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ExxonMobil Pipeline Company

Public Surface Water Supply 2012 Data Summary Report

Silvertip Pipeline Incident Response
Laurel, Montana

December 2012

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1. Introduction

This Public Water Supply (PWS) Data Summary Report has been prepared by ExxonMobil Environmental Services Company (EMES) on behalf of ExxonMobil Pipeline Company (EMPCo) as part of the response to the Silvertip Pipeline Incident that occurred near Laurel, Montana on July 1, 2011. This report describes the results of the sampling and analysis activities conducted from July 16 to August 1, 2012 to characterize the surface water and sediment at nine PWS intake areas along the Yellowstone River (the river), and sediment within sedimentation units at those PWS facilities.

Specifically, this sampling program was performed to address the PWS sampling requirements established in the Administrative Order on Consent (AOC), dated January 19, 2012 (MDEQ 2012a). The sampling methods were generally consistent with a previous PWS sampling event during 2011 as summarized in the Public Surface Water Supply 2011 Data Summary Report (ARCADIS 2012a). A work plan was prepared by ARCADIS on behalf of EMES describing the proposed sampling program to address sampling and analysis requirements and was submitted to MDEQ on September 9, 2011 (Public Water Supply [PWS] Sampling Plan; ARCADIS 2011a). The Quality Assurance Project Plan (QAPP; ARCADIS 2012b) describing the procedures, analytical methods, quality control processes and quality assurance procedures was submitted March 2012 and revised August 2012. The sampling program was conducted in accordance with the PWS Sampling Plan and QAPP. Deviations from the plan are described in Section 2.3.

1.1 Purpose and Objectives

This report presents the surface water and sediment sampling field activities completed by ARCADIS in July and August 2012 and includes field data and laboratory analytical data for surface water and sediment samples collected during the field activities. Surface water and sediment samples were collected near PWS intakes and sediment samples were collected in PWS sedimentation units (i.e., ponds, basins, tanks), where applicable and practical, to generate quantitative water and sediment data to evaluate the need for further characterization of public drinking water supply(ies).

The objectives of this report are to:

- Document the field and analytical procedures used during implementation of the PWS Sampling Plan (ARCADIS 2011a) and the QAPP (ARCADIS 2012b).
- Present the results of upstream (Laurel) and downstream surface water and sediment samples that were collected to characterize surface water and sediment proximate to PWS intake structures and sediment from PWS sedimentation units.

- Compare the surface water and sediment analytical results to applicable standards and benchmark screening values.

1.2 Surface Water and Sediment Standards and Screening Values

The following sources were used for surface water standards and screening levels and sediment screening benchmarks:

Surface Water

- Surface water concentrations were compared to MDEQ's Circular DEQ-7 Montana Numeric Water Quality Standards (MDEQ 2012b). For the most part, human health standards for surface water were used. No other DEQ-7 acute or chronic aquatic life standards are available for the constituents that were analyzed for in the surface water samples.

- Surface water EPH and VPH results were compared with the Tier 1 groundwater risk based screening levels (RBSLs) in Table 3 of the MDEQ Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases (MDEQ 2009) per the AOC.

Sediment

- Sediment analytical results were compared to USEPA Region 3 Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmarks (USEPA 2006), if available.

- In cases where a BTAG value was not available for an individual compound, the AOC requires consideration of other sources, including National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRTs; Buchman 2008). However, SQuiRT freshwater threshold effects levels (TEL) or threshold effects concentrations (TEC) values, comparable to freshwater BTAG values, were not available for detected compounds that did not have a corresponding BTAG value.

- Sample results relative to these standards and screening levels are discussed further in Section 3.

1.3 Key Findings

The following key findings are based on the data presented in this report:

- Detected results for surface water samples collected under the PWS sampling program were below the DEQ-7 human health standards for surface water.

- Sediment samples from the Yellowstone River had no compounds detected above USEPA ecological screening benchmarks, with the single exception of bis(2-ethylhexyl) phthalate, a common field and laboratory contaminant, in the sediment sample from near the Hysham intake.

- The sediment sample from Castle Rock Lake had a concentration of 0.042 mg/kg of 2-methylnaphthalene, above the ecological screening benchmark of 0.020 mg/kg. No other compounds were detected above ecological screening benchmarks in the sediment sample from the lake.

- The compound 2-methylnaphthalene was detected in sediment samples collected from sedimentation units and settling basins from the upstream Laurel facility and downstream from the Billings and Lockwood facilities. Concentrations were similar in the samples from upstream Laurel facility and downstream Billings facility.

- Sediment probing to check for the presence of sheens was conducted as part of the sampling activities. No sheens were observed during field activities.

More detailed discussions of the surface water and sediment data are provided in Section 3.

1.4 Background and Site Setting

On July 1, 2011, there was a release of crude oil from the Silvertip Pipeline located near Laurel, Montana. EMPCo activated its Emergency Response Plan and provided a rapid and comprehensive response to the incident. An Incident Action Plan was developed, and an Incident Command System (ICS) organization and Unified Command (UC) were established to manage the release response activities in a coordinated manner with the multiple stakeholders involved, including the MDEQ. Overall, substantial progress has been made by EMPCo and the UC team to assess and remediate oil and oil-affected material in response to the Silvertip Pipeline Incident.

The Silvertip Pipeline Incident site (site) is located along the Yellowstone River, which originates in northwest Wyoming and flows northeast through Montana to its confluence with the Missouri River near Buford, North Dakota (Figures 1 and 2).

During the PWS surface water and sediment sampling activities conducted from July 16 to August 1, 2012, river flow at Billings, Montana (U.S. Geological Survey [USGS] gage 06214500) was initially 8,570 cubic feet per second (cfs), reached a maximum of 9,660 cfs on the morning of July 18, and then decreased to 4,670 by August 1. These flows correspond to an initial river stage of 4.87 feet, a maximum of 5.16 feet and an ending stage of 3.57 feet. Gage datum is 3,081 feet above National Geodetic Vertical Datum of 1929 [NGVD 29]) (USGS 2012).

The river is a source of drinking water to the communities of Laurel, Billings, Lockwood, Hysham, Colstrip, Forsyth, Miles City, Glendive, and Sidney (Figures 1 and 2). These PWS utilities employ a variety of mechanisms for drawing water from the river and allowing for sedimentation prior to treating the water through the water treatment system for public distribution. Cleanout schedules for sedimentation units vary from monthly to every three to four years, as summarized in Table 1.

The area upstream from the Silvertip Pipeline Incident, represented by the Laurel PWS facility, is considered to represent background conditions relative to the Silvertip Pipeline Incident (Figures 1, 2 and 3).

1.5 PWS Facilities

Available information for each PWS intake structure and settling process is summarized in Table 1, with a brief summary provided below. Field observations and measurements are including on Tables 2, 3 and 4. Table 2 includes river water depths at the time of sampling and sediment characteristics. Table 3 provides sediment descriptions for sedimentation unit samples and Table 4 includes field reading taken during surface water sample collection. Field notes are included as Appendix A. Note that previous reports included distances downstream in linear miles from the pipeline. The distances below are given in river miles, taking into account turns and bends in the river.

The Laurel PWS Facility intake consists of a concrete structure located underwater in the Yellowstone River. The intake is located approximately 1,300 feet (0.25 miles) upstream of the pipeline, just downstream of the Highway 212 Bridge between the two center bridge piers. This facility contains a concrete sedimentation unit located outside of the facility.

The Billings PWS Facility intake is approximately 19 (river) miles downstream of the Silvertip Pipeline and consists of a channel lined with sheet pile. A secondary intake structure extends into the river upstream of the primary intake. This facility contains a sedimentation unit measuring approximately 600 feet by 200 feet. A concrete structure or impermeable liner was not observed in the sedimentation unit.

The Lockwood PWS Facility is approximately 21 miles downstream of the Silvertip Pipeline. The intake is located approximately 100 feet upstream of the water treatment facility between the Rail Link bridge and Route 87. This facility contains a concrete sedimentation unit inside the water treatment building.

The Hysham PWS Facility is approximately 109 miles downstream of the Silvertip Pipeline. The intake consists of a 1,250-foot long perforated pipe buried in a gravel pack. This facility does not have a sedimentation unit. Water is drawn directly into two clarifiers located inside the water treatment building.

The Colstrip-Yellowstone River intake is approximately 139 miles downstream of the Silvertip Pipeline and approximately 6 miles upstream of Forsyth. Water from the river intake is pumped approximately 30 miles south to Castle Rock Lake in Colstrip. The Colstrip-Castle Rock Lake intake is located approximately 1,000 feet south of the public boat ramp. The Colstrip facility does not have a sedimentation unit. Water enters the facility directly into filter beds.

The Forsyth PWS Facility is approximately 145 miles downstream of the Silvertip Pipeline. The intake is located approximately 0.25 miles downstream of Highway 12 bridge. The facility includes a wet well where sediment initially settles out and then enters a sedimentation unit inside the water treatment facility.

The Miles City PWS Facility is approximately 198 miles downstream of the Silvertip Pipeline. The intake is approximately 5 miles downstream of the Fort Keough boat ramp and 1.2 miles upstream of the Highway 59 bridge. The facility includes four concrete sedimentation units approximately 5.5 feet deep.

The Glendive PWS Facility is approximately 289 miles downstream of the Silvertip Pipeline. The intake is located 200 feet north of the bridge. The facility includes four concrete sedimentation units between 4 to 8 feet deep.

The MDU Sidney PWS Facility is approximately 351 miles downstream of the Silvertip Pipeline. The intake is located 0.5 miles from Sydney Bridge. The sedimentation unit consists of a tank that is approximately 13 feet deep, located inside the facility.

Sample location selection varied for each facility and individual locations at each facility are shown on Figures 3 through 11. Sampling location coordinates are provided in Tables 2 and 3. Copies of field notes are included in Appendix A.

2. PWS Surface Water and Sediment Investigation

The PWS investigation activities were performed by ARCADIS from July 16 through August 1, 2012. The following sections present the scope of work completed and the field and laboratory data collected during these activities, along with a discussion of the results.

2.1 Sampling Methodology

Except as noted in Section 2.5, surface water and sediment samples were collected as described in the PWS Sampling Plan (ARCADIS 2011a) and QAPP (ARCADIS 2012b).

Surface water samples were collected from boats and land (depending on field conditions at each target location). Samples for analysis of volatile organic compounds (VOCs) by EPA Method 8260 and MA VPH were collected using a Solinst stainless steel discrete level sampler. Samples for other parameters were collected using a peristaltic pump and Teflon-lined tubing or a clean dedicated jar for surface grab samples. The Teflon-lined tubing was attached to a weighted tape measure and lowered into the water to approximately 6 inches above the sediment surface, with the exception of the sample collected from Castle Rock Lake (COMT071812SW0101), where the water was 15 feet deep and the sample was collected at 8 feet below the water surface. Water was pumped directly into laboratory-supplied pre-preserved sample containers. A YSI 556 meter was used to measure field parameters (pH, conductivity, temperature, dissolved oxygen, ORP, and turbidity) at each sampling location. The results of surface water field measurements are summarized in Table 4.

Sediment samples from the river and Castle Rock Lake were collected immediately following collection of surface water samples. The sediment was probed in the area where the surface water sample was collected using a steel rod or weighted measuring tape to determine if fine grained sediments of sufficient thickness were present and to check for sheens. No sheens were observed during field activities. Sediment sample locations were established where fine grained sediments were identified through probing. In some cases, this required moving upstream of the intake structure to find fine grained sediment for sampling. At most locations, a ponar dredge was used to collect sediment from a boat (see Tables 2 and 3). Where the water was shallow enough that field workers could wade to the target sample location, a hand-push core was used to collect sediment. A hand push core method was used in the river at Hysham and Colstrip, and for samples from the facilities in Miles City and Sidney.

PWS sedimentation unit sediment samples were collected from land using a ponar dredge or a hand-push core depending on the location. The sampling methodology was dependent on the conditions at the PWS facility (Table 3).

The ponar dredge sample collection method was used during sampling of the sedimentation units except for Miles City and Sidney PWS facilities. The Forsyth sedimentation unit was not accessible

because the wet well required confined space entry, and the sedimentation unit had metal weirs and grates that did not allow sampling. The Colstrip and Hysham facilities do not use sedimentation units as part of their water management operations. Additional detailed information about settling processes at each facility is included in Table 1.

Surface sediment samples (i.e., 0 to 6 inches below sediment surface [bss]) were collected to be representative of the most recently deposited sediments Table 3 summarizes the sediment thicknesses for each facility location.

Surface water and sediment samples were shipped to Lancaster Labs for the analyses listed in Table 5. The quality assurance/quality control (QA/QC) samples that were collected in support of the sampling activities are listed in Table 6.

