9	20	
Xylenes, Total	15.7	ug/L	1.0	105	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: LCS-B-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 16:00
Benzene	5.00	ug/L	1.0	100	71	133			
Bromobenzene	5.76	ug/L	1.0	115	78	133			
Bromochloromethane	6.00	ug/L	1.0	120	68	131			
Bromodichloromethane	5.40	ug/L	1.0	108	67	138			
Bromoform	5.44	ug/L	1.0	109	64	136			
Bromomethane	4.68	ug/L	1.0	94	60	138			
Carbon tetrachloride	5.00	ug/L	1.0	100	61	144			
Chlorobenzene	5.52	ug/L	1.0	110	78	136			
Chlorodibromomethane	5.76	ug/L	1.0	115	72	136			
Chloroethane	4.72	ug/L	1.0	94	64	136			
Chloroform	4.96	ug/L	1.0	99	69	133			
Chloromethane	3.50	ug/L	1.0	70	63	149			
1,2-Dibromoethane	5.64	ug/L	1.0	113	75	131			
2-Chlorotoluene	5.68	ug/L	1.0	114	74	135			
Dibromomethane	4.92	ug/L	1.0	98	72	133			
1,2-Dichlorobenzene	5.68	ug/L	1.0	114	78	129			
4-Chlorotoluene	5.12	ug/L	1.0	102	79	135			
1,3-Dichlorobenzene	5.72	ug/L	1.0	114	79	132			
1,4-Dichlorobenzene	5.44	ug/L	1.0	109	78	131			
Dichlorodifluoromethane	5.12	ug/L	1.0	102	55	141			
1,1-Dichloroethane	5.32	ug/L	1.0	106	72	130			
1,2-Dichloroethane	4.92	ug/L	1.0	98	57	146			
1,1-Dichloroethene	5.44	ug/L	1.0	109	66	142			
cis-1,2-Dichloroethene	5.56	ug/L	1.0	111	74	133			
trans-1,2-Dichloroethene	6.12	ug/L	1.0	122	76	138			
1,2-Dichloropropane	5.16	ug/L	1.0	103	72	135			
1,3-Dichloropropane	5.28	ug/L	1.0	106	75	134			
2,2-Dichloropropane	4.60	ug/L	1.0	92	42	167			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: LCS-B-061815	Laboratory Control Sample				Run: SV5972.I_150618A				06/19/15 16:00
1,1-Dichloropropene	5.28	ug/L	1.0	106	72	140			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.52	ug/L	1.0	110	78	131			
Methyl tert-butyl ether (MTBE)	5.36	ug/L	1.0	107	58	151			
Methylene chloride	4.76	ug/L	1.0	95	73	126			
Naphthalene	4.96	ug/L	1.0	99	55	139			
Styrene	5.68	ug/L	1.0	114	76	134			
1,1,1,2-Tetrachloroethane	5.76	ug/L	1.0	115	75	135			
1,1,2,2-Tetrachloroethane	4.88	ug/L	1.0	98	72	132			
Tetrachloroethene	6.08	ug/L	1.0	122	78	137			
Toluene	5.44	ug/L	1.0	109	78	134			
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	64	141			
1,1,2-Trichloroethane	5.56	ug/L	1.0	111	72	133			
Trichloroethene	5.64	ug/L	1.0	113	75	138			
Trichlorofluoromethane	5.04	ug/L	1.0	101	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.88	ug/L	1.0	138	60	140			
1,2,3-Trichloropropane	5.80	ug/L	1.0	116	67	133			
Vinyl chloride	4.92	ug/L	1.0	98	66	140			
m+p-Xylenes	11.0	ug/L	1.0	110	78	133			
o-Xylene	5.52	ug/L	1.0	110	79	136			
Xylenes, Total	16.5	ug/L	1.0	110	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	102	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: MB-B-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 16:59
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: MB-B-061815	Method Blank				Run: SV5972.I_150618A				06/19/15 16:59
1,2-Dichlorobenzene	ND	ug/L	0.50						
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	104	77	126			
Surr: p-Bromofluorobenzene			1.0	109	76	127			
Surr: Toluene-d8			1.0	117	79	122			
Lab ID: B15061441-024A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 17:28
Benzene	5.12	ug/L	1.0	102	71	133			
Bromobenzene	5.56	ug/L	1.0	111	78	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-024A_MS	Sample Matrix Spike				Run: SV5972.I_150618A				06/19/15 17:28
Bromochloromethane	6.16	ug/L	1.0	123	68	131			
Bromodichloromethane	5.56	ug/L	1.0	111	67	138			
Bromoform	5.36	ug/L	1.0	107	64	136			
Bromomethane	4.04	ug/L	1.0	81	60	138			
Carbon tetrachloride	5.36	ug/L	1.0	107	61	144			
Chlorobenzene	5.80	ug/L	1.0	116	78	136			
Chlorodibromomethane	6.04	ug/L	1.0	121	72	136			
Chloroethane	4.00	ug/L	1.0	80	64	136			
Chloroform	5.16	ug/L	1.0	103	69	133			
Chloromethane	2.94	ug/L	1.0	59	63	149			S
1,2-Dibromoethane	5.72	ug/L	1.0	114	75	131			
2-Chlorotoluene	5.64	ug/L	1.0	113	74	135			
Dibromomethane	6.00	ug/L	1.0	120	72	133			
1,2-Dichlorobenzene	5.60	ug/L	1.0	112	78	129			
4-Chlorotoluene	4.88	ug/L	1.0	98	79	135			
1,3-Dichlorobenzene	5.48	ug/L	1.0	110	79	132			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131			
Dichlorodifluoromethane	4.68	ug/L	1.0	94	55	141			
1,1-Dichloroethane	5.64	ug/L	1.0	113	72	130			
1,2-Dichloroethane	4.96	ug/L	1.0	99	57	146			
1,1-Dichloroethene	5.60	ug/L	1.0	112	66	142			
cis-1,2-Dichloroethene	5.68	ug/L	1.0	114	74	133			
trans-1,2-Dichloroethene	6.36	ug/L	1.0	127	76	138			
1,2-Dichloropropane	5.36	ug/L	1.0	107	72	135			
1,3-Dichloropropane	5.52	ug/L	1.0	110	75	134			
2,2-Dichloropropane	5.16	ug/L	1.0	103	42	167			
1,1-Dichloropropene	5.44	ug/L	1.0	109	72	140			
cis-1,3-Dichloropropene	5.16	ug/L	1.0	103	75	132			
trans-1,3-Dichloropropene	5.44	ug/L	1.0	109	77	145			
Ethylbenzene	5.72	ug/L	1.0	114	78	131			
Methyl tert-butyl ether (MTBE)	4.92	ug/L	1.0	98	58	151			
Methylene chloride	4.88	ug/L	1.0	98	73	126			
Naphthalene	4.32	ug/L	1.0	86	55	139			
Styrene	5.80	ug/L	1.0	116	76	134			
1,1,1,2-Tetrachloroethane	5.92	ug/L	1.0	118	75	135			
1,1,2,2-Tetrachloroethane	5.04	ug/L	1.0	101	72	132			
Tetrachloroethene	6.44	ug/L	1.0	129	78	137			
Toluene	5.68	ug/L	1.0	114	78	134			
1,1,1-Trichloroethane	5.28	ug/L	1.0	106	64	141			
1,1,2-Trichloroethane	5.64	ug/L	1.0	113	72	133			
Trichloroethene	5.72	ug/L	1.0	114	75	138			
Trichlorofluoromethane	4.44	ug/L	1.0	89	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	6.56	ug/L	1.0	131	60	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-024A_MS	Sample Matrix Spike				Run: SV5972.I_150618A			06/19/15 17:28	
1,2,3-Trichloropropane	5.52	ug/L	1.0	110	67	133			
Vinyl chloride	4.40	ug/L	1.0	88	66	140			
m+p-Xylenes	11.4	ug/L	1.0	114	78	133			
o-Xylene	5.72	ug/L	1.0	114	79	136			
Xylenes, Total	17.2	ug/L	1.0	114	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	96	70	130			
Surr: Dibromofluoromethane			1.0	110	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	114	79	122			
Lab ID: B15061441-024A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 17:57	
Benzene	4.84	ug/L	1.0	97	71	133	5.6	20	
Bromobenzene	5.64	ug/L	1.0	113	78	133	1.4	20	
Bromochloromethane	5.80	ug/L	1.0	116	68	131	6.0	20	
Bromodichloromethane	5.52	ug/L	1.0	110	67	138	0.7	20	
Bromoform	5.20	ug/L	1.0	104	64	136	3.0	20	
Bromomethane	4.44	ug/L	1.0	89	60	138	9.4	20	
Carbon tetrachloride	4.88	ug/L	1.0	98	61	144	9.4	20	
Chlorobenzene	5.52	ug/L	1.0	110	78	136	4.9	20	
Chlorodibromomethane	5.84	ug/L	1.0	117	72	136	3.4	20	
Chloroethane	4.04	ug/L	1.0	81	64	136	1.1	20	
Chloroform	4.88	ug/L	1.0	98	69	133	5.6	20	
Chloromethane	3.16	ug/L	1.0	63	63	149	7.2	20	
1,2-Dibromoethane	5.60	ug/L	1.0	112	75	131	2.1	20	
2-Chlorotoluene	5.36	ug/L	1.0	107	74	135	5.1	20	
Dibromomethane	5.80	ug/L	1.0	116	72	133	3.4	20	
1,2-Dichlorobenzene	5.52	ug/L	1.0	110	78	129	1.4	20	
4-Chlorotoluene	4.84	ug/L	1.0	97	79	135	0.8	20	
1,3-Dichlorobenzene	5.52	ug/L	1.0	110	79	132	0.7	20	
1,4-Dichlorobenzene	5.16	ug/L	1.0	103	78	131	2.3	20	
Dichlorodifluoromethane	4.96	ug/L	1.0	99	55	141	5.8	20	
1,1-Dichloroethane	5.16	ug/L	1.0	103	72	130	8.9	20	
1,2-Dichloroethane	4.88	ug/L	1.0	98	57	146	1.6	20	
1,1-Dichloroethene	4.92	ug/L	1.0	98	66	142	13	20	
cis-1,2-Dichloroethene	5.28	ug/L	1.0	106	74	133	7.3	20	
trans-1,2-Dichloroethene	5.72	ug/L	1.0	114	76	138	11	20	
1,2-Dichloropropane	5.20	ug/L	1.0	104	72	135	3.0	20	
1,3-Dichloropropane	5.16	ug/L	1.0	103	75	134	6.7	20	
2,2-Dichloropropane	4.80	ug/L	1.0	96	42	167	7.2	20	
1,1-Dichloropropene	5.12	ug/L	1.0	102	72	140	6.1	20	
cis-1,3-Dichloropropene	4.96	ug/L	1.0	99	75	132	4.0	20	
trans-1,3-Dichloropropene	5.20	ug/L	1.0	104	77	145	4.5	20	
Ethylbenzene	5.52	ug/L	1.0	110	78	131	3.6	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244748
Lab ID: B15061441-024A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150618A			06/19/15 17:57	
Methyl tert-butyl ether (MTBE)	4.60	ug/L	1.0	92	58	151	6.7	20	
Methylene chloride	4.28	ug/L	1.0	86	73	126	13	20	
Naphthalene	4.80	ug/L	1.0	96	55	139	11	20	
Styrene	5.68	ug/L	1.0	114	76	134	2.1	20	
1,1,1,2-Tetrachloroethane	5.64	ug/L	1.0	113	75	135	4.8	20	
1,1,2,2-Tetrachloroethane	4.80	ug/L	1.0	96	72	132	4.9	20	
Tetrachloroethene	6.12	ug/L	1.0	122	78	137	5.1	20	
Toluene	5.40	ug/L	1.0	108	78	134	5.1	20	
1,1,1-Trichloroethane	5.04	ug/L	1.0	101	64	141	4.7	20	
1,1,2-Trichloroethane	5.48	ug/L	1.0	110	72	133	2.9	20	
Trichloroethene	5.72	ug/L	1.0	114	75	138	0.0	20	
Trichlorofluoromethane	4.68	ug/L	1.0	94	58	139	5.3	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	6.32	ug/L	1.0	126	60	140	3.7	20	
1,2,3-Trichloropropane	5.44	ug/L	1.0	109	67	133	1.5	20	
Vinyl chloride	4.56	ug/L	1.0	91	66	140	3.6	20	
m+p-Xylenes	11.0	ug/L	1.0	110	78	133	3.9	20	
o-Xylene	5.52	ug/L	1.0	110	79	136	3.6	20	
Xylenes, Total	16.5	ug/L	1.0	110	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	114	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244951
Lab ID: CCV-062215	Continuing Calibration Verification Standard								06/22/15 16:02
Benzene	5.12	ug/L	1.0	102	70	130			
Bromobenzene	5.68	ug/L	1.0	114	70	130			
Bromochloromethane	5.80	ug/L	1.0	116	70	130			
Bromodichloromethane	5.32	ug/L	1.0	106	70	130			
Bromoform	5.44	ug/L	1.0	109	70	130			
Bromomethane	5.44	ug/L	1.0	109	70	130			
Carbon tetrachloride	5.12	ug/L	1.0	102	70	130			
Chlorobenzene	5.56	ug/L	1.0	111	70	130			
Chlorodibromomethane	5.64	ug/L	1.0	113	70	130			
Chloroethane	5.08	ug/L	1.0	102	70	130			
Chloroform	4.96	ug/L	1.0	99	80	120			
Chloromethane	4.44	ug/L	1.0	89	70	130			
1,2-Dibromoethane	5.64	ug/L	1.0	113	70	130			
2-Chlorotoluene	5.52	ug/L	1.0	110	70	130			
Dibromomethane	5.52	ug/L	1.0	110	70	130			
1,2-Dichlorobenzene	5.56	ug/L	1.0	111	70	130			
4-Chlorotoluene	4.96	ug/L	1.0	99	70	130			