2.2 Sample Locations

Surface water and sediment sample locations were identified during the reconnaissance activities conducted between August 29 and September 1, 2011 and outlined in the PWS Sampling Plan (ARCADIS 2011a). Locations were modified in the field, as needed, in response to field conditions to ensure safe access and successful sample collection. Where possible, samples collected in July 2012 were collected from the same coordinates as identified during previous sampling rounds (Tables 2 and 3, Figures 3 through 11).

Surface water samples collected from boats were collected from locations as close to the intake structure as possible where the boat could be safely anchored to the shoreline. If a sediment sample could not be collected adjacent to the intake due to inaccessibility or the absence of fine grained sediments, samples were collected upstream of the intake. Samples collected from land were accessed by walking towards the intake structure. Wherever physical obstructions prevented the sampling crews from accessing the target location, the sampling location was modified based on accessibility and safety concerns.

2.3 Changes from the Sampling Plan

The PWS surface water and sediment sampling activities were implemented in accordance with PWS Sampling Plan (ARCADIS 2011a) and QAPP (ARCADIS 2012b), with the exception of the changes noted below.

Surface water and sediment samples were collected for VOC and VPH analysis from the Hysham location on July 24, 2012 using a peristaltic pump because the water was too shallow to use the discrete sampler. Surface water samples for EPH and SVOCs were lost during shipment to the laboratory and were resampled on August 1, 2012.

Sediment samples were collected from sedimentation units at 6 of the 9 PWS facilities. Sediment was not collected at the Forsyth facility due to inaccessibility. Sediment was not collected at the Hysham and Colstrip facilities as sedimentation units are not used at these locations. No sediment was present in the sedimentation unit at the Sidney facility due to cleaning and flushing activities that were completed prior to the 2012 sampling event. As a result, the sedimentation unit sampling location for the Sidney facility was moved to an influent basin at the intake pump house.

2.4 Laboratory Analyses

Surface water samples were analyzed by Lancaster Laboratories for the following constituents:

- Volatile organic compounds by USEPA Method 8260B
- Semivolatile organic compounds (SVOCs) by USEPA Method 8270, including selected ion monitoring (SIM) for PAH compounds
- Volatile petroleum hydrocarbons (VPH) by Massachusetts Department of Environmental Protection (MADEP) Method (MT Modified)
- Extractable petroleum hydrocarbon (EPH) screen by MADEP EPH Massachusetts Method (MT Modified). If the EPH screen value was above 1,000 micrograms per liter (µg/L), the sample would be analyzed for individual EPH fractions; EPH was not detected in surface water samples and no additional analyses were required.
- Total suspended solids (TSS) by Standard Method 2540D

Sediment samples from the Silvertip River, Castle Rock Lake, and the Sedimentation Basins were analyzed by Lancaster Laboratories for the following constituents:

- Volatile organic compounds by USEPA Method 8260B
- SVOCs by USEPA Method 8270, including SIM analysis for PAHs
- VPH by MADEP Method (MT Modified)
- EPH screen by MADEP Method (MT Modified), screened at 200 milligram per kilogram (mg/kg)
- Total organic carbon (TOC) by Standard Method 5310B

2.5 Quality Control and Quality Assurance

Field and laboratory activities were completed in accordance with the PWS Sampling Plan (ARCADIS 2011a) and the laboratory Quality Assurance Manual and Standard Operating Procedures included as Attachment A to the QAPP (ARCADIS 2012b)..

Field quality control (QC) samples were collected during the sampling program, in accordance with the QAPP. During collection of surface water, river sediment, and sedimentation unit sediment, matrix spike and matrix spike duplicate (MS/MSD) samples and field duplicate (FD) samples were collected. To verify the effectiveness of field decontamination procedures, equipment rinsate blanks were collected by rinsing laboratory-supplied water over decontaminated field equipment at the end of each day of sampling. Trip blanks were shipped with each cooler with VPH and VOC samples. Field QC samples are summarized on Table 6.

Sample results were validated as described in the QAPP. Field QC sample and laboratory QC results were used in the data validation process to document the quality of the data. Data validation flagging codes were applied to the results, if needed, to provide additional descriptions regarding the quality of the data. Flagging code definitions are listed as footnotes on Tables 7, 8, and 9.

3. Surface Water and Sediment Analytical Results

Surface water and sediment samples were collected from the river near the intakes for the nine PWS facilities and from the Castle Rock Lake intake to the Colstrip facility. A surface water duplicate was collected from the river at the Billings location. Sediment samples were also collected from sedimentation units and settling basins at six of the facilities. Sampling locations at each PWS are shown on Figures 3 through 11 and coordinates are provided in Tables 2 and 3. Surface water sample results are provided in Table 7, river and Castle Rock Lake sediment results are provided in Table 8 and sedimentation unit sediment results are included in Table 9.

Section 3.1 below discusses surface water results. Section 3.2 discussed sediment sample results from the river and Castle Rock Lake. Section 3.3 discussed sediment results for samples collected from the sedimentation units at six of the facilities.

Surface water sample results were compared to the most recent DEQ-7 human health standards for surface water (MDEQ 2012b) and Tier 1 groundwater risk based screening levels (RBSLs) (MDEQ 2009) per the AOC.

Sediment results were compared to USEPA Region 3 BTAG values (USEPA 2006) and Tier 1 surface soil residential RBSLs (MDEQ 2009) per the AOC.

Sample results, standards and screening levels are presented in Tables 7, 8, and 9. Electronic versions of the Laboratory analytical reports and the Data Validation Reports are included in Appendix B. Hard copy versions will be submitted under separate cover.

3.1 Surface Water Results

Surface water sample results are presented along with DEQ-7 surface water standards in Table 7. Sampling locations are shown on Figures 3 through 11. Sample location coordinates and field observations are provided on Tables 2 and 4.

Four compounds were detected in surface water: acetone, chloroform, 2-methylnaphthalene, and naphthalene. Naphthalene was detected at estimated concentrations (0.03 to 0.041 µg/L) in samples from 4 locations, including upstream Laurel, the duplicate from Billings, Lockwood and Sidney. These estimated concentrations are below the reporting limit of approximately 0.05 µg/L. The concentrations of naphthalene were significantly below the surface water standard of 100 µg/L. The compound 2-methylnaphthalene was detected in the sample from Laurel at an estimated concentration of 0.01 µg/L, which is below the reporting limit of 0.05 µg/L. A DEQ-7 standard is not published for 2-methylnaphthalene.

VPH and EPH constituents were not detected in surface water samples.

Acetone and chloroform were also detected below the reporting limits in samples from Sidney and Castle Rock Lake, respectively. Acetone is a common laboratory and field contaminant and neither compound is indicative of petroleum hydrocarbons.

Although surface water samples were analyzed for PAHs using selected ion monitoring (SIM) in order to achieve low-level reporting limits, some PAHs were reported as non-detect with reporting limits that were higher than the surface water standards. These are highlighted on Table 7 and include: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

Other constituents that are not expected to be present in crude oil or petroleum were also reported as non-detect with reporting limits above the surface water standard. These are also highlighted on Table 7.

3.2 River and Castle Rock Lake Sediment Sample Results

River and Castle Rock Lake sediment results along with screening benchmarks are presented on Table 8. Sediment samples were collected at the same location or near where surface water samples were collected (Figures 3 through 11 and Table 2). River sampling locations include the upstream Laurel location, and 8 downstream locations. A sediment sample was also collected near the Castle Rock Lake intake to the Colstrip facility.

Results are compared with Region 3 BTAG screening benchmarks (USEPA 2006) in accordance with the AOC. For VPH and EPH constituents, Tier 1 residential surface soil screening levels <10 feet to groundwater (MDEQ 2009) were used per the AOC. NOAA SQuiRT (NOAA 2008) values were also reviewed; however, freshwater sediment values comparable to DEQ-7 aquatic life or human health values were not available for the compounds of interest.

Bis(2-ethylhexyl)phthalate was detected at a concentration of 2.1 mg/kg at the Hysham intake location, which exceeds the screening threshold of 0.18 mg/kg. Bis(2-ethylhexyl)phthalate is a common laboratory artifact and is a not associated with crude oil. No other constituents were detected in the river sediment samples at concentrations exceeding threshold values.

The compound 2-methylnaphthalene was detected at a concentration of 0.042 mg/kg, above the screening benchmark of 0.0202 mg/kg, in the sediment collected from Castle Rock Lake. This compound was also reported in other river sediment samples at concentrations less than screening benchmarks, including the sample from the upstream Laurel location. Concentrations in river sediments were generally similar and varied from 0.003 to 0.02 mg/kg.

Other PAHs were reported in each of the sediment samples at low concentrations which were below the screening benchmarks. In general, PAH concentrations in river sediment were similar from upstream at Laurel to downstream at Sidney.

Low levels of toluene were reported in sediment samples from Billings, Lockwood, Hysham, and Miles City. Detected toluene concentrations ranged from 0.005 to 0.03 mg/kg. Low concentrations of acetone, a common laboratory artifact, were also reported in river sediment samples.

VPH and EPH constituents were not detected in any of the river sediment samples or the sample from Castle Rock Lake. VPH reporting limits were significantly below screening benchmarks. The reporting limit for EPH in several of the sediment samples (ranging from 220 to 500 mg/kg) exceeded the screening threshold of 200 mg/kg following correction for percent solids; however, since EPH was not detected in any of the samples at a wet weight reporting limit that was below 200 mg/kg, analysis of EPH fractions was not required.

Sediment sample reporting limits were less than the screening benchmarks for most compounds; however, the reporting limits for 29 individual compounds exceeded the sediment screening benchmarks as noted on Table 8. As identified in the reporting limit tables included in the QAPP (ARCADIS 2012b), only 5 of these compounds are commonly associated with crude oil, including benzene, ethylbenzene, xylenes, isopropylbenzene, and acenaphthene. Since none of these compounds were positively identified in the sediment samples and the remaining petroleum-related compounds were analyzed with appropriate reporting limits, the sampling results suggest that the crude oil release has had little or no impact on the river sediments located near the public water supply intakes or on the sediment in Castle Rock Lake.

3.3 Sedimentation Unit Sediment Sample Results

Sedimentation unit samples were collected from 6 facilities (Table 3) and a duplicate was collected from Billings. Sampling locations are shown on Figures 3, 4, 5, 9, 10, and 11. Sedimentation unit sample results are provided in Table 9. Sedimentation units represent treatment units and are not intended to provide habitat for organisms that form the basis for BTAG screening benchmarks; therefore, comparisons to BTAG values are not applicable to the sedimentation unit sample results.

PAHs were detected in each of the sediment samples collected from the sedimentation units. Concentrations were generally similar in the samples from the upstream location at Laurel and from the downstream locations.

VOCs were detected in the sample from the sedimentation unit at Sidney (approximately 350 miles downstream from the pipeline). The concentration of xylene in the sediment sample from the sedimentation unit was reported as 0.098 mg/kg.

Toluene was detected in the sediment sample from the Sidney sedimentation unit at a concentration of 4.9 mg/kg. Toluene was reported at much lower concentration (0.13 mg/kg) in the sedimentation unit upstream at Laurel. Low levels of other aromatic VOCs were reported in the Sidney sedimentation unit sample, including trimethylbenzenes, ethylbenzene, and n-propylbenzene. Concentrations of these compounds ranged from 0.003 to 0.022 mg/kg.

Aliphatic C05 to C06 hydrocarbons (and, therefore, total VPH) were also detected at Sidney at a reported concentration of 7.2 mg/kg, which is significantly less than the residential soil RSBL of 60 mg/kg.

The compound 4-methylphenol was reported in the samples from the sedimentation units at Laurel, Billings and Lockwood. Low levels of acetone and 2-butanone were also detected in several of the sedimentation unit sediment samples. Chloroform and methylene chloride (common laboratory artifacts) were reported in the sedimentation unit sample from Lockwood. As identified in the reporting limit tables included in the QAPP (ARCADIS 2012b), 4-methylphenol, acetone, 2-butanone, chloroform, and methylene chloride are not associated with crude oil.

The reporting limit for EPH in several of the sediment samples from the sedimentation units exceeded the screening threshold of 200 mg/kg following correction for percent solids; however, since EPH was not detected in any of the samples at a wet weight reporting limit that was below 200 mg/kg, analysis of EPH fractions was not required.

Similar to the results for the river sediment samples, reporting limits were less than the screening benchmarks for most compounds; however, the reporting limits for 19 individual compounds exceeded the sediment screening benchmarks as noted on Table 9. As identified in the reporting limit tables included in the QAPP (ARCADIS 2012b), only 2 of these compounds are commonly associated with crude oil (xylenes and acenaphthene). Since acenaphthene was only detected in one sample at a concentrations that was slightly above the screening benchmark (at the Billings facility) and the majority of the other petroleum-related compounds were not detected at concentrations exceeding screening values with appropriate reporting limits, the sampling results suggest that the crude oil release has had little or no impact on sediment within the sedimentation units.