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	70	130			
1,4-Dichlorobenzene	5.12	ug/L	1.0	102	70	130			
Dichlorodifluoromethane	6.44	ug/L	1.0	129	70	130			
1,1-Dichloroethane	5.40	ug/L	1.0	108	70	130			
1,2-Dichloroethane	4.72	ug/L	1.0	94	70	130			
1,1-Dichloroethene	5.12	ug/L	1.0	102	80	120			
cis-1,2-Dichloroethene	5.40	ug/L	1.0	108	70	130			
trans-1,2-Dichloroethene	5.92	ug/L	1.0	118	70	130			
1,2-Dichloropropane	5.32	ug/L	1.0	106	80	120			
1,3-Dichloropropane	5.44	ug/L	1.0	109	70	130			
2,2-Dichloropropane	5.76	ug/L	1.0	115	70	130			
1,1-Dichloropropene	5.04	ug/L	1.0	101	70	130			
cis-1,3-Dichloropropene	5.32	ug/L	1.0	106	70	130			
trans-1,3-Dichloropropene	5.12	ug/L	1.0	102	70	130			
Ethylbenzene	5.52	ug/L	1.0	110	80	120			
Methyl tert-butyl ether (MTBE)	5.48	ug/L	1.0	110	70	130			
Methylene chloride	4.56	ug/L	1.0	91	70	130			
Naphthalene	3.61	ug/L	1.0	72	70	130			
Styrene	5.52	ug/L	1.0	110	70	130			
1,1,1,2-Tetrachloroethane	5.56	ug/L	1.0	111	70	130			
1,1,2,2-Tetrachloroethane	4.84	ug/L	1.0	97	70	130			
Tetrachloroethene	6.24	ug/L	1.0	125	70	130			
Toluene	5.60	ug/L	1.0	112	80	120			
1,1,1-Trichloroethane	5.12	ug/L	1.0	102	70	130			
1,1,2-Trichloroethane	5.52	ug/L	1.0	110	70	130			
Trichloroethene	5.72	ug/L	1.0	114	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R244951
Lab ID: CCV-062215	Continuing Calibration Verification Standard								06/22/15 16:02
Trichlorofluoromethane	5.44	ug/L	1.0	109	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.84	ug/L	1.0	117	70	130			
1,2,3-Trichloropropane	5.20	ug/L	1.0	104	70	130			
Vinyl chloride	5.52	ug/L	1.0	110	80	120			
m+p-Xylenes	11.2	ug/L	1.0	112	70	130			
o-Xylene	5.44	ug/L	1.0	109	70	130			
Xylenes, Total	16.6	ug/L	1.0	111	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Method: SW8260B									Batch: R244951
Lab ID: LCS-062215	Laboratory Control Sample				Run: SV5972.I_150622A				06/22/15 16:35
Benzene	4.72	ug/L	1.0	94	71	133			
Bromobenzene	5.32	ug/L	1.0	106	78	133			
Bromochloromethane	5.60	ug/L	1.0	112	68	131			
Bromodichloromethane	5.20	ug/L	1.0	104	67	138			
Bromoform	5.28	ug/L	1.0	106	64	136			
Bromomethane	4.56	ug/L	1.0	91	60	138			
Carbon tetrachloride	4.76	ug/L	1.0	95	61	144			
Chlorobenzene	5.28	ug/L	1.0	106	78	136			
Chlorodibromomethane	5.44	ug/L	1.0	109	72	136			
Chloroethane	4.12	ug/L	1.0	82	64	136			
Chloroform	4.68	ug/L	1.0	94	69	133			
Chloromethane	3.20	ug/L	1.0	64	63	149			
1,2-Dibromoethane	5.32	ug/L	1.0	106	75	131			
2-Chlorotoluene	5.44	ug/L	1.0	109	74	135			
Dibromomethane	5.52	ug/L	1.0	110	72	133			
1,2-Dichlorobenzene	5.44	ug/L	1.0	109	78	129			
4-Chlorotoluene	4.80	ug/L	1.0	96	79	135			
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	79	132			
1,4-Dichlorobenzene	5.20	ug/L	1.0	104	78	131			
Dichlorodifluoromethane	4.48	ug/L	1.0	90	55	141			
1,1-Dichloroethane	5.00	ug/L	1.0	100	72	130			
1,2-Dichloroethane	4.52	ug/L	1.0	90	57	146			
1,1-Dichloroethene	4.88	ug/L	1.0	98	66	142			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	5.60	ug/L	1.0	112	76	138			
1,2-Dichloropropane	4.92	ug/L	1.0	98	72	135			
1,3-Dichloropropane	4.96	ug/L	1.0	99	75	134			
2,2-Dichloropropane	5.04	ug/L	1.0	101	42	167			
1,1-Dichloropropene	4.96	ug/L	1.0	99	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: LCS-062215	Laboratory Control Sample				Run: SV5972.I_150622A				06/22/15 16:35
cis-1,3-Dichloropropene	5.08	ug/L	1.0	102	75	132			
trans-1,3-Dichloropropene	5.32	ug/L	1.0	106	77	145			
Ethylbenzene	5.28	ug/L	1.0	106	78	131			
Methyl tert-butyl ether (MTBE)	4.44	ug/L	1.0	89	58	151			
Methylene chloride	4.16	ug/L	1.0	83	73	126			
Naphthalene	4.20	ug/L	1.0	84	55	139			
Styrene	5.36	ug/L	1.0	107	76	134			
1,1,1,2-Tetrachloroethane	5.44	ug/L	1.0	109	75	135			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	72	132			
Tetrachloroethene	5.92	ug/L	1.0	118	78	137			
Toluene	5.24	ug/L	1.0	105	78	134			
1,1,1-Trichloroethane	4.72	ug/L	1.0	94	64	141			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	72	133			
Trichloroethene	5.40	ug/L	1.0	108	75	138			
Trichlorofluoromethane	4.24	ug/L	1.0	85	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	7.12	ug/L	1.0	142	60	140			S
1,2,3-Trichloropropane	5.12	ug/L	1.0	102	67	133			
Vinyl chloride	4.36	ug/L	1.0	87	66	140			
m+p-Xylenes	10.8	ug/L	1.0	108	78	133			
o-Xylene	5.28	ug/L	1.0	106	79	136			
Xylenes, Total	16.1	ug/L	1.0	107	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	94	70	130			
Surr: Dibromofluoromethane			1.0	107	77	126			
Surr: p-Bromofluorobenzene			1.0	100	76	127			
Surr: Toluene-d8			1.0	115	79	122			
Lab ID: MB-062215	Method Blank				Run: SV5972.I_150622A				06/22/15 17:34
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: MB-062215	Method Blank				Run: SV5972.I_150622A				06/22/15 17:34
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.50						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	107	76	127			
Surr: Toluene-d8			1.0	118	79	122			
Lab ID: B15061457-028A_MS	Sample Matrix Spike				Run: SV5972.I_150622A				06/23/15 01:26
Benzene	920	ug/L	100	92	71	133			
Bromobenzene	1020	ug/L	100	102	78	133			
Bromochloromethane	1160	ug/L	100	116	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: B15061457-028A_MS	Sample Matrix Spike				Run: SV5972.I_150622A				06/23/15 01:26
Bromodichloromethane	1100	ug/L	100	110	67	138			
Bromoform	1020	ug/L	100	102	64	136			
Bromomethane	1000	ug/L	100	100	60	138			
Carbon tetrachloride	872	ug/L	100	87	61	144			
Chlorobenzene	1010	ug/L	100	101	78	136			
Chlorodibromomethane	1170	ug/L	100	117	72	136			
Chloroethane	984	ug/L	100	98	64	136			
Chloroform	960	ug/L	100	96	69	133			
Chloromethane	771	ug/L	100	77	63	149			
1,2-Dibromoethane	1140	ug/L	100	114	75	131			
2-Chlorotoluene	952	ug/L	100	95	74	135			
Dibromomethane	1170	ug/L	100	117	72	133			
1,2-Dichlorobenzene	976	ug/L	100	98	78	129			
4-Chlorotoluene	816	ug/L	100	82	79	135			
1,3-Dichlorobenzene	936	ug/L	100	94	79	132			
1,4-Dichlorobenzene	904	ug/L	100	90	78	131			
Dichlorodifluoromethane	1030	ug/L	100	103	55	141			
1,1-Dichloroethane	1020	ug/L	100	102	72	130			
1,2-Dichloroethane	984	ug/L	100	98	57	146			
1,1-Dichloroethene	904	ug/L	100	90	66	142			
cis-1,2-Dichloroethene	1040	ug/L	100	104	74	133			
trans-1,2-Dichloroethene	1060	ug/L	100	106	76	138			
1,2-Dichloropropane	1060	ug/L	100	106	72	135			
1,3-Dichloropropane	1060	ug/L	100	106	75	134			
2,2-Dichloropropane	688	ug/L	100	69	42	167			
1,1-Dichloropropene	888	ug/L	100	89	72	140			
cis-1,3-Dichloropropene	968	ug/L	100	97	75	132			
trans-1,3-Dichloropropene	1010	ug/L	100	101	77	145			
Ethylbenzene	976	ug/L	100	98	78	131			
Methyl tert-butyl ether (MTBE)	1020	ug/L	100	102	58	151			
Methylene chloride	936	ug/L	100	94	73	126			
Naphthalene	670	ug/L	100	67	55	139			
Styrene	1010	ug/L	100	101	76	134			
1,1,1,2-Tetrachloroethane	1120	ug/L	100	112	75	135			
1,1,2,2-Tetrachloroethane	968	ug/L	100	97	72	132			
Tetrachloroethene	1780	ug/L	100	114	78	137			
Toluene	1010	ug/L	100	101	78	134			
1,1,1-Trichloroethane	920	ug/L	100	92	64	141			
1,1,2-Trichloroethane	1140	ug/L	100	114	72	133			
Trichloroethene	1030	ug/L	100	103	75	138			
Trichlorofluoromethane	1010	ug/L	100	101	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	1100	ug/L	100	110	60	140			
1,2,3-Trichloropropane	1060	ug/L	100	106	67	133			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: B15061457-028A_MS	Sample Matrix Spike				Run: SV5972.I_150622A				06/23/15 01:26
Vinyl chloride	1050	ug/L	100	105	66	140			
m+p-Xylenes	1960	ug/L	100	98	78	133			
o-Xylene	968	ug/L	100	97	79	136			
Xylenes, Total	2930	ug/L	100	98	78	136			
Surr: 1,2-Dichloroethane-d4			200	110	70	130			
Surr: Dibromofluoromethane			200	116	77	126			
Surr: p-Bromofluorobenzene			200	97	76	127			
Surr: Toluene-d8			200	116	79	122			
Lab ID: B15061457-028A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150622A				06/23/15 01:55
Benzene	944	ug/L	100	94	71	133	2.6	20	
Bromobenzene	1060	ug/L	100	106	78	133	4.6	20	
Bromochloromethane	1190	ug/L	100	119	68	131	2.7	20	
Bromodichloromethane	1120	ug/L	100	112	67	138	2.2	20	
Bromoform	1120	ug/L	100	112	64	136	9.7	20	
Bromomethane	742	ug/L	100	74	60	138	30	20	R
Carbon tetrachloride	888	ug/L	100	89	61	144	1.8	20	
Chlorobenzene	1080	ug/L	100	108	78	136	6.9	20	
Chlorodibromomethane	1210	ug/L	100	121	72	136	3.4	20	
Chloroethane	570	ug/L	100	57	64	136	53	20	SR
Chloroform	984	ug/L	100	98	69	133	2.5	20	
Chloromethane	482	ug/L	100	48	63	149	46	20	SR
1,2-Dibromoethane	1150	ug/L	100	115	75	131	1.4	20	
2-Chlorotoluene	1020	ug/L	100	102	74	135	6.5	20	
Dibromomethane	1230	ug/L	100	123	72	133	5.3	20	
1,2-Dichlorobenzene	1090	ug/L	100	109	78	129	11	20	
4-Chlorotoluene	896	ug/L	100	90	79	135	9.3	20	
1,3-Dichlorobenzene	1030	ug/L	100	103	79	132	9.8	20	
1,4-Dichlorobenzene	1010	ug/L	100	101	78	131	11	20	
Dichlorodifluoromethane	603	ug/L	100	60	55	141	52	20	R
1,1-Dichloroethane	1020	ug/L	100	102	72	130	0.0	20	
1,2-Dichloroethane	984	ug/L	100	98	57	146	0.0	20	
1,1-Dichloroethene	936	ug/L	100	94	66	142	3.5	20	
cis-1,2-Dichloroethene	1030	ug/L	100	103	74	133	0.8	20	
trans-1,2-Dichloroethene	1100	ug/L	100	110	76	138	3.7	20	
1,2-Dichloropropane	1070	ug/L	100	107	72	135	1.5	20	
1,3-Dichloropropane	1120	ug/L	100	112	75	134	5.9	20	
2,2-Dichloropropane	685	ug/L	100	68	42	167	0.5	20	
1,1-Dichloropropene	904	ug/L	100	90	72	140	1.8	20	
cis-1,3-Dichloropropene	1000	ug/L	100	100	75	132	3.3	20	
trans-1,3-Dichloropropene	1030	ug/L	100	103	77	145	2.4	20	
Ethylbenzene	1010	ug/L	100	101	78	131	3.2	20	
Methyl tert-butyl ether (MTBE)	1040	ug/L	100	104	58	151	2.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 06/26/15