4. Summary and Recommendations

Surface water and river sediment were collected at the intakes to the 10 facilities included in this study (Figure 1), including the upstream Laurel facility. Sediment was also collected from sedimentation units at 6 of these facilities. Sample results are presented in Tables 7 (surface water), 8 (river and Castle Rock Lake sediment) and 9 (sedimentation unit sediment). The following key findings are based on the data presented in this report:

- Detected results for surface water samples collected under the PWS sampling program were below the DEQ-7 human health standards for surface water. Results for VPH, EPH, most aromatic VOCs and PAHs were reported as non-detect or less than surface water standards. Where constituents were detected, the concentrations were similar at the upstream Laurel location and in surface water from downstream locations.

- No constituents were detected in sediment samples from the Yellowstone River at concentrations exceeding USEPA ecological screening benchmarks, with the exception of bis(2-ethylhexyl) phthalate, a common field and laboratory artifact, in the sediment sample collected near the Hysham intake.

- The concentration of 2-methylnaphthalene in the sediment sample from Castle Rock Lake (0.042 mg/kg) exceeded the ecological screening benchmark of 0.020 mg/kg. No other compounds were detected above ecological screening benchmarks in the sediment sample from the lake.

- The compound 2-methylnaphthalene was detected in sediment samples collected from sedimentation units and settling basins from the upstream Laurel facility and downstream from the Billings and Lockwood facilities. Concentrations were similar in the samples collected from the upstream Laurel facility and the downstream Billings facility.

The submittal of this report completes EMPCO's monitoring of surface water and sediment at PWS intake areas along the Yellowstone River and monitoring of sediment within associated sedimentation units at the PWS facilities.

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Tables

Table 1
PWS Facility Features

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Location	Intake		Sedimentation Unit		
	Facility Intake Description[1]	Sample Location[2]	Description of Sedimentation Unit	Cleaning Frequency[3]	Chemicals Added[4]
Laurel	The intake is a cement structure located underwater in the middle of the river. The concrete structure adjacent to the bridge is the old intake and is no longer used.	Surface water and sediment samples collected adjacent to intake structure.	Sedimentation unit is a concrete structure located outside. Serpentine shape. Portions of the pond have sloped walls, others have vertical walls. Sample was collected from one location with vertical walls. Sample location is where water initially enters the pond.	Sedimentation unit is cleaned every 2 weeks. Previous cleaning conducted on July 9, 2012.	Polyaluminum Hydroxychloride
Billings	The intake is a channel lined with sheet pile. Steep shoreline and heavy rip rap on either side of channel. A secondary intake structure extends into the river upstream of primary intake. This intake is only used when the primary structure is offline because of maintenance, construction, or emergency.	Surface water and sediment samples collected adjacent to intake structure.	Sedimentation unit is approximately 650 feet by 200 feet and located outside. A concrete structure or impermeable liner was not observed. Water enters the pond from the river through a channel lined with sheet pile. There is a smaller secondary basin south of the primary basin. This basin is only used when the primary basin is out of service due to maintenance, construction or emergency. This secondary intake had not been used between the time of the incident and when sampling occurred.	Sedimentation unit is cleaned once a year.	Kemira PAX-XL3920LX
Lockwood	The intake is located approximately 100 feet upstream of the water treatment facility. Location is between the Montana Rail Link bridge and Route 87.	Surface water and sediment samples collected approximately 200 feet upstream of intake structure.	Sedimentation unit is a concrete structure located inside water treatment building. Serpentine shape of sedimentation unit forces water to flow in a specific path, allowing sediment to settle out. Mechanical mixing occurs at mouth of settling pond. A catwalk is present along one side of pond.	Cleaned once a year.	Ferric Chloride
Hysham	Intake consists of a 1250 foot long perforated pipe buried in a gravel pack approximately 18 feet below water surface, running parallel to the shore.	Surface water and sediment sample collected on upstream end of buried perforated intake pipe.	The Hysham water treatment facility does not have a sedimentation unit. Water is drawn directly into two clarifiers located inside the water treatment building. Clarifiers are backwashed every 3 hours.	NA	NA
Colstrip - Yellowstone River	Intake in Yellowstone River is a cement structure located in a channel on the right bank looking downstream, approximately 5 miles upstream of Forsyth. Water from this intake is pumped by 2 pipes approximately 30 miles south to Castle Rock Lake in Colstrip.	Surface water and sediment samples collected adjacent to intake structure.	The Colstrip water treatment facility does not have a settling pond. Water enters the facility directly into filter beds. Intake located in Castle Rock Lake. Sediment and surface water sample collected in lake.	NA	NA
Colstrip - Castle Rock Lake	Intake to the water treatment facility is a cement structure located in Castle Rock Lake. Intake is approximately 1000 feet from the public boat ramp. Intake is surrounded by a floating metal boom.	Surface water sample collected adjacent to intake structure[5]. Sediment sample collected approximately 100 feet south of intake structure.			
Forsyth	Intake is approximately 0.25 miles downstream of Highway 12 Bridge on right bank of river looking downstream. Cement structure with heavy rip rap along shore.	Surface water and sediment samples collected adjacent to intake structure.	Sediment first settles out in a wet well. Wet well is located approximately 20 feet underground, accessible only by a trap door. Water leaves the wet well and enters a settling basin inside the water treatment facility. Neither the wet well nor the settling basin are practicable for sampling. No sedimentation unit samples were collected.	The wet well and settling basin are cleaned once a year.	NA
Miles City	Intake is approximately 5 miles downstream of Fort Keogh access point, and 1.2 miles upstream of Highway 59 bridge. Shoreline is steep with large riprap. Intake is cement structure on shoreline.	Surface water sample collected adjacent to intake structure. Sediment collected approximately 200 feet upstream of intake.	Total of 4 concrete sedimentation units. Two small square basins (~40 ft by 60 ft) adjacent to two larger rectangular basins (~60 ft by 160 ft). One of the small ponds is covered and inaccessible for sampling. Water moves through the square pond to the rectangular pond, with the ponds running in parallel. The rectangular ponds have sloped sides and could not be sampled. The uncovered square pond have vertical sides.	Settling ponds cleaned every year in the fall.	Aluminum Sulfate Solution, Aluminum Chlorohydrate, Polydimethyldiallylammonium Chloride, SUPERFLOC® C-1598

Table 1
PWS Facility Features

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Location	Intake		Sedimentation Unit		
	Facility Intake Description[1]	Sample Location[2]	Description of Sedimentation Unit	Cleaning Frequency[3]	Chemicals Added[4]
Glendive	Intake is located 200 ft north of the West Bell Street Bridge, adjacent to the water treatment plant.	Surface water and sediment sample collected approximately 900 feet upstream of the intake structure.	Total of 5 concrete sedimentation units 100 ft by 30 ft, 4 to 8 feet deep. Water intake comes into one basin and flows over into subsequent basins through a canal.	Basins are cleaned twice a year.	Pristine Chemicals 2386
Sidney	Intake is located 0.5 miles downstream from Sidney Bridge. Boat access at Sidney Bridge. Steep shoreline adjacent to intake structure.	Surface water and sediment sample collected adjacent to intake structure.	Sedimentation unit is a tank, approximately 13 feet deep, located inside MDU facility. Bottom of tank has a cone shape. Tank was accessed for sampling from a narrow catwalk adjacent to the tank.	Tank is flushed every 60 gallons. Tank was cleaned by flushing with a fire house in June. July 2012 sample was collected from the intake at the the pump house instead.	NALCLEAR 8173 PULV Flocculent NALCOLYTE® 8100 Coagulant

Notes:
1. Information on the intake structures obtained from reconnaissance conducted between August 29 and September 1, 2011, discussion with facility operators during site visits conducted between September 14 and 17, and October 25, 2011 and visual observations
2. Sample location based on target coordinates and accessibility based on field conditions.
3. Cleaning frequency information from the PWS facility operators.
4. Information on chemicals added to the sedimentation units obtained from PWS facility operators during site visit. Material Safety Data Sheets were provided by each operator.
5. The Colstrip Water Treatment Facility operator and PPL Montana operator indicated that the intake was located 8 feet below the water surface. The surface water sample was collected at 8 feet below the water surface.
6. MDU = Montana Dakota Utilities
7. NA = Information not Available.

Table 2
PWS Intake Surface Water and Sediment Sampling Locations

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Public Surface Water Supply Location[1]	Sample ID	date collected	Longitude[2]	Latitude[2]	Distance from Pipeline Incident	used ponar dredge	depth of water (feet)	sediment thickness (feet)	sediment description
Laurel	LAMT072312SE0101	7/23/12	-108.7596830	45.6542936	0.25 miles upstream	x	4		dark brown fine SAND, loose, wet
	LAMT072312SW0101	7/23/12	-108.7598148	45.6542460					Surface Water
Billings	BIMT072312SE0102	7/23/12	-108.4777567	45.7743172	19 miles downstream	x	6		dark gray silty SAND (SM) soft, wet
	BIMT072312SW0102	7/23/12	-108.4777789	45.7743054					Surface Water
Lockwood	LOMT072312SE0103	7/23/12	-108.4696182	45.7955209	21 miles downstream	x	4		dark gray silty SAND (SM) soft, wet
	LOMT072312SW0103	7/23/12	-108.4697076	45.7954631					Surface Water
Hysham	HYMT072412SE0102	7/24/12	-107.2407673	46.3138016	109 miles downstream		shallow		dark gray silty (40%) sand (60%)
	HYMT072412SW0101	7/24/12	-107.2407674	46.3138016					Surface Water
	HYMT080112SW0101	8/1/12	-107.2407674	46.3138016					Surface Water
Colstrip - Yellowstone River	COMT072012SE0102	7/20/12	-106.7963070	46.2657639	139 miles downstream		4		wet
	COMT072012SW0102	7/20/12	-106.7963186	46.2657510					Surface Water
Colstrip - Castle Rock Lake	COMT071812SE0101	7/18/12	-106.6371099	45.8939381	169 miles downstream	x	15	0.5	dark gray SILT, trace organics, trace fine sand
	COMT071812SW0101	7/18/12	-106.6371402	45.8939516					Surface Water
Forsyth	FOMT072012SE0101	7/20/12	-106.6905093	46.2665751	145 miles downstream	x	8		dark gray, very fine silty SAND loose, soft, wet
	FOMT072012SW0101	7/20/12	-106.6905244	46.2665589					Surface Water
Miles City	MCMT071812SE0102	7/18/12	-105.8708879	46.4057324	198 miles downstream	x	2	0.4	dark gray silty sand
	MCMT071812SW0102	7/18/12	-105.8702828	46.4063550					Surface Water
Glendive	GLMT071912SE0103	7/19/12	-104.7187243	47.1041856	289 miles downstream	x	3.5	0.2	dark gray fine silty SAND trace organics
	GLMT071912SW0102	7/19/12	-104.7187259	47.1041804					Surface Water
Sidney	SIMT071912SE0101	7/19/12	-104.1563929	47.6779411	351 miles downstream	x	NA		NA
	SIMT071912SW0101	7/19/12	-104.1563971	47.6779492					Surface Water

Notes:

1. Public Water Supply locations were recorded during sampling on September 14 through 17 and October 25, 2011.
2. Coordinate system in Geographic Coordinate System – WGS 1984. Sample locations were chosen from accessibility by land or boat, and bank river conditions.
3. NA, or if field is left blank, data are not applicable or available.

Table 3
PWS Sedimentation Unit Sampling Locations

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Public Surface Water Supply Location	Date Collected	Location	Sample ID	Longitude1	Latitude1	Distance from Pipeline Incident	Used Ponar Dredge	Depth of Water (feet)	Sediment Thickness (feet)	Sediment Description	PID Reading (ppm)
Laurel	7/17/12	most south, last cleaned 2 weeks ago	LAMT071712SE0101	-108.7595030	45.6554808	0.25 miles upstream	x	5.08	0.2	loose silty SAND (SM), very wet, brown	0.3
Billings	7/17/12	north side of sedimentation basin, from intake platform	BIMT071712SE0103	-108.4779331	45.7740017	19 miles downstream	x	4.97	0.2	silty sand, brown, soft, loose, wet	1.3
Lockwood	7/17/12	2nd story, primary intake, southeast corner	LOMT071712SE0102	-108.4675518	45.7974143	21 miles downstream	x	16.41	0.5	brown silty SAND, very loose, wet	0.2
Miles City	7/24/12	basin behind plant	MCMT072412SE0101	-105.8707378	46.4050423	198 miles downstream			0.3	gray, 20-30% silt/clay, 80-70% fine sand	
Glendive	7/19/12	at influent, southeast corner of tank #1	GLMT071912SE0104	-104.7175186	47.1065665	289 miles downstream	x	2.5	>1.0	dark gray silty fine SAND, loose wet	0
Sidney	7/19/12	intake pump house	SIMT071912SE0102	-104.1568967	47.6781917	351 miles downstream	x		0.2	dark gray silty sand	0

Notes:

1. Coordinate system in Geographic Coordinate System – WGS 1984. Sample locations were chosen from accessibility by land or boat, and bank river conditions.
2. If field is left blank, data are not available.