Project: BNSF Livingston Shop Complex - GWMD-2R **Work Order:** B15061457

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R244951
Lab ID: B15061457-028A_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150622A			06/23/15 01:55	
Methylene chloride	912	ug/L	100	91	73	126	2.6	20	
Naphthalene	824	ug/L	100	82	55	139	21	20	R
Styrene	1060	ug/L	100	106	76	134	4.7	20	
1,1,1,2-Tetrachloroethane	1150	ug/L	100	115	75	135	2.8	20	
1,1,2,2-Tetrachloroethane	1080	ug/L	100	108	72	132	11	20	
Tetrachloroethene	1800	ug/L	100	116	78	137	1.3	20	
Toluene	1030	ug/L	100	103	78	134	2.4	20	
1,1,1-Trichloroethane	920	ug/L	100	92	64	141	0.0	20	
1,1,2-Trichloroethane	1180	ug/L	100	118	72	133	3.4	20	
Trichloroethene	1050	ug/L	100	105	75	138	1.5	20	
Trichlorofluoromethane	582	ug/L	100	58	58	139	54	20	R
1,1,2-Trichloro-1,2,2-trifluoroethane	1150	ug/L	100	115	60	140	4.3	20	
1,2,3-Trichloropropane	1180	ug/L	100	118	67	133	11	20	
Vinyl chloride	610	ug/L	100	61	66	140	53	20	SR
m+p-Xylenes	2070	ug/L	100	104	78	133	5.6	20	
o-Xylene	1020	ug/L	100	102	79	136	4.8	20	
Xylenes, Total	3090	ug/L	100	103	78	136			
Surr: 1,2-Dichloroethane-d4			200	104	70	130			
Surr: Dibromofluoromethane			200	117	77	126			
Surr: p-Bromofluorobenzene			200	100	76	127			
Surr: Toluene-d8			200	117	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

S - Spike recovery outside of advisory limits.