Table 4
Surface Water Field Measurements

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Location	Sample ID	Date	Depth (feet)	Temperature (C)	Spec Cond (ms/cm2)	DO (mg/L)	pH	ORP	Turbidity (NTU)
Laurel	LAMT072312SW0101	7/23/12	4	21.554	0.16	9.43	8.15	-219	4.2
Billings	BIMT072312SW0102	7/23/12	6	22.34	0.164	9.31	8.27	-273	8.8
Lockwood	LOMT072312SW0103	7/23/12	4	22.81	0.233	9.82	8.45	-268	8.8
Hysham	HYMT080112SW0101	8/1/12	shallow *	24.57	0.478	2.04	8.13	55.8	NA
Colstrip – River	COMT072012SW0102	7/20/12	4	24.27	0.372	7	8.31	-295	57.2
Colstrip – Castle Rock Lake	COMT071812SW0101	7/18/12	8 **	25.89	0.419	6.66	8.17	-240	1.42
Forsyth	FOMT072012SW0101	7/20/12	8	24.29	0.374	7.86	8.19	-270	11.4
Miles City	MCMT071812SW0102	7/18/12	2	28.12	0.412	6.82	8.57	-241	13
Glendive	GLMT071912SW0102	7/19/12	3.5	30.45	0.466	6.43	8.41	-231	23.9
Sidney	SIMT071912SW0101	7/19/12	NA	27.42	0.463	6.97	8.04	-245	107

Notes:
1. * Location noted as being too shallow to use discrete sampler.
2. ** Sample was collected at approximate level of intake at 8 feet, water column at sediment location measured as 15.5'.
3. NA - not available.

Table 5
Sample Analytical Matrix

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Public Surface Water Supply Location	Sample ID	Sample Type	Analysis Performed						
			VOC	VPH	SVOC	PAH	EPH	TOC	TSS
			EPA 8260C	Massachusetts Method (MT Modified)	EPA Method 8270C	EPA Method 8270 SIM	Massachusetts Method (MT Modified)	SM 5310B	Standard Method 2540 D
Laurel	LAMT072312SW0101	river surface water	x	x	x	x	x		x
	LAMT072312SW0101	MS/MSD	x	x	x	x	x		x
	LAMT072312SE0101	river sediment	x	x	x	x	x	x	
	LAMT071712SE0101	sedimentation unit	x	x	x	x	x	x	
Billings	BIMT072312SW0102	river surface water	x	x	x	x	x		x
	DUP2(072312)	river surface water	x	x	x	x	x		x
	BIMT072312SE0102	river sediment	x	x	x	x	x	x	
	BIMT071712SE0103	sedimentation unit	x	x	x	x	x	x	
	DUP1(071712)FD	sedimentation unit	x	x	x	x	x	x	
Lockwood	LOMT072312SW0103	river surface water	x	x	x	x	x		x
	LOMT072312SE0103	river sediment	x	x	x	x	x	x	
	LOMT071712SE0102	sedimentation unit	x	x	x	x	x	x	
	LOMT071712SE0102	MS/MSD	x	x	x	x	x	x	
Hysham	HYMT080112SW0101	river surface water	x	x	x	x	x		x
	HYMT072412SE0102	river sediment	x	x	x	x	x	x	
Colstrip - Yellowstone River	COMT072012SW0102	river surface water	x	x	x	x	x		x
	COMT072012SE0102	river sediment	x	x	x	x	x	x	
Colstrip - Castle Rock Lake	COMT071812SW0101	lake surface water	x	x	x	x	x		x
	COMT071812SE0101	lake sediment	x	x	x	x	x	x	
Forsyth	FOMT072012SW0101	river surface water	x	x	x	x	x		x
	FOMT072012SE0101	river sediment	x	x	x	x	x	x	
Miles City	MCMT071812SW0102	river surface water	x	x	x	x	x		x
	MCMT071812SE0102	river sediment	x	x	x	x	x	x	
	MCMT072412SE0101	sedimentation unit	x	x	x	x	x	x	
Glendive	GLMT071912SW0102	river surface water	x	x	x	x	x		x
	GLMT071912SE0103	river sediment	x	x	x	x	x	x	
	GLMT071912SE0104	sedimentation unit	x	x	x	x	x	x	
MDU-Sidney	SIMT071912SW0101	river surface water	x	x	x	x	x		x
	SIMT071912SE0101	river sediment	x	x	x	x	x	x	
	SIMT071912SE0102	sedimentation unit	x	x	x	x	x	x	

Notes:

1. MDU = Montana Dakota Utilities
2. VPH = Volatile Petroleum Hydrocarbons
3. SVOC = Semivolatile Organic Compounds
4. PAHs = Polycyclic Aromatic Hydrocarbons
5. EPH = Extractable Petroleum Hydrocarbons
6. TOC = Total Organic Carbon
7. TSS = Total Suspended Solids

Table 6
Field QC Sample Key

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

Date Collected	Sample ID	sample type
7/17/2012	EBSE(071712)	rinsate
7/17/2012	TB(071712)	trip blank
7/17/2012	LOMT071712SE0102 (MS/MSD)	MS/MSD
7/17/2012	BIMT071712SE0103 DUP1(071712)FD	duplicate
7/18/2012	EBSW(071812)	rinsate
7/18/2012	EBSE(071812)	rinsate
7/18/2012	TB(071812)	trip blank
7/19/2012	EBSW(071912)	rinsate
7/19/2012	EBSE(071912)	rinsate
7/19/2012	TB(071912)	trip blank
7/20/2012	EBSW(072012)	rinsate
7/20/2012	EBSE(072012)	rinsate
7/20/2012	TB(072012)	trip blank
7/23/2012	EBSW(072312)	rinsate
7/23/2012	EBSE(072312)	rinsate
7/23/2012	TB(072312)	trip blank
7/23/2012	LAMT072312SW0101 (MS/MSD)	MS/MSD
7/23/2012	BIMT072312SW0102 DUP2(072312)	duplicate
7/24/2012	EBSE(072412)	rinsate
7/24/2012	TB(072412)	trip blank

Table 7
Surface Water Sample Results

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			Sample	LAMT-SW0101	BIMT-SW0102	BIMT-SW0102	LOMT-SW0103	HYMT-SW0101	HYMT-SW0101	COMT-SW0102	COMT-SW0101	FOMT-SW0101	MCMT-SW0102	GLMT-SW0102	SIMT-SW0101
			Date	LAMT072312SW0101	BIMT072312SW0102	DUP2(072312)	LOMT072312SW0103	HYMT072412SW0101	HYMT080112SW0101	COMT072012SW0102	COMT071812SW0101	FOMT072012SW0101	MCMT071812SW0102	GLMT071912SW0102	SIMT071912SW0101
			Sample Type	7/23/2012	7/23/2012	7/23/2012	7/23/2012	7/24/2012	8/1/2012	7/20/2012	7/18/2012	7/20/2012	7/18/2012	7/19/2012	7/19/2012
				Laurel	Billings	Billings duplicate	Lockwood	Hysham	Hysham	Colstrip	Colstrip	Forsyth	Miles City	Glendive	Sidney
				River	River	River	River	River	River	River	Castle Rock Lake	River	River	River	River
Analyte	**Analysis Method**	**Units**	**Surface Water Standard [1]**												
1,1,1,2-Tetrachloroethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,1-Trichloroethane	EPA 8260B	ug/L	200	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	EPA 8260B	ug/L	1.7	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	EPA 8260B	ug/L	3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2-Trichlorotrifluoroethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethene	EPA 8260B	ug/L	7	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloropropene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,3-Trichloropropane	EPA 8260B	ug/L	NS	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	EPA 8260B	ug/L	35	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,4-Trimethylbenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromo-3-chloropropane	EPA 8260B	ug/L	0.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane (EDB)	EPA 8260B	ug/L	0.004	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	EPA 8260B	ug/L	420	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloroethane	EPA 8260B	ug/L	3.8	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	EPA 8260B	ug/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichlorobenzene	EPA 8260B	ug/L	320	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,3-Dichloropropane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	EPA 8260B	ug/L	75	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2,2-Dichloropropane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Butanone (MEK)	EPA 8260B	ug/L	NS	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
2-Chlorotoluene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chlorotoluene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Methyl-2-pentanone (MIBK)	EPA 8260B	ug/L	NS	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
Acetone	EPA 8260B	ug/L	NS	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	**3.8 J**
Alkyl chloride	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Benzene	EPA 8260B	ug/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromochloromethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromodichloromethane	EPA 8260B	ug/L	5.5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromomethane	EPA 8260B	ug/L	47	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon tetrachloride	EPA 8260B	ug/L	2.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorobenzene	EPA 8260B	ug/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chlorodibromomethane	EPA 8260B	ug/L	4	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	EPA 8260B	ug/L	57	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	**0.2 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	EPA 8260B	ug/L	30	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene	EPA 8260B	ug/L	70	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	EPA 8260B	ug/L	3.4	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dibromomethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorodifluoromethane (CFC-12)	EPA 8260B	ug/L	1000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorofluoromethane	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Diethyl ether	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Ethylbenzene	EPA 8260B	ug/L	530	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Hexachloro-1,3-butadiene	EPA 8260B	ug/L	4.4	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Isopropylbenzene (Cumene)	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methylene chloride	EPA 8260B	ug/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Methyl-tert-butylether	EPA 8260B	ug/L	30	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Butylbenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Propylbenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
p-Isopropyltoluene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
sec-Butylbenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Styrene	EPA 8260B	ug/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
tert-Butylbenzene	EPA 8260B	ug/L	NS	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Tetrachloroethene	EPA 8260B	ug/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Tetrahydrofuran	EPA 8260B	ug/L	NS	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	NA	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
Toluene	EPA 8260B	ug/L	1000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-dichloroethene	EPA 8260B	ug/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-dichloropropene	EPA 8260B	ug/L	2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Tribromomethane	EPA 8260B	ug/L	43	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethene	EPA 8260B	ug/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane (CFC-11)	EPA 8260B	ug/L	10000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vinyl chloride	EPA 8260B	ug/L	0.25	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Xylenes, total	EPA 8260B	ug/L	10000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2,4-Trichlorobenzene	EPA 8270	ug/L	35	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	EPA 8270	ug/L	420	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Diphenylhydrazine	EPA 8270	ug/L	0.36	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	EPA 8270	ug/L	320	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	EPA 8270	ug/L	75	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1-Methylnaphthalene	EPA 8270	ug/L	NS	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
2,4,5-Trichlorophenol	EPA 8270	ug/L	1800	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2,4,6-Trichlorophenol	EPA 8270	ug/L	14	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2,4-Dichlorophenol	EPA 8270	ug/L	77	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2,4-Dimethylphenol	EPA 8270	ug/L	380	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2,4-Dinitrophenol	EPA 8270	ug/L	69	< 29 U	< 28 U	< 28 U	< 28 U	NA	< 29 U	< 30 U	< 29 U	< 30 U	< 29 U	< 29 U	< 29 U
2,4-Dinitrotoluene	EPA 8270	ug/L	1.1	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
2,6-Dinitrotoluene	EPA 8270	ug/L	0.5	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Chloronaphthalene	EPA 8270	ug/L	1000	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Chlorophenol	EPA 8270	ug/L	81	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Methylnaphthalene	EPA 8270	ug/L	NS	**0.010 J**	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U

Table 7
Surface Water Sample Results

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			Sample	LAMT-SW0101	BIMT-SW0102	BIMT-SW0102	LOMT-SW0103	HYMT-SW0101	HYMT-SW0101	COMT-SW0102	COMT-SW0101	FOMT-SW0101	MCMT-SW0102	GLMT-SW0102	SIMT-SW0101
				LAMT072312SW0101	BIMT072312SW0102	DUP2(072312)	LOMT072312SW0103	HYMT072412SW0101	HYMT080112SW0101	COMT072012SW0102	COMT071812SW0101	FOMT072012SW0101	MCMT071812SW0102	GLMT071912SW0102	SIMT071912SW0101
			Date	7/23/2012	7/23/2012	7/23/2012	7/23/2012	7/24/2012	8/1/2012	7/20/2012	7/18/2012	7/20/2012	7/18/2012	7/19/2012	7/19/2012
			Sample Type	Laurel River	Billings River	Billings duplicate River	Lockwood River	Hysham River	Hysham River	Colstrip River	Colstrip Castle Rock Lake	Forsyth River	Miles City River	Glendive River	Sidney River
Analyte	**Analysis Method**	**Units**	**Surface Water Standard [1]**												
2-Methylphenol (o-Cresol)	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Nitroaniline	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Nitrophenol	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
3,3'-Dichlorobenzidine	EPA 8270	ug/L	0.21	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
3-Nitroaniline	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4,6-Dinitro-2-methylphenol	EPA 8270	ug/L	13	< 15 U	< 14 U	< 14 U	< 14 U	NA	< 15 U	< 15 U	< 14 U	< 15 U	< 14 U	< 14 U	< 15 U
4-Bromophenyl phenyl ether	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Chloro-3-methylphenol	EPA 8270	ug/L	3000	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Chloroaniline	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Chlorophenyl phenyl ether	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Methylphenol	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Nitroaniline	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
4-Nitrophenol	EPA 8270	ug/L	60	< 29 U	< 28 U	< 28 U	< 28 U	NA	< 29 U	< 30 U	< 29 U	< 30 U	< 29 U	< 29 U	< 29 U
Acenaphthene	EPA 8270	ug/L	670	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Acenaphthylene	EPA 8270	ug/L	NS	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Anthracene	EPA 8270	ug/L	8300	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Benzo(a)anthracene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Benzo(a)pyrene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Benzo(b)fluoranthene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Benzo(g,h,i)perylene	EPA 8270	ug/L	NS	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Benzo(k)fluoranthene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Bis(2-chloroethoxy)methane	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bis(2-chloroethyl)ether	EPA 8270	ug/L	0.3	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
bis(2-chloroisopropyl)ether	EPA 8270	ug/L	1400	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 UJ-	< 1 U	< 1 UJ-	< 1 U	< 1 UJ-	< 1 UJ-
Bis(2-ethylhexyl)phthalate	EPA 8270	ug/L	6	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Butylbenzylphthalate	EPA 8270	ug/L	1500	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbazole	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chrysene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Dibenzo(a,h)anthracene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Dibenzofuran	EPA 8270	ug/L	NS	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Diethyl phthalate	EPA 8270	ug/L	17000	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Dimethyl phthalate	EPA 8270	ug/L	270000	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Di-n-butyl phthalate	EPA 8270	ug/L	2000	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Di-n-octyl phthalate	EPA 8270	ug/L	NS	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Fluoranthene	EPA 8270	ug/L	130	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Fluorene	EPA 8270	ug/L	1100	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Hexachloro-1,3-butadiene	EPA 8270	ug/L	4.4	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Hexachlorobenzene	EPA 8270	ug/L	0.0028	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Hexachloroethane	EPA 8270	ug/L	14	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Indeno(1,2,3-cd)pyrene	EPA 8270	ug/L	0.038	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Isophorone	EPA 8270	ug/L	350	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Naphthalene	EPA 8270	ug/L	100	**0.041 J**	< 0.047 U	**0.036 J**	**0.039 J**	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	**0.030 J**
Nitrobenzene	EPA 8270	ug/L	17	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
n-Nitrosodimethylamine	EPA 8270	ug/L	0.0069	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
n-Nitroso-di-n-propylamine	EPA 8270	ug/L	0.05	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
n-nitrosodiphenylamine	EPA 8270	ug/L	33	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Pentachlorophenol	EPA 8270	ug/L	1	< 5 U	< 5 U	< 5 U	< 5 U	NA	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Phenanthrene	EPA 8270	ug/L	NS	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Phenol	EPA 8270	ug/L	300	< 1 U	< 0.9 U	< 0.9 U	< 0.9 U	NA	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Pyrene	EPA 8270	ug/L	830	< 0.048 U	< 0.047 U	< 0.047 U	< 0.047 U	NA	< 0.049 U	< 0.050 U	< 0.048 U	< 0.050 U	< 0.048 U	< 0.048 U	< 0.049 U
Total Extractable Hydrocarbons [1]	MADEP EPH	ug/L	1000	< 500 U	< 500 U	< 500 U	< 500 U	NA	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U	< 500 U
Aliphatic (C05-C08).Unadjusted [1]	MADEP VPH	ug/L	700	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	NA	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
Aliphatic (C09-C12).Unadjusted [1]	MADEP VPH	ug/L	1000	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	NA	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
C9-C10 Aromatics [1]	MADEP VPH	ug/L	1000	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	NA	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
Total Purgeable Hydrocarbons [1]	MADEP VPH	ug/L	NS	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	NA	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
Total Suspended Solids (mg/L)	SM 2540D	mg/L	NS	**5.2 J**	**14.8**	**19.6**	**8.8 J**	**592**	NA	**232**	< 12.0 U	**61.2**	**30.0**	**74.5**	**149**

Notes:

1. DEQ-7 human health standards for surface water (MDEQ 2012) for most compounds. Used Tier 1 groundwater risk based screening levels (RBSLs) (MDEQ 2009) for MADEP VPH and EPH results.
2. Results are in microgram per liter (ug/L) except for total suspended solids which are in milligram per liter (mg/L)
3. NS = No standard or screening criteria used.
4. EPA = US Environmental Protection Agency.
5. MADEP = Massachusetts Department of Environmental Protection.
6. EPH = Extractable Petroleum Hydrocarbons.
7. VPH = Volatile Petroleum Hydrocarbons.
8. SM = Standard Methods.
9. < = Less than (not detected).
10. U = Compound was analyzed for but not detected. The associated value is the compound quantitation limit.
11. = The compound was positively identified; however, the associated numerical value is an estimated concentration.
12. Detections are **boldfaced**.
13. Shade indicates non-detect concentration above the standard/RBSLs.
14. **Bold/shade indicates detected concentration greater than standard/RBSLs (none were detected above standard/RBSLs)**

Table 8
River and Castle Rock Lake Sediment Sample Results

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			Location	LAMT-SE0101	BIMT-SE0102	LOMT-SE0103	HYMT-SE0102	COMT-SE0102	COMT-SE0101	FOMT-SE0101	MCMT-SE0101	GLMT-SE0103	SIMT-SE0101
			Sample	LAMT072312SE0101	BIMT072312SE0102	LOMT072312SE0103	HYMT072412SE0102	COMT072012SE0102	COMT071812SE0101	FOMT072012SE0101	MCMT072412SE0101	GLMT071912SE0103	SIMT071912SE0101
			Date	7/23/2012	7/23/2012	7/23/2012	7/24/2012	7/20/2012	7/18/2012	7/20/2012	7/24/2012	7/19/2012	7/19/2012
			Location name	Laurel	Billings	Lockwood	Hysham	Colstrip	Colstrip	Forsyth	Miles City	Glendive	Sidney
			Other notes	River	River	River	River	River	Lake	River	River	River	River
Analyte	**Analysis Method**	**Units**	**Screening level[1]**										
1,1,1,2-Tetrachloroethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,1,1-Trichloroethane	EPA 8260B	mg/kg	0.0302	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,1,2,2-Tetrachloroethane	EPA 8260B	mg/kg	1.36	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,1,2-Trichloroethane	EPA 8260B	mg/kg	1.24	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,1,2-Trichlorotrifluoroethane	EPA 8260B	mg/kg	NS	< 0.014 U	< 0.015 U	< 0.017 U	< 0.016 U	< 0.059 U	< 2.3 U	< 0.016 U	< 0.015 U	< 0.015 U	< 0.015 U
1,1-Dichloroethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,1-Dichloroethene	EPA 8260B	mg/kg	0.031	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,1-Dichloropropene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2,3-Trichlorobenzene	EPA 8260B	mg/kg	0.858	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2,3-Trichloropropane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2,4-Trichlorobenzene	EPA 8260B	mg/kg	2.1	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2,4-Trimethylbenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2-Dibromo-3-chloropropane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2-Dibromoethane (EDB)	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2-Dichlorobenzene	EPA 8260B	mg/kg	0.0165	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2-Dichloroethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2-Dichloropropane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,3,5-Trimethylbenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,3-Dichlorobenzene	EPA 8260B	mg/kg	4.43	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,3-Dichloropropane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,4-Dichlorobenzene	EPA 8260B	mg/kg	0.599	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
2,2-Dichloropropane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
2-Butanone (MEK)	EPA 8260B	mg/kg	NS	< 0.014 U	**0.011 J**	< 0.017 U	< 0.016 U	< 0.059 U	< 2.3 U	< 0.016 U	< 0.015 U	< 0.015 U	< 0.015 U
2-Chlorotoluene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
4-Chlorotoluene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
4-Methyl-2-pentanone (MIBK)	EPA 8260B	mg/kg	NS	< 0.014 U	< 0.015 U	< 0.017 U	< 0.016 U	< 0.059 U	< 2.3 U	< 0.016 U	< 0.015 U	< 0.015 U	< 0.015 U
Acetone	EPA 8260B	mg/kg	NS	**0.027 J**	**0.057**	**0.029 J**	**0.015 J**	**0.099 J+**	< 4.7 U	**0.016 J+**	**0.015 J**	< 0.029 U	< 0.03 U
Alkyl chloride	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Benzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Bromobenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Bromochloromethane	EPA 8260B		NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Bromodichloromethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Bromomethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Carbon tetrachloride	EPA 8260B	mg/kg	0.0642	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Chlorobenzene	EPA 8260B	mg/kg	0.00842	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Chlorodibromomethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Chloroethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Chloroform	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Chloromethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
cis-1,2-Dichloroethene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
cis-1,3-Dichloropropene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Dibromomethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Dichlorodifluoromethane (CFC-12)	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 UJ-	< 1.2 U	< 0.008 UJ-	< 0.007 U	< 0.007 UJ-	< 0.008 UJ-
Dichlorofluoromethane	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 UJ-	< 1.2 U	< 0.008 UJ-	< 0.007 U	< 0.007 UJ-	< 0.008 UJ-
Diethyl ether	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Ethylbenzene	EPA 8260B	mg/kg	1.1	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Hexachloro-1,3-butadiene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Isopropylbenzene (Cumene)	EPA 8260B	mg/kg	0.086	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Methylene chloride	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Methyl-tert-butylether	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
n-Butylbenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
n-Propylbenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
p-Isopropyltoluene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	**0.002 J**	< 0.007 U	< 0.008 U
sec-Butylbenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Styrene	EPA 8260B	mg/kg	0.559	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
tert-Butylbenzene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Tetrachloroethene	EPA 8260B	mg/kg	0.468	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Tetrahydrofuran	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Toluene	EPA 8260B	mg/kg	NS	< 0.007 U	**0.031**	**0.003 J**	**0.012**	< 0.03 U	< 1.2 U	**0.005 J**	**0.006 J**	< 0.007 U	< 0.008 U
trans-1,2-dichloroethene	EPA 8260B	mg/kg	1.05	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
trans-1,3-dichloropropene	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Tribromomethane	EPA 8260B	mg/kg	0.654	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Trichloroethene	EPA 8260B	mg/kg	0.0969	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Trichlorofluoromethane (CFC-11)	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Vinyl chloride	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
Xylenes, total	EPA 8260B	mg/kg	NS	< 0.007 U	< 0.008 U	< 0.009 U	< 0.008 U	< 0.03 U	< 1.2 U	< 0.008 U	< 0.007 U	< 0.007 U	< 0.008 U
1,2-Diphenylhydrazine	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
1-Methylnaphthalene	EPA 8270	mg/kg	NS	**0.0063 J**	**0.014**	**0.015**	**0.0061**	**0.011 J**	**0.022**	**0.0068 J**	**0.0043**	**0.0036 J**	< 0.0078 U
2,4,5-Trichlorophenol	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2,4,6-Trichlorophenol	EPA 8270	mg/kg	0.213	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2,4-Dichlorophenol	EPA 8270	mg/kg	0.117	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2,4-Dimethylphenol	EPA 8270	mg/kg	0.029	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2,4-Dinitrophenol	EPA 8270	mg/kg	NS	< 4.3 U	< 4.8 U	< 5 U	< 4.7 U	< 10 U	< 8.3 U	< 4.6 U	< 1.5 U	< 4.7 U	< 4.7 U
2,4-Dinitrotoluene	EPA 8270	mg/kg	0.0416	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
2,6-Dinitrotoluene	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2-Chloronaphthalene	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.15 U	< 0.34 U	< 0.27 U	< 0.15 U	< 0.05 U	< 0.15 U	< 0.16 U
2-Chlorophenol	EPA 8270	mg/kg	0.0312	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2-Methylnaphthalene	EPA 8270	mg/kg	0.0202	**0.0085**	**0.019**	**0.02**	**0.0079**	**0.014 J**	**0.042**	**0.0088**	**0.0056**	**0.0042 J**	**0.0032 J**
2-Methylphenol (o-Cresol)	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2-Nitroaniline	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
2-Nitrophenol	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	**0.14 J**	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
3,3'-Dichlorobenzidine	EPA 8270	mg/kg	0.127	< 1.4 U	< 1.6 U	< 1.7 U	< 1.6 U	< 3.5 U	< 2.8 U	< 1.5 U	< 0.51 U	< 1.6 U	< 1.6 U