SAMPLE ID: **B15061457-003A** 6/24/2015

CATIONS	mg/L	meq/L	ANIONS	mg/L	meq/L
Acidity(as CaCO3)			Cl	**19**	0.53
Ca	**72**	3.59	SO4	**72**	1.50
Mg	**17**	1.39	T. Alkalinity	**227**	4.54
K	**2**	0.04	HCO3	277	
Na	**38**	1.67	CO3	<1	
Al					
Fe					
Mn					
Hardness (as CaCO3)	249		OH	<1	
Hardness, grains/gal.	14.6		NO3	**3.0**	0.22
NH4+			PO4		
Si	**9.3**		F	**0.5**	0.03
Other Metals			CN		
Hardness (Ca as CaCO3)	180		Br	**<0.1**	0.00
Total Cations		6.70	Total Anions		6.81

BALANCE, %	-0.82
BALANCE, "sigma"	0.53

	Measured	Calculated
Sample pH		
Conductivity (umho/cm)	**650**	613
TDS	**377**	395
TDS Ratio	0.95	

Salinity	0.33
Cl as NaCl	31
Carbonate Hardness	227
Non-carbonate Hardness	22
Free CO2	
Total CO2	
SAR	1.06
Langlier Saturation Index	
Ryznar Index	
Aggressive Index	
Temp	20

Estimated Ionic Strength (from Cond) 0.0104

Anion/Cation Balance (%)		**-0.82**	Range ± 5%
Anion/Cation Difference (meq/L)		**0.11**	
EC/Cation Ratio		**0.97**	Range 0.8 - 1.2
EC/Anion Ratio		**0.95**	Range 0.8 - 1.2
EC/Calc EC Ratio		**1.06**	Range 0.8 - 1.2
Conductivity		**TDS/Calc TDS Ratio**	
650	SC<1000	**0.95**	Range 0.9 - 1.2

Sample B15061457-003A Reported in Run MISC-WC CALC_150624B

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15061457

Login completed by:	Randa Nees	Date Received:	6/16/2015
Reviewed by:	BL2000\jmueller	Received by:	kl
Reviewed Date:	6/17/2015	Carrier name:	Return-UPS Ground N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

Temp Blank temperature for Cooler 1 was 2.6°C and Cooler 2 was 1.5°C.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT(Electronic Data)
☐ POTW/WWTP Format:_____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6 °C 2: 1.5 °C
Receipt Temp TB SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	524.2 + MTBE	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$, HCO_3 ;CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)
1	7Q01_060815	6/8/15	1330	3 - W	X										X
2	18D04_061015	6/10/15	0955	3 - W	X										X
3	7L01_061015	6/10/15	1040	3 - W	X										X
4	7P10_061115	6/11/15	1540	3 -W	X										X
5															
6															
7															
8															
9															
10															

LABORATORY USE ONLY

Logged in sup-D

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00am	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp TB SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)			LABORATORY USE ONLY
1	TB1_061015	6/10/15	0800	1 - W	X										X			1506145 7-001
2	RX_061015	6/10/15	1315	3 - W	X										X			002
3	ISCO-7_061015	6/10/15	1350	6 - W	X	X	X	X	X	X	X				X			003
4	89-9_061015	6/10/15	1445	3 - W	X										X			004
5	MW-10_061015	6/10/15	1630	3 - W	X										X			005
6	D1_061115	6/11/15	0800	3 - W	X										X			006
7	D2_061115	6/11/15	0800	3 - W	X										X			007
8	D3_061115	6/11/15	0800	3 - W	X										X			008
9	RX_061115	6/11/15	0800	3 - W	X										X			009
10	MW-5RR_061115	6/11/15	0840	3 - W	X										X			010

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARLSON	6/15/15 15:00	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

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Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Ben Carreon**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

RUSH: Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments: **Samples may contain F-listed constituents.**

Shipped by: UPS GRD RTN
Cooler ID(s): 1: 2.6°C 2: 1.5°C
Receipt Temp TB SEE ABOVE °C
On Ice: (Yes) No
Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$; HCO_3; CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)	LABORATORY USE ONLY
1	TB2_061015	6/10/15	0800	1 - W	X										X	L1506145 7-011
2	12-3_061015	6/10/15	1220	3 - W	X										X	012
3	10-4_061015	6/10/15	1250	3 - W	X										X	013
4	10-5_061015	6/10/15	1325	3 - W	X										X	014
5	12-2_061015	6/10/15	1715	3 - W	X										X	015
6	TB2_061115	6/11/15	0800	1 - W	X										X	016
7	ISCO-24R_061115	6/11/15	1405	3 - W	X										X	017
8	10-8_061115	6/11/15	1545	3 - W	X										X	018
9	92-2_061115	6/11/15	1635	3 - W	X										X	019
10	12-5_061115	6/11/15	1715	3 - W	X										X	020

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. CARREON	6/15/15 15:00		SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

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Chain of Custody and Analytical Request Record

PLEASE PRINT- Provide as much information as possible.

Company Name: Kennedy/Jenks Consultants	Project Name, PWS, Permit, Etc. **BNSF Livingston Shop Complex - GWMD-2R**	Sample Origin State: MT	EPA/State Compliance: Yes ☐ No ☐
Report Mail Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Contact Name: Amanda Aldersley Phone/Fax: (253) 835-6400	Email: Amandaaldersley @kennedyjenks.com	Sampler: (Please Print) **Chris LaRose**
Invoice Address: 32001 32nd Ave. S., Suite 100 Federal Way, WA 98001	Invoice Contact & Phone: Amanda Aldersley (253) 835-6400	Purchase Order:	Quote/Bottle Order:

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☐ DW ☐ A2LA
☐ GSA ☐ EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: _____
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	VOC 8260 Short List	Total Dissolved Solids	Hardness ($CaCO_3$)	Diss. Metals (Ca/Fe/Mg/K/Na)	Nitrate + Nitrite as N	Alkalinity ($CaCO_3$, HCO_3, CO_3)	Chloride and Sulfate			SEE ATTACHED	Normal Turnaround (TAT)
1 90-3_061115	6/11/15	0935	3 - W	X										X
2 89-1_061115	6/11/15	1010	3 - W	X										X
3 12-4_061115	6/11/15	1110	3 - W	X										X
4 89-2_061115	6/11/15	1155	3 - W	X										X
5 13-1_061115	6/11/15	1255	3 - W	X										X
6 13-8_061115	6/11/15	1335	3 - W	X										X
7 13-2_061115	6/11/15	1420	3 - W	X										X
8 13-3_061115	6/11/15	1635	3 - W	X										X
9														
10														

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Samples may contain F-listed constituents.

Shipped by: UPS GRD RTN

Cooler ID(s): 1: 2.6°C 2: 1.5°C

Receipt Temp TB LEE ABOVE °C

On Ice: (Yes) No

Custody Seal (Y) N C
Intact (Y) N
Signature Match (Y) N

LABORATORY USE ONLY: L12061457-021, 022, 023, 024, 025, 026, 027, 028

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
BEN S. LARRISON	6/15/15 15:00	[signature]	SEALED FOR SHIPMENT		
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
			Received by Laboratory: KYLE LARSEN	Date/Time: 16 JUN 2015 9:00 am	Signature: [signature]

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report. Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ANALYTICAL SUMMARY REPORT

July 22, 2015

Kennedy Jenks Consultants
32001 32nd Ave S Ste 100
Federal Way, WA 98001

Work Order: B15071651 Quote ID: B1164 - BNSF Livingston

Project Name: BNSF Livingston Shop Complex - Task F

Energy Laboratories Inc Billings MT received the following 2 samples for Kennedy Jenks Consultants on 7/17/2015 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B15071651-001	E-7_071615	07/16/15 12:25	07/17/15	Aqueous	8260-Volatile Organic Compounds-Short List
B15071651-002	TB1_071615	07/16/15 8:00	07/17/15	Trip Blank	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

DATES REPORT

Work Order: B15071651

Client: Kennedy Jenks Consultants

Project: BNSF Livingston Shop Complex -

Report Date: 07/22/15

Lab ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date Method Batch	Analysis Date
B15071651-001A	E-7_071615	7/16/2015 12:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	7/21/2015
B15071651-001A	E-7_071615	7/16/2015 12:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	7/21/2015
B15071651-001A	E-7_071615	7/16/2015 12:25:00 PM	Aqueous	8260-Volatile Organic Compounds-Short List		NA	7/21/2015
B15071651-002A	TB1_071615	7/16/2015 8:00:00 AM	Trip Blank	8260-Volatile Organic Compounds-Short List		NA	7/21/2015

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task F
Lab ID: B15071651-001
Client Sample ID: E-7_071615

Report Date: 07/22/15
Collection Date: 07/16/15 12:25
DateReceived: 07/17/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Bromoform	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Chloroform	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	07/21/15 22:10 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/21/15 22:10 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Styrene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Tetrachloroethene	500	ug/L		25		SW8260B	07/21/15 21:41 / nl
Toluene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task F
Lab ID: B15071651-001
Client Sample ID: E-7_071615

Report Date: 07/22/15
Collection Date: 07/16/15 12:25
DateReceived: 07/17/15
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	0.46	ug/L	J	0.50		SW8260B	07/21/15 22:10 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/21/15 22:10 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/21/15 22:10 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	07/21/15 22:10 / nl
Surr: 1,2-Dichloroethane-d4	102	%REC		70-130		SW8260B	07/21/15 22:10 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	07/21/15 22:10 / nl
Surr: p-Bromofluorobenzene	114	%REC		76-127		SW8260B	07/21/15 22:10 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
J - Estimated value. The analyte was present but less than the reporting limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task F
Lab ID: B15071651-002
Client Sample ID: TB1_071615

Report Date: 07/22/15
Collection Date: 07/16/15 08:00
DateReceived: 07/17/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Benzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Bromobenzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Bromochloromethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Bromodichloromethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Bromoform	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Bromomethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Carbon tetrachloride	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Chlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Chlorodibromomethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Chloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Chloroform	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Chloromethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,2-Dibromoethane	ND	ug/L		0.30		SW8260B	07/21/15 20:42 / nl
2-Chlorotoluene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
4-Chlorotoluene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Dibromomethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,2-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,3-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,4-Dichlorobenzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Dichlorodifluoromethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1-Dichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,2-Dichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1-Dichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
cis-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
trans-1,2-Dichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,3-Dichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
2,2-Dichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1-Dichloropropene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
cis-1,3-Dichloropropene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
trans-1,3-Dichloropropene	ND	ug/L		0.30		SW8260B	07/21/15 20:42 / nl
Ethylbenzene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Methyl tert-butyl ether (MTBE)	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Methylene chloride	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Naphthalene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Styrene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1,1,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1,2,2-Tetrachloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Tetrachloroethene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Toluene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1,1-Trichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1,2-Trichloroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Project: BNSF Livingston Shop Complex - Task F
Lab ID: B15071651-002
Client Sample ID: TB1_071615

Report Date: 07/22/15
Collection Date: 07/16/15 08:00
DateReceived: 07/17/15
Matrix: Trip Blank

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
VOLATILE ORGANIC COMPOUNDS							
Trichloroethene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Trichlorofluoromethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,2,3-Trichloropropane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Vinyl chloride	ND	ug/L		0.40		SW8260B	07/21/15 20:42 / nl
m+p-Xylenes	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
o-Xylene	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Xylenes, Total	ND	ug/L		0.50		SW8260B	07/21/15 20:42 / nl
Surr: Dibromofluoromethane	108	%REC		77-126		SW8260B	07/21/15 20:42 / nl
Surr: 1,2-Dichloroethane-d4	98.0	%REC		70-130		SW8260B	07/21/15 20:42 / nl
Surr: Toluene-d8	110	%REC		79-122		SW8260B	07/21/15 20:42 / nl
Surr: p-Bromofluorobenzene	112	%REC		76-127		SW8260B	07/21/15 20:42 / nl

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/22/15

Project: BNSF Livingston Shop Complex - Task F **Work Order:** B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R246479
Lab ID: CCV-072115	Continuing Calibration Verification Standard								07/21/15 13:48
Benzene	4.96	ug/L	1.0	99	70	130			
Bromobenzene	5.20	ug/L	1.0	104	70	130			
Bromochloromethane	5.12	ug/L	1.0	102	70	130			
Bromodichloromethane	5.08	ug/L	1.0	102	70	130			
Bromoform	5.16	ug/L	1.0	103	70	130			
Bromomethane	5.24	ug/L	1.0	105	70	130			
Carbon tetrachloride	5.00	ug/L	1.0	100	70	130			
Chlorobenzene	5.12	ug/L	1.0	102	70	130			
Chlorodibromomethane	4.92	ug/L	1.0	98	70	130			
Chloroethane	5.40	ug/L	1.0	108	70	130			
Chloroform	4.96	ug/L	1.0	99	80	120			
Chloromethane	5.28	ug/L	1.0	106	70	130			
1,2-Dibromoethane	5.08	ug/L	1.0	102	70	130			
2-Chlorotoluene	5.16	ug/L	1.0	103	70	130			
Dibromomethane	4.76	ug/L	1.0	95	70	130			
1,2-Dichlorobenzene	5.12	ug/L	1.0	102	70	130			
4-Chlorotoluene	5.20	ug/L	1.0	104	70	130			
1,3-Dichlorobenzene	5.16	ug/L	1.0	103	70	130			
1,4-Dichlorobenzene	4.96	ug/L	1.0	99	70	130			
Dichlorodifluoromethane	5.04	ug/L	1.0	101	70	130			
1,1-Dichloroethane	4.96	ug/L	1.0	99	70	130			
1,2-Dichloroethane	5.08	ug/L	1.0	102	70	130			
1,1-Dichloroethene	4.76	ug/L	1.0	95	80	120			
cis-1,2-Dichloroethene	4.92	ug/L	1.0	98	70	130			
trans-1,2-Dichloroethene	4.92	ug/L	1.0	98	70	130			
1,2-Dichloropropane	4.64	ug/L	1.0	93	80	120			
1,3-Dichloropropane	4.92	ug/L	1.0	98	70	130			
2,2-Dichloropropane	5.48	ug/L	1.0	110	70	130			
1,1-Dichloropropene	5.00	ug/L	1.0	100	70	130			
cis-1,3-Dichloropropene	5.12	ug/L	1.0	102	70	130			
trans-1,3-Dichloropropene	4.92	ug/L	1.0	98	70	130			
Ethylbenzene	5.12	ug/L	1.0	102	80	120			
Methyl tert-butyl ether (MTBE)	4.80	ug/L	1.0	96	70	130			
Methylene chloride	4.68	ug/L	1.0	94	70	130			
Naphthalene	4.28	ug/L	1.0	86	70	130			
Styrene	5.04	ug/L	1.0	101	70	130			
1,1,1,2-Tetrachloroethane	5.16	ug/L	1.0	103	70	130			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	70	130			
Tetrachloroethene	5.16	ug/L	1.0	103	70	130			
Toluene	5.16	ug/L	1.0	103	80	120			
1,1,1-Trichloroethane	5.08	ug/L	1.0	102	70	130			
1,1,2-Trichloroethane	4.88	ug/L	1.0	98	70	130			
Trichloroethene	4.80	ug/L	1.0	96	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/22/15

Project: BNSF Livingston Shop Complex - Task F **Work Order:** B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Analytical Run: R246479
Lab ID: CCV-072115	Continuing Calibration Verification Standard								07/21/15 13:48
Trichlorofluoromethane	4.92	ug/L	1.0	98	70	130			
1,1,2-Trichloro-1,2,2-trifluoroethane	4.68	ug/L	1.0	94	70	130			
1,2,3-Trichloropropane	4.60	ug/L	1.0	92	70	130			
Vinyl chloride	4.88	ug/L	1.0	98	80	120			
m+p-Xylenes	10.7	ug/L	1.0	107	70	130			
o-Xylene	5.44	ug/L	1.0	109	70	130			
Xylenes, Total	16.1	ug/L	1.0	107	70	130			
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	108	77	126			
Surr: p-Bromofluorobenzene			1.0	106	76	127			
Surr: Toluene-d8			1.0	110	79	122			
Method: SW8260B									Batch: R246479
Lab ID: LCS-072115	Laboratory Control Sample				Run: SV5972.I_150721A				07/21/15 14:17
Benzene	4.96	ug/L	1.0	99	71	133			
Bromobenzene	5.20	ug/L	1.0	104	78	133			
Bromochloromethane	5.20	ug/L	1.0	104	68	131			
Bromodichloromethane	5.44	ug/L	1.0	109	67	138			
Bromoform	5.44	ug/L	1.0	109	64	136			
Bromomethane	4.64	ug/L	1.0	93	60	138			
Carbon tetrachloride	5.08	ug/L	1.0	102	61	144			
Chlorobenzene	5.36	ug/L	1.0	107	78	136			
Chlorodibromomethane	5.44	ug/L	1.0	109	72	136			
Chloroethane	4.36	ug/L	1.0	87	64	136			
Chloroform	4.96	ug/L	1.0	99	69	133			
Chloromethane	4.04	ug/L	1.0	81	63	149			
1,2-Dibromoethane	5.36	ug/L	1.0	107	75	131			
2-Chlorotoluene	5.44	ug/L	1.0	109	74	135			
Dibromomethane	5.24	ug/L	1.0	105	72	133			
1,2-Dichlorobenzene	5.24	ug/L	1.0	105	78	129			
4-Chlorotoluene	5.12	ug/L	1.0	102	79	135			
1,3-Dichlorobenzene	5.36	ug/L	1.0	107	79	132			
1,4-Dichlorobenzene	5.28	ug/L	1.0	106	78	131			
Dichlorodifluoromethane	4.04	ug/L	1.0	81	55	141			
1,1-Dichloroethane	4.96	ug/L	1.0	99	72	130			
1,2-Dichloroethane	5.12	ug/L	1.0	102	57	146			
1,1-Dichloroethene	4.80	ug/L	1.0	96	66	142			
cis-1,2-Dichloroethene	5.16	ug/L	1.0	103	74	133			
trans-1,2-Dichloroethene	4.80	ug/L	1.0	96	76	138			
1,2-Dichloropropane	5.16	ug/L	1.0	103	72	135			
1,3-Dichloropropane	5.00	ug/L	1.0	100	75	134			
2,2-Dichloropropane	5.20	ug/L	1.0	104	42	167			
1,1-Dichloropropene	5.24	ug/L	1.0	105	72	140			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/22/15