Table 8
River and Castle Rock Lake Sediment Sample Results

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			Location	LAMT-SE0101	BIMT-SE0102	LOMT-SE0103	HYMT-SE0102	COMT-SE0102	COMT-SE0101	FOMT-SE0101	MCMT-SE0101	GLMT-SE0103	SIMT-SE0101
			Sample	LAMT072312SE0101	BIMT072312SE0102	LOMT072312SE0103	HYMT072412SE0102	COMT072012SE0102	COMT071812SE0101	FOMT072012SE0101	MCMT072412SE0101	GLMT071912SE0103	SIMT071912SE0101
			Date	7/23/2012	7/23/2012	7/23/2012	7/24/2012	7/20/2012	7/18/2012	7/20/2012	7/24/2012	7/19/2012	7/19/2012
			Location name	Laurel	Billings	Lockwood	Hysham	Colstrip	Colstrip	Forsyth	Miles City	Glendive	Sidney
			Other notes	River	River	River	River	River	Lake	River	River	River	River
Analyte	**Analysis Method**	**Units**	**Screening level[1]**										
3-Nitroaniline	EPA 8270	mg/kg	NS	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
4,6-Dinitro-2-methylphenol	EPA 8270	mg/kg	NS	< 2.1 U	< 2.4 U	< 2.5 U	< 2.3 U	< 5.2 U	< 4.1 U	< 2.3 U	< 0.76 U	< 2.3 U	< 2.4 U
4-Bromophenyl phenyl ether	EPA 8270	mg/kg	1.23	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
4-Chloro-3-methylphenol	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
4-Chloroaniline	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 UJ	< 0.16 U	< 0.16 U
4-Chlorophenyl phenyl ether	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
4-Methylphenol	EPA 8270	mg/kg	0.67	< 0.14 U	< 0.16 U	**0.48**	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
4-Nitroaniline	EPA 8270	mg/kg	NS	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
4-Nitrophenol	EPA 8270	mg/kg	NS	< 2.1 U	< 2.4 U	< 2.5 U	< 2.3 U	< 5.2 U	< 4.1 U	< 2.3 U	< 0.76 U	< 2.3 U	< 2.4 U
Acenaphthene	EPA 8270	mg/kg	0.0067	< 0.0072 U	< 0.0079 U	< 0.0084 U	< 0.0026 U	< 0.017 U	< 0.014 U	< 0.0077 U	< 0.0025 U	< 0.0078 U	< 0.0078 U
Acenaphthylene	EPA 8270	mg/kg	0.0059	< 0.0072 U	< 0.0079 U	< 0.0084 U	< 0.0026 U	< 0.017 U	< 0.014 U	< 0.0077 U	< 0.0025 U	< 0.0078 U	< 0.0078 U
Anthracene	EPA 8270	mg/kg	0.0572	< 0.0072 U	< 0.0079 U	**0.0026 J**	< 0.0026 U	< 0.017 U	**0.0063 J**	< 0.0077 U	**0.00060 J**	< 0.0078 U	< 0.0078 U
Benzo(a)anthracene	EPA 8270	mg/kg	0.108	< 0.0072 U	**0.0052 J**	**0.0076 J**	**0.0011 J**	< 0.017 U	**0.011 J**	< 0.0077 U	**0.0015 J**	< 0.0078 U	< 0.0078 U
Benzo(a)pyrene	EPA 8270	mg/kg	0.15	< 0.0072 U	**0.0052 J**	**0.0060 J**	**0.0012 J**	< 0.017 U	**0.0086 J**	< 0.0077 U	**0.0015 J**	< 0.0078 U	< 0.0078 U
Benzo(b)fluoranthene	EPA 8270	mg/kg	NS	< 0.0072 U	**0.0088**	**0.0095**	**0.0020 J**	**0.0071 J**	**0.013 J**	< 0.0077 U	**0.0037**	**0.0093**	**0.0081**
Benzo(g,h,i)perylene	EPA 8270	mg/kg	0.17	< 0.0072 U	**0.0062 J**	**0.0040 J**	**0.0015 J**	< 0.017 U	**0.01 J**	< 0.0077 U	**0.0018 J**	**0.0046 J**	< 0.0078 U
Benzo(k)fluoranthene	EPA 8270	mg/kg	0.24	< 0.0072 U	**0.0032 J**	**0.0037 J**	< 0.0026 U	< 0.017 U	**0.0059 J**	< 0.0077 U	< 0.0025 U	< 0.0078 U	< 0.0078 U
Bis(2-chloroethoxy)methane	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Bis(2-chloroethyl)ether	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
bis(2-chloroisopropyl)ether	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Bis(2-ethylhexyl)phthalate	EPA 8270	mg/kg	0.18	< 0.73 U	< 0.81 U	< 0.85 U	**2.1**	< 1.8 U	< 1.4 U	< 0.79 U	< 0.26 U	< 0.79 U	< 0.8 U
Butylbenzylphthalate	EPA 8270	mg/kg	10.9	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
Carbazole	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Chrysene	EPA 8270	mg/kg	0.166	**0.0024 J**	**0.0078 J**	**0.011**	**0.0021 J**	**0.0072 J**	**0.018**	**0.0032 J**	**0.0034**	**0.0052 J**	**0.0033 J**
Dibenzo(a,h)anthracene	EPA 8270	mg/kg	0.033	< 0.0072 U	< 0.0079 U	< 0.0084 U	< 0.0026 U	< 0.017 U	< 0.014 U	< 0.0077 U	< 0.0025 U	< 0.0078 U	< 0.0078 U
Dibenzofuran	EPA 8270	mg/kg	0.415	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Diethyl phthalate	EPA 8270	mg/kg	0.603	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
Dimethyl phthalate	EPA 8270	mg/kg	NS	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
Di-n-butyl phthalate	EPA 8270	mg/kg	6.47	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
Di-n-octyl phthalate	EPA 8270	mg/kg	NS	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
Fluoranthene	EPA 8270	mg/kg	0.423	< 0.0072 U	**0.0094**	**0.019**	**0.0022 J**	**0.0082 J**	**0.019**	**0.0031 J**	**0.0036**	**0.0043 J**	**0.0034 J**
Fluorene	EPA 8270	mg/kg	0.0774	< 0.0072 U	< 0.0079 U	< 0.0084 U	**0.0013 J**	< 0.017 U	**0.0093 J**	< 0.0077 U	**0.0010 J**	< 0.0078 U	< 0.0078 U
Hexachloro-1,3-butadiene	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Hexachlorobenzene	EPA 8270	mg/kg	0.02	< 0.073 U	< 0.081 U	< 0.085 U	< 0.08 U	< 0.18 U	< 0.14 U	< 0.079 U	< 0.026 U	< 0.079 U	< 0.08 U
Hexachloroethane	EPA 8270	mg/kg	NS	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
Indeno(1,2,3-cd)pyrene	EPA 8270	mg/kg	0.017	< 0.0072 U	**0.0033 J**	< 0.0084 U	< 0.0026 U	< 0.017 U	**0.0057 J**	< 0.0077 U	**0.0010 J**	**0.0034 J**	< 0.0078 U
Isophorone	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Naphthalene	EPA 8270	mg/kg	0.176	**0.0047 J**	**0.011**	**0.013**	**0.0054**	**0.016 J**	**0.053**	**0.0061 J**	**0.0037**	**0.0032 J**	< 0.0078 U
Nitrobenzene	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
n-Nitrosodimethylamine	EPA 8270	mg/kg	NS	< 0.72 U	< 0.79 U	< 0.84 U	< 0.78 U	< 1.7 U	< 1.4 U	< 0.77 U	< 0.25 U	< 0.78 U	< 0.78 U
n-Nitroso-di-n-propylamine	EPA 8270	mg/kg	NS	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
n-nitrosodiphenylamine	EPA 8270	mg/kg	2.68	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Pentachlorophenol	EPA 8270	mg/kg	0.504	< 0.73 U	< 0.81 U	< 0.85 U	< 0.8 U	< 1.8 U	< 1.4 U	< 0.79 U	< 0.26 U	< 0.79 U	< 0.8 U
Phenanthrene	EPA 8270	mg/kg	0.204	**0.0052 J**	**0.0090**	**0.014**	**0.0051**	**0.012 J**	**0.022**	**0.0058 J**	**0.0050**	**0.0037 J**	**0.0032 J**
Phenol	EPA 8270	mg/kg	0.42	< 0.14 U	< 0.16 U	< 0.17 U	< 0.16 U	< 0.35 U	< 0.28 U	< 0.15 U	< 0.051 U	< 0.16 U	< 0.16 U
Pyrene	EPA 8270	mg/kg	0.195	**0.0030 J**	**0.0092**	**0.016**	**0.0033**	**0.0090 J**	**0.03**	**0.0038 J**	**0.0040**	**0.0050 J**	**0.0039 J**
Total Extractable Hydrocarbons [2]	MADEP EPH	mg/kg	200	< 210 U	< 240 U	< 240 U	< 230 U	< 520 U	< 410 U	< 230 U	< 230 U	< 230 U	< 240 U
Aliphatic (C05-C08).Unadjusted [2]	MADEP VPH	mg/kg	60	< 6.70 U	< 7.56 U	< 7.99 U	< 9.77 U	< 21.9 U	< 16.3 U	< 7.90 UJ-	< 7.32 U	< 8.24 U	< 7.28 U
Aliphatic (C09-C12).Unadjusted [2]	MADEP VPH	mg/kg	100	< 6.70 U	< 7.56 U	< 7.99 U	< 9.77 U	< 21.9 U	< 16.3 U	< 7.90 UJ-	< 7.32 U	< 8.24 U	< 7.28 U
C9-C10 Aromatics [2]	MADEP VPH	mg/kg	100	< 6.70 U	< 7.56 U	< 7.99 U	< 9.77 U	< 21.9 U	< 16.3 U	< 7.90 UJ-	< 7.32 U	< 8.24 U	< 7.28 UJ-
Total Purgeable Hydrocarbons	MADEP VPH	mg/kg	NS	< 6.70 U	< 7.56 U	< 7.99 U	< 9.77 U	< 21.9 U	< 16.3 U	< 7.90 UJ-	< 7.32 U	< 8.24 U	< 7.28 U
Percent Moisture (%)	SM 2540G	%	NS	**30.2**	**37.0**	**40.2**	**36.1**	**71.1**	**63.8**	**35.3**	**34.2**	**35.8**	**36.2**
TOC Solids/Sludges Combust	SM 5310B	mg/kg	NS	**1700**	**4040**	**5650**	**8250**	**9370**	**9410**	**4960**	**3590**	**4280**	**3550**

Notes:

1. Screening levels are USEPA Region 3 Ecological Risk Assessment Freshwater Sediment Screening Benchmarks (USEPA 2006) except as noted by footnote 2.
2. Screening levels based on Tier 1 surface soil RBSLs (MDEQ 2009), used <10 feet to groundwater residential levels.
3. Results are in dry weight milligram per kilogram (mg/kg) except for percent moisture (percent).
4. NS = No screening criteria used.
5. EPA = US Environmental Protection Agency.
6. MADEP = Massachusetts Department of Environmental Protection.
7. EPH = Extractable Petroleum Hydrocarbons.
8. VPH = Volatile Petroleum Hydrocarbons.
9. SM = Standard Methods.
10. < = Less than.
11. U = Compound was analyzed for but not detected. The associated value is the compound quantitation limit.
12. J = The compound was positively identified; the associated numerical value is an estimated concentration .
13. '+ = The result may be biased high.
14. '- = The result may be biased low.
15. D = Concentration is based on a diluted sample analysis.
16. Detections are **boldfaced.**
18. **Shaded/bold indicate a detected value greater than the screening level.**
19. Shaded indicate a non-detect value greater than the screening level .

Table 9
Sedimentation Unit Sediment Sample Results

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			LAMT-SE0101 LAMT071712SE0101 7/17/2012 Laurel Sediment Unit	BIMT-SE0103 BIMT071712SE0103 7/17/2012 Billings Sediment Unit	BIMT-SE0103 DUP1(071712)FD 7/17/2012 Billings duplicate Sediment Unit	LOMT-SE0102 LOMT071712SE0102 7/17/2012 Lockwood Sediment Unit	MCMT-SE0102 MCMT071812SE0102 7/18/2012 Miles City Sediment Unit	GLMT-SE0104 GLMT071912SE0104 7/19/2012 Glendive Sediment Unit	SIMT-SE0102 SIMT071912SE0102 7/19/2012 Sidney Sediment Unit
Analyte	**Analysis Method**	**Units[1]**							
1,1,1,2-Tetrachloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,1,1-Trichloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 UJ	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,1,2,2-Tetrachloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,1,2-Trichloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,1,2-Trichlorotrifluoroethane	EPA 8260B	mg/kg	< 0.025 U	< 0.019 U	< 0.018 U	< 0.075 U	< 0.014 U	< 0.029 U	< 0.021 U
1,1-Dichloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,1-Dichloroethene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,1-Dichloropropene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2,3-Trichlorobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2,3-Trichloropropane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2,4-Trichlorobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2,4-Trimethylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	**0.022**
1,2-Dibromo-3-chloropropane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2-Dibromoethane (EDB)	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2-Dichlorobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2-Dichloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,2-Dichloropropane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,3,5-Trimethylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	**0.007 J**
1,3-Dichlorobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,3-Dichloropropane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
1,4-Dichlorobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
2,2-Dichloropropane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
2-Butanone (MEK)	EPA 8260B	mg/kg	**0.018 J**	< 0.019 U	< 0.018 U	**0.04 J**	< 0.014 U	< 0.029 U	< 0.021 U
2-Chlorotoluene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
4-Chlorotoluene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
4-Methyl-2-pentanone (MIBK)	EPA 8260B	mg/kg	< 0.025 U	< 0.019 U	< 0.018 U	< 0.075 U	< 0.014 U	< 0.029 U	< 0.021 U
Acetone	EPA 8260B	mg/kg	**0.095 J**	**0.026 J**	**0.035 J**	**0.37 J**	< 0.027 U	**0.032 J+**	**0.022 J+**
Alkyl chloride	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Benzene [2]	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Bromobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Bromochloromethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Bromodichloromethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Bromomethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Carbon tetrachloride	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Chlorobenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Chlorodibromomethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Chloroethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Chloroform	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	**0.51**	< 0.007 U	< 0.015 U	< 0.01 U
Chloromethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
cis-1,2-Dichloroethene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
cis-1,3-Dichloropropene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Dibromomethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Dichlorodifluoromethane (CFC-12)	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 UJ-	< 0.015 UJ-	< 0.01 UJ-
Dichlorofluoromethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 UJ-	< 0.015 UJ-	< 0.01 UJ-
Diethyl ether	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Ethylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	**0.013**
Hexachloro-1,3-butadiene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Isopropylbenzene (Cumene)	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Methylene chloride	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	**0.02 J**	< 0.007 U	< 0.015 U	< 0.01 U
Methyl-tert-butylether	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
n-Butylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
n-Propylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	**0.003 J**
p-Isopropyltoluene	EPA 8260B	mg/kg	**0.003 J**	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
sec-Butylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U

Table 9
Sedimentation Unit Sediment Sample Results

Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			LAMT-SE0101 LAMT071712SE0101 7/17/2012 Laurel Sediment Unit	BIMT-SE0103 BIMT071712SE0103 7/17/2012 Billings Sediment Unit	BIMT-SE0103 DUP1(071712)FD 7/17/2012 Billings duplicate Sediment Unit	LOMT-SE0102 LOMT071712SE0102 7/17/2012 Lockwood Sediment Unit	MCMT-SE0102 MCMT071812SE0102 7/18/2012 Miles City Sediment Unit	GLMT-SE0104 GLMT071912SE0104 7/19/2012 Glendive Sediment Unit	SIMT-SE0102 SIMT071912SE0102 7/19/2012 Sidney Sediment Unit
Analyte	**Analysis Method**	**Units[1]**							
Styrene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
tert-Butylbenzene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Tetrachloroethene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Tetrahydrofuran	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 UJ	< 0.007 U	< 0.015 U	< 0.01 U
Toluene	EPA 8260B	mg/kg	**0.13**	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	**4.9 D**
trans-1,2-dichloroethene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
trans-1,3-dichloropropene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Tribromomethane	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Trichloroethene	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Trichlorofluoromethane (CFC-11)	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Vinyl chloride	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	< 0.01 U
Xylenes, total	EPA 8260B	mg/kg	< 0.013 U	< 0.01 U	< 0.009 U	< 0.038 U	< 0.007 U	< 0.015 U	**0.098**
1,2-Diphenylhydrazine	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
1-Methylnaphthalene	EPA 8270	mg/kg	**0.032**	**0.022**	**0.031**	**0.021**	**0.008**	**0.0046 J**	**0.0063 J**
2,4,5-Trichlorophenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2,4,6-Trichlorophenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2,4-Dichlorophenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2,4-Dimethylphenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2,4-Dinitrophenol	EPA 8270	mg/kg	< 5.5 U	< 6.4 U	< 5.8 U	< 12 U	< 4.4 U	< 6.4 U	< 5.1 U
2,4-Dinitrotoluene	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
2,6-Dinitrotoluene	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2-Chloronaphthalene	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2-Chlorophenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2-Methylnaphthalene	EPA 8270	mg/kg	**0.045**	**0.029**	**0.047**	**0.03 J+**	**0.013**	**0.0049 J**	**0.0084 J**
2-Methylphenol (o-Cresol)	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2-Nitroaniline	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
2-Nitrophenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
3,3'-Dichlorobenzidine	EPA 8270	mg/kg	< 1.8 U	< 2.1 U	< 1.9 U	< 3.9 U	< 1.5 U	< 2.1 U	< 1.7 U
3-Nitroaniline	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
4,6-Dinitro-2-methylphenol	EPA 8270	mg/kg	< 2.8 U	< 3.2 U	< 2.9 U	< 5.9 U	< 2.2 U	< 3.2 U	< 2.6 U
4-Bromophenyl phenyl ether	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
4-Chloro-3-methylphenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
4-Chloroaniline	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
4-Chlorophenyl phenyl ether	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
4-Methylphenol	EPA 8270	mg/kg	**0.48**	< 0.21 U	**0.11 J**	**0.75**	< 0.15 U	< 0.21 U	< 0.17 U
4-Nitroaniline	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
4-Nitrophenol	EPA 8270	mg/kg	< 2.8 U	< 3.2 U	< 2.9 U	< 5.9 U	< 2.2 U	< 3.2 U	< 2.6 U
Acenaphthene	EPA 8270	mg/kg	< 0.0092 U	< 0.011 U	**0.0076 J**	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0036 J**
Acenaphthylene	EPA 8270	mg/kg	< 0.0092 U	< 0.011 U	< 0.0097 U	< 0.02 U	< 0.0073 U	< 0.011 U	< 0.0086 U
Anthracene	EPA 8270	mg/kg	< 0.0092 U	< 0.011 U	**0.0085 J**	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0030 J**
Benzo(a)anthracene	EPA 8270	mg/kg	< 0.0092 U	**0.0057 J**	**0.0051 J**	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0035 J**
Benzo(a)pyrene	EPA 8270	mg/kg	**0.0040 J**	**0.0053 J**	**0.0048 J**	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0038 J**
Benzo(b)fluoranthene	EPA 8270	mg/kg	**0.0063 J**	**0.0078 J**	**0.0078 J**	< 0.02 U	< 0.0073 U	**0.011 J**	**0.011**
Benzo(g,h,i)perylene	EPA 8270	mg/kg	**0.0072 J**	**0.0071 J**	**0.0073 J**	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0051 J**
Benzo(k)fluoranthene	EPA 8270	mg/kg	< 0.0092 U	< 0.011 U	< 0.0097 U	< 0.02 U	< 0.0073 U	< 0.011 U	< 0.0086 U
Bis(2-chloroethoxy)methane	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Bis(2-chloroethyl)ether	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
bis(2-chloroisopropyl)ether	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Bis(2-ethylhexyl)phthalate	EPA 8270	mg/kg	< 0.94 U	< 1.1 U	< 0.99 U	< 2 U	< 0.75 U	< 1.1 U	< 0.87 U
Butylbenzylphthalate	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
Carbazole	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Chrysene	EPA 8270	mg/kg	**0.0092 J**	**0.011**	**0.011**	**0.0077 J**	**0.0036 J**	**0.0043 J**	**0.0072 J**
Dibenzo(a,h)anthracene	EPA 8270	mg/kg	< 0.0092 U	< 0.011 U	< 0.0097 U	< 0.02 U	< 0.0073 U	< 0.011 U	< 0.0086 U
Dibenzofuran	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U

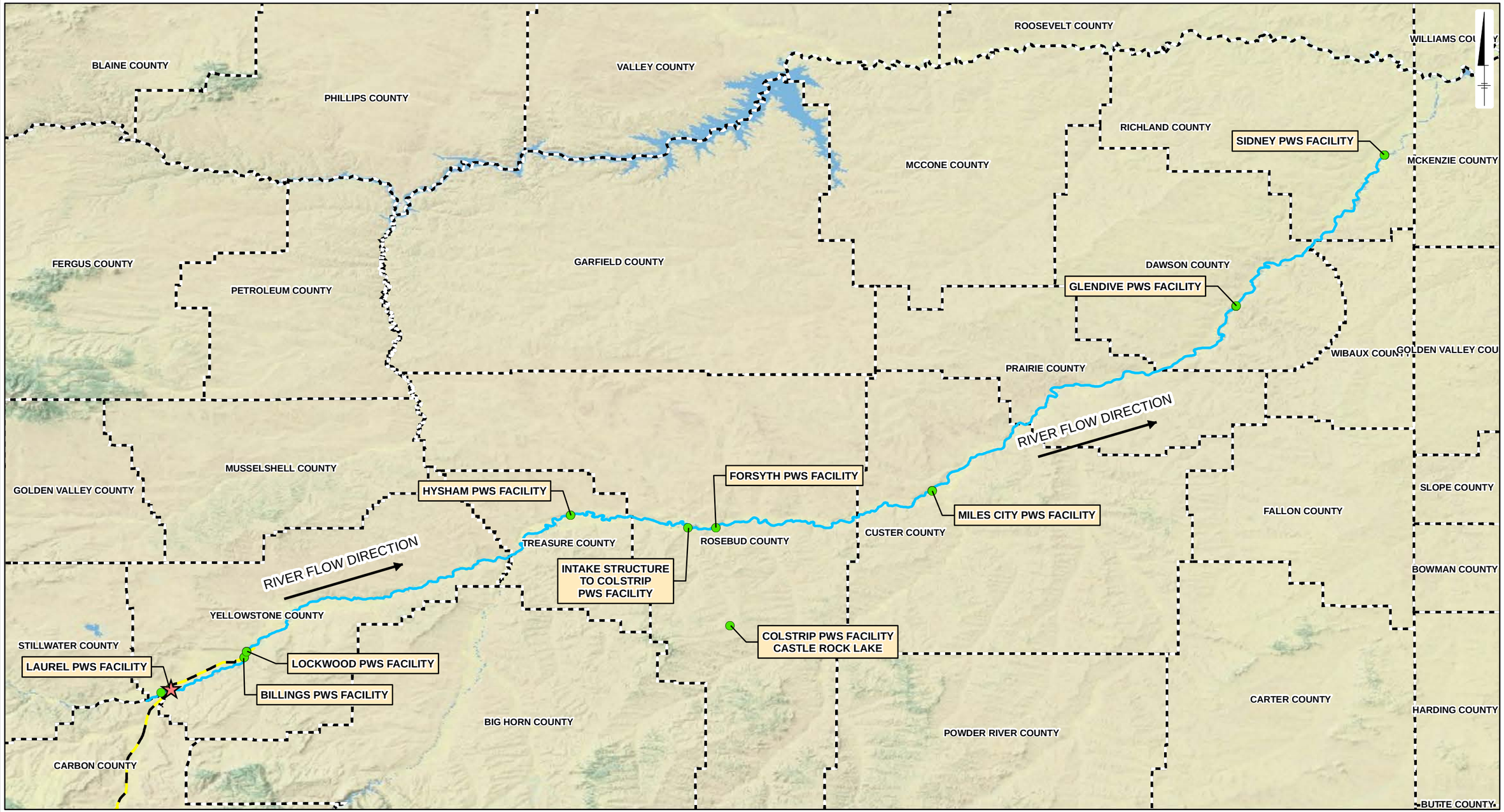
Table 9
Sedimentation Unit Sediment Sample Results

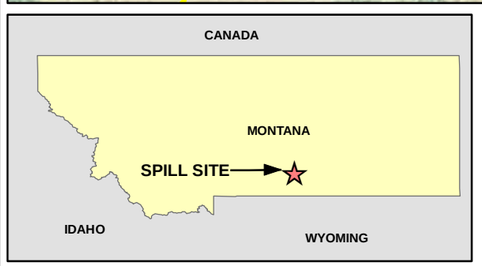
Public Surface Water Supply Summer 2012 Data Summary Report
Silvertip Pipeline Incident, Laurel, Montana