Project: BNSF Livingston Shop Complex - Task F **Work Order:** B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R246479
Lab ID: LCS-072115	Laboratory Control Sample				Run: SV5972.I_150721A				07/21/15 14:17
cis-1,3-Dichloropropene	5.40	ug/L	1.0	108	75	132			
trans-1,3-Dichloropropene	5.72	ug/L	1.0	114	77	145			
Ethylbenzene	5.36	ug/L	1.0	107	78	131			
Methyl tert-butyl ether (MTBE)	4.40	ug/L	1.0	88	58	151			
Methylene chloride	4.64	ug/L	1.0	93	73	126			
Naphthalene	5.32	ug/L	1.0	106	55	139			
Styrene	5.48	ug/L	1.0	110	76	134			
1,1,1,2-Tetrachloroethane	5.56	ug/L	1.0	111	75	135			
1,1,2,2-Tetrachloroethane	4.88	ug/L	1.0	98	72	132			
Tetrachloroethene	5.44	ug/L	1.0	109	78	137			
Toluene	5.44	ug/L	1.0	109	78	134			
1,1,1-Trichloroethane	5.00	ug/L	1.0	100	64	141			
1,1,2-Trichloroethane	5.16	ug/L	1.0	103	72	133			
Trichloroethene	5.12	ug/L	1.0	102	75	138			
Trichlorofluoromethane	4.20	ug/L	1.0	84	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.88	ug/L	1.0	118	60	140			
1,2,3-Trichloropropane	5.04	ug/L	1.0	101	67	133			
Vinyl chloride	4.40	ug/L	1.0	88	66	140			
m+p-Xylenes	11.3	ug/L	1.0	113	78	133			
o-Xylene	5.68	ug/L	1.0	114	79	136			
Xylenes, Total	17.0	ug/L	1.0	113	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	97	70	130			
Surr: Dibromofluoromethane			1.0	106	77	126			
Surr: p-Bromofluorobenzene			1.0	104	76	127			
Surr: Toluene-d8			1.0	112	79	122			
Lab ID: MB-072115	Method Blank				Run: SV5972.I_150721A				07/21/15 15:20
Benzene	ND	ug/L	0.50						
Bromobenzene	ND	ug/L	0.50						
Bromochloromethane	ND	ug/L	0.50						
Bromodichloromethane	ND	ug/L	0.50						
Bromoform	ND	ug/L	0.50						
Bromomethane	ND	ug/L	0.50						
Carbon tetrachloride	ND	ug/L	0.50						
Chlorobenzene	ND	ug/L	0.50						
Chlorodibromomethane	ND	ug/L	0.50						
Chloroethane	ND	ug/L	0.50						
Chloroform	ND	ug/L	0.50						
Chloromethane	ND	ug/L	0.50						
1,2-Dibromoethane	ND	ug/L	0.30						
2-Chlorotoluene	ND	ug/L	0.50						
Dibromomethane	ND	ug/L	0.50						
1,2-Dichlorobenzene	ND	ug/L	0.50						

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/22/15

Project: BNSF Livingston Shop Complex - Task F **Work Order:** B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R246479
Lab ID: MB-072115	Method Blank				Run: SV5972.I_150721A				07/21/15 15:20
4-Chlorotoluene	ND	ug/L	0.50						
1,3-Dichlorobenzene	ND	ug/L	0.50						
1,4-Dichlorobenzene	ND	ug/L	0.50						
Dichlorodifluoromethane	ND	ug/L	0.50						
1,1-Dichloroethane	ND	ug/L	0.50						
1,2-Dichloroethane	ND	ug/L	0.50						
1,1-Dichloroethene	ND	ug/L	0.50						
cis-1,2-Dichloroethene	ND	ug/L	0.50						
trans-1,2-Dichloroethene	ND	ug/L	0.50						
1,2-Dichloropropane	ND	ug/L	0.50						
1,3-Dichloropropane	ND	ug/L	0.50						
2,2-Dichloropropane	ND	ug/L	0.50						
1,1-Dichloropropene	ND	ug/L	0.50						
cis-1,3-Dichloropropene	ND	ug/L	0.30						
trans-1,3-Dichloropropene	ND	ug/L	0.30						
Ethylbenzene	ND	ug/L	0.50						
Methyl tert-butyl ether (MTBE)	ND	ug/L	0.50						
Methylene chloride	ND	ug/L	0.50						
Naphthalene	ND	ug/L	0.50						
Styrene	ND	ug/L	0.50						
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50						
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50						
Tetrachloroethene	ND	ug/L	0.50						
Toluene	ND	ug/L	0.50						
1,1,1-Trichloroethane	ND	ug/L	0.50						
1,1,2-Trichloroethane	ND	ug/L	0.50						
Trichloroethene	ND	ug/L	0.50						
Trichlorofluoromethane	ND	ug/L	0.50						
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50						
1,2,3-Trichloropropane	ND	ug/L	0.50						
Vinyl chloride	ND	ug/L	0.40						
m+p-Xylenes	ND	ug/L	0.50						
o-Xylene	ND	ug/L	0.50						
Xylenes, Total	ND	ug/L	0.50						
Surr: 1,2-Dichloroethane-d4			1.0	99	70	130			
Surr: Dibromofluoromethane			1.0	105	77	126			
Surr: p-Bromofluorobenzene			1.0	113	76	127			
Surr: Toluene-d8			1.0	109	79	122			
Lab ID: B15071491-001C_MS	Sample Matrix Spike				Run: SV5972.I_150721A				07/21/15 18:45
Benzene	4.96	ug/L	1.0	99	71	133			
Bromobenzene	4.96	ug/L	1.0	99	78	133			
Bromochloromethane	5.28	ug/L	1.0	106	68	131			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/22/15
Project: BNSF Livingston Shop Complex - Task F
Work Order: B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R246479
Lab ID: B15071491-001C_MS	Sample Matrix Spike				Run: SV5972.I_150721A				07/21/15 18:45
Bromodichloromethane	5.28	ug/L	1.0	106	67	138			
Bromoform	5.24	ug/L	1.0	105	64	136			
Bromomethane	2.74	ug/L	1.0	55	60	138			S
Carbon tetrachloride	5.04	ug/L	1.0	101	61	144			
Chlorobenzene	5.32	ug/L	1.0	106	78	136			
Chlorodibromomethane	5.20	ug/L	1.0	104	72	136			
Chloroethane	4.20	ug/L	1.0	84	64	136			
Chloroform	5.04	ug/L	1.0	101	69	133			
Chloromethane	3.42	ug/L	1.0	68	63	149			
1,2-Dibromoethane	5.16	ug/L	1.0	103	75	131			
2-Chlorotoluene	5.16	ug/L	1.0	103	74	135			
Dibromomethane	5.20	ug/L	1.0	104	72	133			
1,2-Dichlorobenzene	5.00	ug/L	1.0	100	78	129			
4-Chlorotoluene	4.88	ug/L	1.0	98	79	135			
1,3-Dichlorobenzene	5.04	ug/L	1.0	101	79	132			
1,4-Dichlorobenzene	4.76	ug/L	1.0	95	78	131			
Dichlorodifluoromethane	4.36	ug/L	1.0	81	55	141			
1,1-Dichloroethane	5.40	ug/L	1.0	99	72	130			
1,2-Dichloroethane	5.08	ug/L	1.0	102	57	146			
1,1-Dichloroethene	4.64	ug/L	1.0	93	66	142			
cis-1,2-Dichloroethene	5.08	ug/L	1.0	102	74	133			
trans-1,2-Dichloroethene	4.88	ug/L	1.0	98	76	138			
1,2-Dichloropropane	4.96	ug/L	1.0	99	72	135			
1,3-Dichloropropane	4.92	ug/L	1.0	98	75	134			
2,2-Dichloropropane	4.84	ug/L	1.0	97	42	167			
1,1-Dichloropropene	5.12	ug/L	1.0	102	72	140			
cis-1,3-Dichloropropene	5.04	ug/L	1.0	101	75	132			
trans-1,3-Dichloropropene	5.44	ug/L	1.0	109	77	145			
Ethylbenzene	5.24	ug/L	1.0	105	78	131			
Methyl tert-butyl ether (MTBE)	4.72	ug/L	1.0	90	58	151			
Methylene chloride	4.68	ug/L	1.0	94	73	126			
Naphthalene	4.64	ug/L	1.0	93	55	139			
Styrene	5.40	ug/L	1.0	108	76	134			
1,1,1,2-Tetrachloroethane	5.44	ug/L	1.0	109	75	135			
1,1,2,2-Tetrachloroethane	4.72	ug/L	1.0	94	72	132			
Tetrachloroethene	5.28	ug/L	1.0	106	78	137			
Toluene	5.12	ug/L	1.0	102	78	134			
1,1,1-Trichloroethane	5.36	ug/L	1.0	100	64	141			
1,1,2-Trichloroethane	5.20	ug/L	1.0	104	72	133			
Trichloroethene	4.88	ug/L	1.0	98	75	138			
Trichlorofluoromethane	4.36	ug/L	1.0	85	58	139			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.84	ug/L	1.0	117	60	140			
1,2,3-Trichloropropane	4.68	ug/L	1.0	94	67	133			

Qualifiers:

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants **Report Date:** 07/22/15

Project: BNSF Livingston Shop Complex - Task F **Work Order:** B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R246479
Lab ID: B15071491-001C_MS	Sample Matrix Spike				Run: SV5972.I_150721A			07/21/15 18:45	
Vinyl chloride	4.16	ug/L	1.0	83	66	140			
m+p-Xylenes	11.0	ug/L	1.0	110	78	133			
o-Xylene	5.52	ug/L	1.0	110	79	136			
Xylenes, Total	16.6	ug/L	1.0	110	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	100	70	130			
Surr: Dibromofluoromethane			1.0	109	77	126			
Surr: p-Bromofluorobenzene			1.0	101	76	127			
Surr: Toluene-d8			1.0	110	79	122			
Lab ID: B15071491-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150721A			07/21/15 19:14	
Benzene	4.96	ug/L	1.0	99	71	133	0.0	20	
Bromobenzene	5.36	ug/L	1.0	107	78	133	7.8	20	
Bromochloromethane	5.40	ug/L	1.0	108	68	131	2.2	20	
Bromodichloromethane	5.40	ug/L	1.0	108	67	138	2.2	20	
Bromoform	5.28	ug/L	1.0	106	64	136	0.8	20	
Bromomethane	3.12	ug/L	1.0	62	60	138	13	20	
Carbon tetrachloride	5.08	ug/L	1.0	102	61	144	0.8	20	
Chlorobenzene	5.44	ug/L	1.0	109	78	136	2.2	20	
Chlorodibromomethane	5.52	ug/L	1.0	110	72	136	6.0	20	
Chloroethane	4.28	ug/L	1.0	86	64	136	1.9	20	
Chloroform	5.08	ug/L	1.0	102	69	133	0.8	20	
Chloromethane	3.59	ug/L	1.0	72	63	149	4.8	20	
1,2-Dibromoethane	5.12	ug/L	1.0	102	75	131	0.8	20	
2-Chlorotoluene	5.40	ug/L	1.0	108	74	135	4.5	20	
Dibromomethane	5.24	ug/L	1.0	105	72	133	0.8	20	
1,2-Dichlorobenzene	5.20	ug/L	1.0	104	78	129	3.9	20	
4-Chlorotoluene	5.16	ug/L	1.0	103	79	135	5.6	20	
1,3-Dichlorobenzene	5.32	ug/L	1.0	106	79	132	5.4	20	
1,4-Dichlorobenzene	5.08	ug/L	1.0	102	78	131	6.5	20	
Dichlorodifluoromethane	4.44	ug/L	1.0	82	55	141	1.8	20	
1,1-Dichloroethane	5.40	ug/L	1.0	99	72	130	0.0	20	
1,2-Dichloroethane	5.12	ug/L	1.0	102	57	146	0.8	20	
1,1-Dichloroethene	4.76	ug/L	1.0	95	66	142	2.6	20	
cis-1,2-Dichloroethene	5.20	ug/L	1.0	104	74	133	2.3	20	
trans-1,2-Dichloroethene	4.96	ug/L	1.0	99	76	138	1.6	20	
1,2-Dichloropropane	5.12	ug/L	1.0	102	72	135	3.2	20	
1,3-Dichloropropane	5.12	ug/L	1.0	102	75	134	4.0	20	
2,2-Dichloropropane	4.88	ug/L	1.0	98	42	167	0.8	20	
1,1-Dichloropropene	5.24	ug/L	1.0	105	72	140	2.3	20	
cis-1,3-Dichloropropene	5.28	ug/L	1.0	106	75	132	4.7	20	
trans-1,3-Dichloropropene	5.60	ug/L	1.0	112	77	145	2.9	20	
Ethylbenzene	5.40	ug/L	1.0	108	78	131	3.0	20	
Methyl tert-butyl ether (MTBE)	4.64	ug/L	1.0	89	58	151	1.7	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Kennedy Jenks Consultants
Report Date: 07/22/15
Project: BNSF Livingston Shop Complex - Task F
Work Order: B15071651

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW8260B									Batch: R246479
Lab ID: B15071491-001C_MSD	Sample Matrix Spike Duplicate				Run: SV5972.I_150721A			07/21/15 19:14	
Methylene chloride	4.64	ug/L	1.0	93	73	126	0.9	20	
Naphthalene	5.20	ug/L	1.0	104	55	139	11	20	
Styrene	5.56	ug/L	1.0	111	76	134	2.9	20	
1,1,1,2-Tetrachloroethane	5.52	ug/L	1.0	110	75	135	1.5	20	
1,1,2,2-Tetrachloroethane	4.88	ug/L	1.0	98	72	132	3.3	20	
Tetrachloroethene	5.60	ug/L	1.0	112	78	137	5.9	20	
Toluene	5.36	ug/L	1.0	107	78	134	4.6	20	
1,1,1-Trichloroethane	5.40	ug/L	1.0	100	64	141	0.7	20	
1,1,2-Trichloroethane	5.36	ug/L	1.0	107	72	133	3.0	20	
Trichloroethene	5.04	ug/L	1.0	101	75	138	3.2	20	
Trichlorofluoromethane	4.24	ug/L	1.0	83	58	139	2.8	20	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.92	ug/L	1.0	118	60	140	1.4	20	
1,2,3-Trichloropropane	4.80	ug/L	1.0	96	67	133	2.5	20	
Vinyl chloride	4.24	ug/L	1.0	85	66	140	1.9	20	
m+p-Xylenes	11.4	ug/L	1.0	114	78	133	3.6	20	
o-Xylene	5.76	ug/L	1.0	115	79	136	4.3	20	
Xylenes, Total	17.2	ug/L	1.0	115	78	136			
Surr: 1,2-Dichloroethane-d4			1.0	98	70	130			
Surr: Dibromofluoromethane			1.0	107	77	126			
Surr: p-Bromofluorobenzene			1.0	103	76	127			
Surr: Toluene-d8			1.0	112	79	122			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Kennedy Jenks Consultants

B15071651

Login completed by:	Randa Nees	Date Received:	7/17/2015
Reviewed by:	BL2000\jmueller	Received by:	dlf
Reviewed Date:	7/17/2015	Carrier name:	UPS Ground

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	2.6°C On Ice		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

None

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

PLEASE PRINT (Provide as much information as possible.)

Company Name: Kennedy / Jenks Consultants

Project Name, PWS, Permit, Etc.: BNSF Livingston Shop Task F complex

Sample Origin State: MT

EPA/State Compliance: Yes ☐ No ☐

Report Mail Address (Required): 32001 32nd Ave S Suite 100 Federal Way, WA 98001

Contact Name: Amanda Aldersley

Phone/Fax: 253-835-6400

Cell: Email: AmandaAldersley@kennedyjenks.com

Sampler: (Please Print) B. CARREON

☐ No Hard Copy Email:

Invoice Contact & Phone: Amanda Aldersley 253-835-6400

Purchase Order:

Quote/Bottle Order: UPS Grd

Invoice Address (Required): 32001 32nd Ave S Suite 100 Federal Way, WA 98001

☐ No Hard Copy Email:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State:
☐ Other:
☒ EDD/EDT (Electronic Data) Format: 4-File Equis
☐ LEVEL IV
☐ NELAC

ANALYSIS REQUESTED

Standard Turnaround (TAT) — RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments: Livingston 8260 list.

Shipped by: hand

Cooler ID(s): 2.6 4

Receipt Temp 1.2 °C TB

On Ice: (Y) N

Custody Seal On Bottle (Y) N; On Cooler (Y) N

Intact (Y) N

Signature Match (Y) N

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O DW; Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water)	VOC 8260	SEE ATTACHED	RUSH		LABORATORY USE ONLY
1 E-7_071615	7/16/15	1225	3-W	X		X	8 drops HCl each 40mL	1507165-001
2 TB1_071615	7/16/15	0800	1-W	X		X		-1 OOR
3								
4								
5								
6								
7								
8								
9								
10								

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Ben S. Carreon	7/16/15	16:05			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:

Received by Laboratory: Jan Miller 7/16/15 1605 Jan Miller
7/17/15 0915

Sample Disposal: Return to Client: Lab Disposal:

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Other Activities

(Not set forth in another deliverable)

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

OTHER ACTIVITIES (NOT SET FORTH IN ANOTHER DELIVERABLE)

WORK PERFORMED

On 28 May 2015, *Quarterly Status Report No. 39 (February, March, April 2015)* was submitted to DEQ.

During this reporting period, no comments were received from DEQ on the following report:

- *Tasks A and H: Comprehensive Interim Action and Confirmation Sampling Summary Report* submitted to DEQ for review and approval on 17 April 2008.

DEQ has indicated that it does not intend to comment on this document, as other activities being conducted at the Facility are addressing these tasks.

The annual Facility-wide inspection was started in June 2015 and will continue during the next reporting period to coincide with other field activities being conducted at the Facility. As previously noted, the annual inspection of the cinder pile was conducted in June 2015. Approximately 175 Facility wells were visited as part of the Task D/E liquid-level monitoring and Task G/GWMD-2R groundwater sampling activities. The annual Facility inspection form will be included in the next quarterly status report (upon completion of inspection activities) and summarized in annual monitoring and maintenance report that is due to DEQ by 31 March 2016. Ongoing well repair/maintenance is being conducted based on the Facility inspections.

FIELD LOGS (ATTACHED)

None.

ANALYTICAL DATA (ATTACHED)

None.

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OTHER DATA OBTAINED IN FIELD

None.

UNUSUAL/UNANTICIPATED RESULTS

None.

POTENTIAL ISSUES AND/OR CORRECTIVE ACTIONS

None.

POTENTIAL IMPACTS TO SCHEDULE

None.

DEQ has indicated it will provide a letter to BNSF stating it does not intend to provide comments on the *Tasks A and H: Comprehensive Interim Action and Confirmation Sampling Summary Report.*

Annual inspection of Facility wells will continue during the next reporting period.

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Offsite Disposal Notifications, Offsite Disposal Information, and No Longer Contained-In Decisions

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

OFFSITE DISPOSAL NOTIFICATIONS, OFFSITE DISPOSAL INFORMATION, AND NO LONGER CONTAINED-IN DECISIONS

OFFSITE DISPOSAL NOTIFICATIONS

The following Offsite Disposal Notification was submitted to DEQ during this reporting period.

Disposal Notification Number	Date of Notification	Media Requiring Offsite Disposal
No. 31	9 June 2015	This notification covered the offsite disposal of soil cuttings (contained in HRO#50) from Task L – Addendum No. 2 field activities.

OFFSITE DISPOSAL INFORMATION (ATTACHED)

The following media were disposed of at a permitted offsite disposal or recycling facility during this reporting period.

Type of Media Disposed (e.g., soil, water, PPE)	Approximate Weight and/or Volume	Date Transported from Facility	Manifest #	Name of Transporter	Name of Offsite Disposal Facility
Task L – Addendum No. 2 Soil Cuttings (HRO#50) (Offsite Disposal Notification No. 31, dated 9 June 2015)	~9 cubic yards	30 June 2015	MWS 126191 MWS 126192	Republic Services (formerly Allied Waste Systems)	Montana Waste Systems – High Plains Sanitary Landfill, Great Falls, Montana

Copies of the non-hazardous waste manifests are attached.

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NO LONGER CONTAINED-IN DECISIONS (ATTACHED)

On 28 May 2015, a request for a no longer contained-in determination for water contained in the Task D/E influent holding tank was submitted to DEQ. The wastewater consisted of purge water from the March 2015 groundwater sampling event, decontamination/development water from Task L Addendum No.4 well construction activities, and residual water from Task D/E operations. DEQ's no longer contained-in determination was received in a letter to BNSF dated 11 June 2015 (see attached); however, a verbal approval was previously provided by DEQ to Kennedy/Jenks Consultants on 3 June 2015 to allow water contained in the influent holding tank to be batch treated prior to purge water from the June 2015 groundwater sampling events (Task G and GWMD-2R) being added to the influent holding tank.

Water in the influent holding tank was batch treated on 5 June 2015. The treated water is currently being held in the effluent holding tank, pending sampling and discharge to the Yellowstone River in accordance with the requirements of the MPDES permit.

LANDSPREADING

Per DEQ's no longer contained-in determination dated 30 April 2015, soil contained in roll-off bin HRO#53 was landspread in the DEQ-approved landspread area (former C&P Packing Pit) on 26 June 2015. Approximately 6.5 cubic yards of material was landspread. As required by DEQ, DEQ was notified that the soil had been landspread in an email from Kennedy/Jenks Consultants dated 26 June 2015.

MISCELLANEOUS

None.

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NON-HAZARDOUS WASTE MANIFESTS
High Plains Sanitary Landfill

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

Montana Waste Systems
High Plains Sanitary Landfill

1 126191

GENERATOR

1. Generator's Name and Project Location
BNSF ~ LIVINGSTON
208 MILES LANE SOUTH
LIVINGSTON, MT 59047
406 222-2279 (406)256-4046

1a. Generator's Phone

Emergency Notification:
CHEMTREC (800) 424-9300
24 hr. toll free phone number

3. Transporter 1 Company Name
ALLIED WASTE

3a. Transporter's Phone
406-543-3157

4. Transporter 2 Company Name

4a. Transporter's Phone

5. Designed Management Facility Name and Site Address
HIGH PLAINS SANITARY LANDFILL
142 POWERLINE ROAD
FLOWEREE, MT 59440

5a. Facility's Phone
406-452-3143

✓ ONE	6. Waste Shipping Name and Description	PROFILE NUMBER	CONTAINERS NUMBER	CONTAINERS TYPE	QUANTITY (CUBIC YARDS)
	MWS001611 BNSF ~ HELENA 6008100 HP-823			HRO 50(A)	~4.5

PHYSICAL LOCATION ~ 208 MILES LANE S, LIVINGSTON

ORIGINAL & SCALE TICKET:DAVID SMITH, BNSF, 800 N. LAST CHANCE GULCH, HELENA, MT 59601

Task L Soils

7. Responsible Agency

Remover's Name and Address

8. Contractor/Generator Certification
MATERIAL MUST BE ABSENT FREE LIQUIDS ~ ALL LOADS MUST BE TARPED!; MONTANA DEPT OF ENVIRONMENTAL QUALITY POB 200901 HELENA, MT 59620 406-444-2544

Printed/Typed Name: Ron Burke
Signature: Ron Burke - Kennedy Jenks on Behalf of BNSF Railway Co.
Month 06 Day 30 Year 15

TRANSPORTER

9. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Andy Prel
Signature: Andy Prel
Month 6 Day 30 Year 15

10. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

11. Discrepancy Indication Space

12. Ticket#

13. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in item 11.
HIGH PLAINS SANITARY LANDFILL
Printed/Typed Name
Signature
Month Day Year

ORIGINAL RETURN TO GENERATOR

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

Montana Waste Systems
High Plains Sanitary Landfill

1 126192

Emergency Notification:
CHEMTREC (800) 424-9300
24 hr. toll free phone number

GENERATOR

1. Generator's Name and Project Location
BNSF ~ LIVINGSTON
208 MILES LANE SOUTH
LIVINGSTON, MT 59047
406 222-2279

1a. Generator's Phone: 406-256-4046

3. Transporter 1 Company Name: ALLIED WASTE

3a. Transporter's Phone: 406-543-3157

4. Transporter 2 Company Name:

4a. Transporter's Phone:

5. Designed Management Facility Name and Site Address
HIGH PLAINS SANITARY LANDFILL
142 POWERLINE ROAD
FLOWEREE, MT 59440

5a. Facility's Phone: 406-452-3143

✓ ONE	6. Waste Shipping Name and Description	PROFILE NUMBER	CONTAINERS NUMBER	CONTAINERS TYPE	QUANTITY (CUBIC YARDS)
	MWS001611 BNSF ~ HELENA 6008100 HP-823			HRO 50 (B)	~4.5

PHYSICAL LOCATION ~ 208 MILES LANE S, LIVINGSTON

ORIGINAL & SCALE TICKET:DAVID SMITH, BNSF, 800 N. LAST CHANCE GULCH, HELENA, MT 59601

Task L Soils

7. Responsible Agency

Remover's Name and Address

8. Contractor/Generator Certification
MATERIAL MUST BE ABSENT FREE LIQUIDS ~ ALL LOADS MUST BE TARPED!; MONTANA DEPT OF ENVIRONMENTAL QUALITY POB 200901 HELENA, MT 59620 406-444-2544

Printed/Typed Name: Ron Burke
Signature: Ron Burke - Kennedy Jenks on Behalf of BNSF Railway Co.
Month 06 Day 30 Year 15

TRANSPORTER

9. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Andy Paul
Signature: Andy Paul
Month 7 Day 30 Year 15

10. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Month . Day . Year .

FACILITY

11. Discrepancy Indication Space

12. Ticket#

13. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in item 11.
HIGH PLAINS SANITARY LANDFILL
Printed/Typed Name:
Signature:
Month . Day . Year .

ORIGINAL RETURN TO GENERATOR

DEQ'S NO LONGER CONTAINED-IN DETERMINATION
TASK D/E GWTP INFLUENT HOLDING TANK
(11 June 2015)

DEQ
Montana Department
of Environmental Quality

June 11, 2015

Dave Smith
BNSF Railway Company (BNSF)
800 North Last Chance Gulch, Suite 101
Helena, Montana 59601-3340

RE: Task D/E GWTP Influent Holding Tank – Wastewater Analytical Results and Request of a No-Longer Contained-In Decision – Burlington Northern Livingston Shop Complex

Dear Dave:

The Montana Department of Environmental Quality (DEQ) received a letter report dated May 28, 2015 from Kennedy/Jenks on behalf of the BNSF Railway Company (BNSF), requesting a no longer contained-in decision regarding wastewater contained in the 4,500-gallon influent holding tank located in the Task D/E Groundwater Treatment Plant (GWTP) at the Burlington Northern Livingston Shop Complex Facility. The letter report presented a summary of data for the wastewater. Samples of the water were analyzed for volatile organic compounds (VOCs). DEQ notes that no constituents of concern related to F001 and F002 listed hazardous waste were detected in the samples collected from the roll-off bin at concentrations greater than the Record of Decision (ROD) cleanup levels. Given that the samples were received only one day after collection, the higher sample temperature is not likely to have impacted sample concentrations such that they would have exceeded the ROD cleanup levels.

The Amended March 2006 Facility-Wide Sampling and Analysis Plan provides criteria for "contained-out" determinations (page 8-14). These criteria are the ROD cleanup levels associated with F001 or F002 listed hazardous waste or other identified hazardous waste. As the generator, BNSF is responsible for properly characterizing the waste. Based on BNSF's data, DEQ has determined that the wastewater in the tank does not contain a listed waste at levels that would require disposal as hazardous waste. Therefore, DEQ approves BNSF's request for a "no longer contained-in" determination for the wastewater and this water may be pumped through the Task D/E treatment system (i.e., granular activated carbon (GAC) vessels) into the 20,000-gallon effluent holding tank and later discharged under the requirements of the Montana Pollutant Discharge Elimination System permit.

If you have any questions, please contact me at (406) 444-6435 or areynolds@mt.gov.

Sincerely,

Aimee T. Reynolds
Risk Remediation Manager

cc: Amanda Aldersley, Kennedy/Jenks
Katherine Haque-Hausrath, DEQ Legal
Yueh Chuang, BNSF

RECEIVED
JUN 15 2015
K/J Federal Way

Conceptual Site Model

QUARTERLY STATUS REPORT No. 40
(May, June, July 2015)
Burlington Northern Livingston Shop Complex

CONCEPTUAL SITE MODEL

Kennedy/Jenks Consultants, on behalf of BNSF, has revised the Conceptual Site Model (CSM) for the Burlington Northern Livingston Shop Complex based on currently available data and information.

The CSM is intended to be a working document, to be updated based on additional information obtained and subsequent data evaluation. The most recent version of the CSM is presented in Appendix O of the *Task L Supplemental Investigation Report for Bedrock Aquifer(s)* prepared by Kennedy/Jenks Consultants dated April 2015.

In its letter to BNSF dated 30 May 2013, DEQ required that the CSM be included in quarterly status reports and annual monitoring and maintenance reports prepared under the Spring 2005 SOW. In an email to Kennedy/Jenks Consultants dated 12 May 2015, DEQ determined that inclusion of the CSM in quarterly status reports is no longer required. Instead, the CSM will be updated when Facility data indicate a need, and included in the associated report presenting that data.

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