			LAMT-SE0101 LAMT071712SE0101 7/17/2012 Laurel Sediment Unit	BIMT-SE0103 BIMT071712SE0103 7/17/2012 Billings Sediment Unit	BIMT-SE0103 DUP1(071712)FD 7/17/2012 Billings duplicate Sediment Unit	LOMT-SE0102 LOMT071712SE0102 7/17/2012 Lockwood Sediment Unit	MCMT-SE0102 MCMT071812SE0102 7/18/2012 Miles City Sediment Unit	GLMT-SE0104 GLMT071912SE0104 7/19/2012 Glendive Sediment Unit	SIMT-SE0102 SIMT071912SE0102 7/19/2012 Sidney Sediment Unit
Analyte	**Analysis Method**	**Units[1]**							
Diethyl phthalate	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
Dimethyl phthalate	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
Di-n-butyl phthalate	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
Di-n-octyl phthalate	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
Fluoranthene	EPA 8270	mg/kg	**0.0062 J**	**0.011**	**0.011**	**0.0087 J**	**0.0048 J**	**0.0046 J**	**0.013**
Fluorene	EPA 8270	mg/kg	**0.0057 J**	< 0.011 U	**0.012**	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0070 J**
Hexachloro-1,3-butadiene	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Hexachlorobenzene	EPA 8270	mg/kg	< 0.094 U	< 0.11 U	< 0.099 U	< 0.2 U	< 0.075 U	< 0.11 U	< 0.087 U
Hexachloroethane	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
Indeno(1,2,3-cd)pyrene	EPA 8270	mg/kg	< 0.0092 U	< 0.011 U	< 0.0097 U	< 0.02 U	< 0.0073 U	< 0.011 U	**0.0039 J**
Isophorone	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Naphthalene	EPA 8270	mg/kg	**0.026**	< 0.017 UJ	**0.09 J**	< 0.02 U	**0.0075**	**0.0044 J**	**0.015**
Nitrobenzene	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
n-Nitrosodimethylamine	EPA 8270	mg/kg	< 0.92 U	< 1.1 U	< 0.97 U	< 2 U	< 0.73 U	< 1.1 U	< 0.86 U
n-Nitroso-di-n-propylamine	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
n-nitrosodiphenylamine	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Pentachlorophenol	EPA 8270	mg/kg	< 0.94 U	< 1.1 U	< 0.99 U	< 2 U	< 0.75 U	< 1.1 U	< 0.87 U
Phenanthrene	EPA 8270	mg/kg	**0.022**	**0.021**	**0.029**	**0.024**	**0.0082**	< 0.011 U	**0.024**
Phenol	EPA 8270	mg/kg	< 0.18 U	< 0.21 U	< 0.19 U	< 0.39 U	< 0.15 U	< 0.21 U	< 0.17 U
Pyrene	EPA 8270	mg/kg	**0.0097**	**0.016**	**0.014**	**0.012 J**	**0.0059 J**	**0.0044 J**	**0.012**
Total Extractable Hydrocarbons	MADEP EPH	mg/kg	< 280 U	< 320 U	< 290 U	< 590 U	< 220 U	< 320 U	< 260 U
Aliphatic (C05-C08).Unadjusted	MADEP VPH	mg/kg	< 9.43 U	< 10.4 U	< 10.5 U	< 22.7 U	< 6.80 U	< 12.8 UJ-	**7.20 J-**
Aliphatic (C09-C12).Unadjusted	MADEP VPH	mg/kg	< 9.43 U	< 10.4 U	< 10.5 U	< 22.7 U	< 6.80 U	< 12.8 UJ-	< 11.0 UJ-
C9-C10 Aromatics	MADEP VPH	mg/kg	< 9.43 U	< 10.4 U	< 10.5 U	< 22.7 U	< 6.80 UJ-	< 12.8 UJ-	< 11.0 UJ-
Total Purgeable Hydrocarbons	MADEP VPH	mg/kg	< 9.43 U	< 10.4 U	< 10.5 U	< 22.7 U	< 6.80 U	< 12.8 UJ-	**7.20 J-**
Percent Moisture (%)	SM 2540G	%	**45.9**	**53.2**	**48.7**	**74.4**	**31.9**	**53.4**	**41.6**
TOC Solids/Sludges Combust	SM 5310B	mg/kg	**8250**	**13200 J**	**7760 J**	**10200**	**1780 J+**	**9100**	**10100**

Notes:
1. Results are in dry weight milligram per kilogram (mg/kg) except for percent moisture (percent).
2. EPA = US Environmental Protection Agency.
3. MADEP = Massachusetts Department of Environmental Protection.
4. EPH = Extractable Petroleum Hydrocarbons.
5. VPH = Volatile Petroleum Hydrocarbons.
6. SM = Standard Methods.
7. < = Less than.
8. U = Compound was analyzed for but not detected. The associated value is the compound quantitation limit.
9. J = The compound was positively identified; the associated numerical value is an estimated concentration.
10. '+ = The result may be biased high.
11. '- = The result may be biased low.
12. D = Concentration is based on a diluted sample analysis.
13. Detections are **boldfaced.**

Figures





LEGEND:

- SPILL SITE
- SAMPLING LOCATIONS
- PIPELINE
- YELLOWSTONE RIVER CENTERLINE (APPROXIMATE)
- COUNTY BOUNDARY

0 25 50 Miles

GRAPHIC SCALE

NOTES:

1. BASEMAPPING TOPOGRAPHIC MAP PROVIDED BY ESRI ARCGIS ONLINE MAP SERVICE.
2. YELLOWSTONE RIVER CENTERLINE APPROXIMATED FROM 2009 AERIAL IMAGERY.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

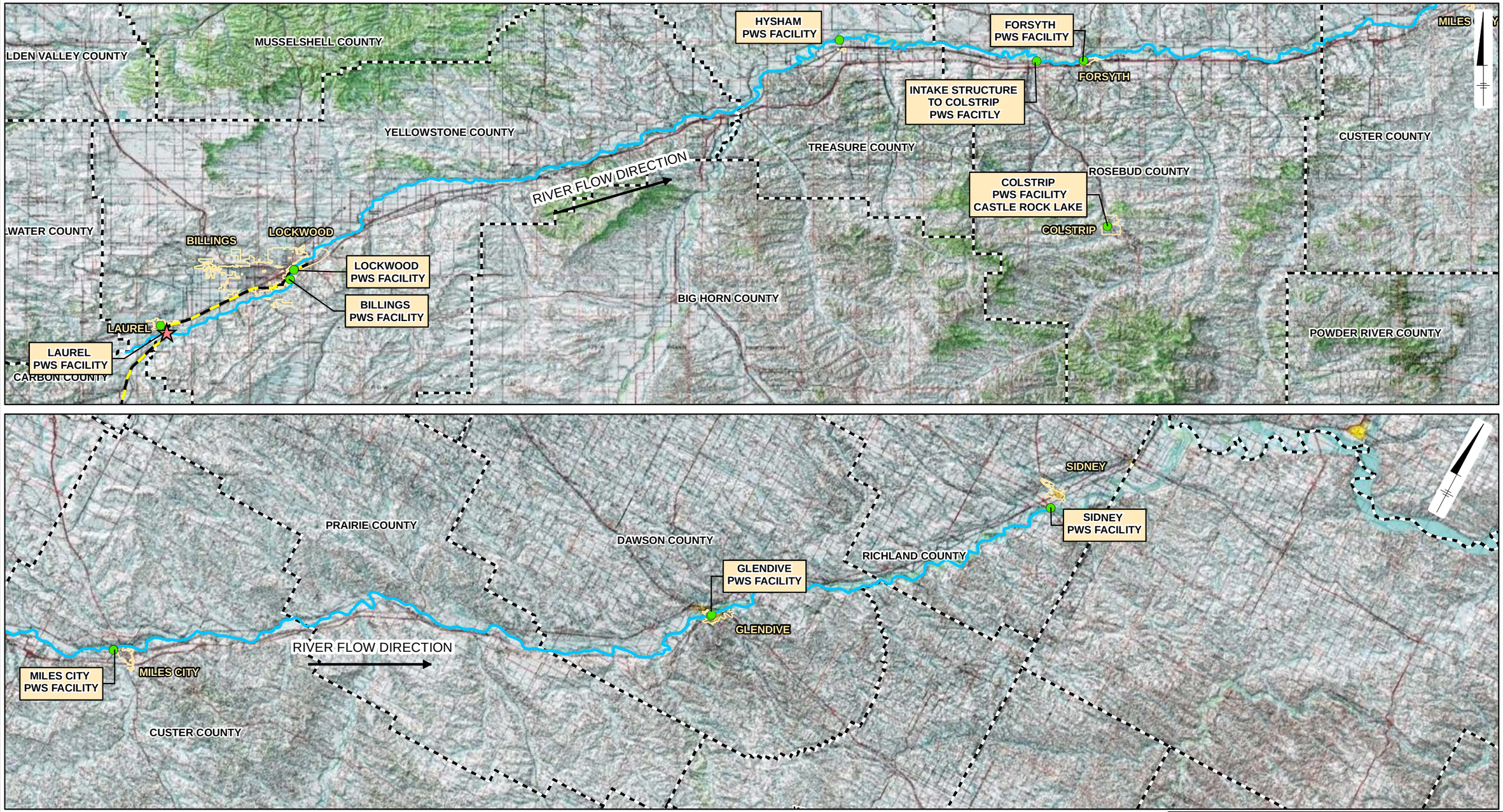
PUBLIC SURFACE WATER SUPPLY SUMMER 2012 DATA SUMMARY REPORT

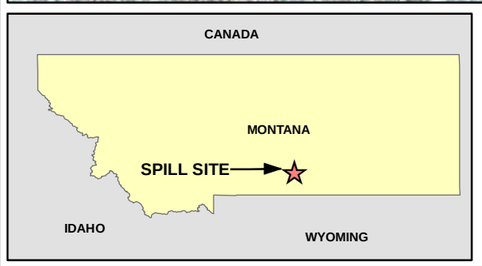
STUDY AREA AND VICINITY

ARCADIS

FIGURE
1

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0065883.1103.00001)
H:\GISPROJECTS_ENV\Laurel\MT\PublicWaterSupplyIntakeSedBasinSampPlan\mxd\2012_PWS_Figures\Study_Vicinity_Area_v1.mxd 10/31/2012 10:43:20 AM (Page of)





LEGEND:

- SPILL SITE
- SAMPLING LOCATIONS
- PIPELINE
- YELLOWSTONE RIVER CENTERLINE (APPROXIMATE)
- CITY BOUNDARY
- COUNTY BOUNDARY

0 15 30 Miles

GRAPHIC SCALE

NOTES:

1. BASEMAPPING TOPOGRAPHIC MAP PROVIDED BY ESRI ARCGIS ONLINE MAP SERVICE.
2. YELLOWSTONE RIVER CENTERLINE APPROXIMATED FROM 2009 AERIAL IMAGERY.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY SUMMER 2012 DATA SUMMARY REPORT

SILVERTIP PIPELINE INCIDENT STUDY AREA

ARCADIS

FIGURE **2**

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
H:\GISPROJECTS_ENV\LaurelMT\PublicWaterSupplyIntakeSedBasinSampPlan\mxd\2012_PWS_Figures\StudyArea_v2.mxd 10/31/2012 10:27:13 AM (Page of)

LEGEND:

- SPILL SITE
- SAMPLING LOCATIONS
- PIPELINE
- PUBLIC WATER SUPPLY FACILITY

0 200 400 Feet

GRAPHIC SCALE

NOTE:

1. AERIALS: IMAGERY WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

LAUREL PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
LAUREL, MONTANA

ARCADIS

FIGURE
3

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
H:\GISPROJECTS_ENV\LaurelMT\PublicWaterSupplyIntakeSedBasinSampPlan\mxd\2012_PWS_Figures\PWS_Sample_Locs_Laurel_v2.mxd 10/31/2012 10:04:25 AM (Page of)

0 300 600 Feet

GRAPHIC SCALE

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

NOTE:

1. AERIALS: IMAGERY WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

BILLINGS PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
BILLINGS, MONTANA

ARCADIS

FIGURE
4

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
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LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

0 200 400 Feet

GRAPHIC SCALE

NOTE:

1. AERIALS: IMAGERY WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

LOCKWOOD PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
LOCKWOOD, MONTANA

ARCADIS

FIGURE
5

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
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0 200 400 Feet

GRAPHIC SCALE

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

NOTE:

1. AERIALS: IMAGERY FOR DIVISIONS A THROUGH C WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.
2. AERIAL PHOTO TAKEN DURING FLOOD EVENT AND WATER LEVEL IS ABOVE NORMAL.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

HYSHAM PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
HYSHAM, MONTANA

ARCADIS

FIGURE
6

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
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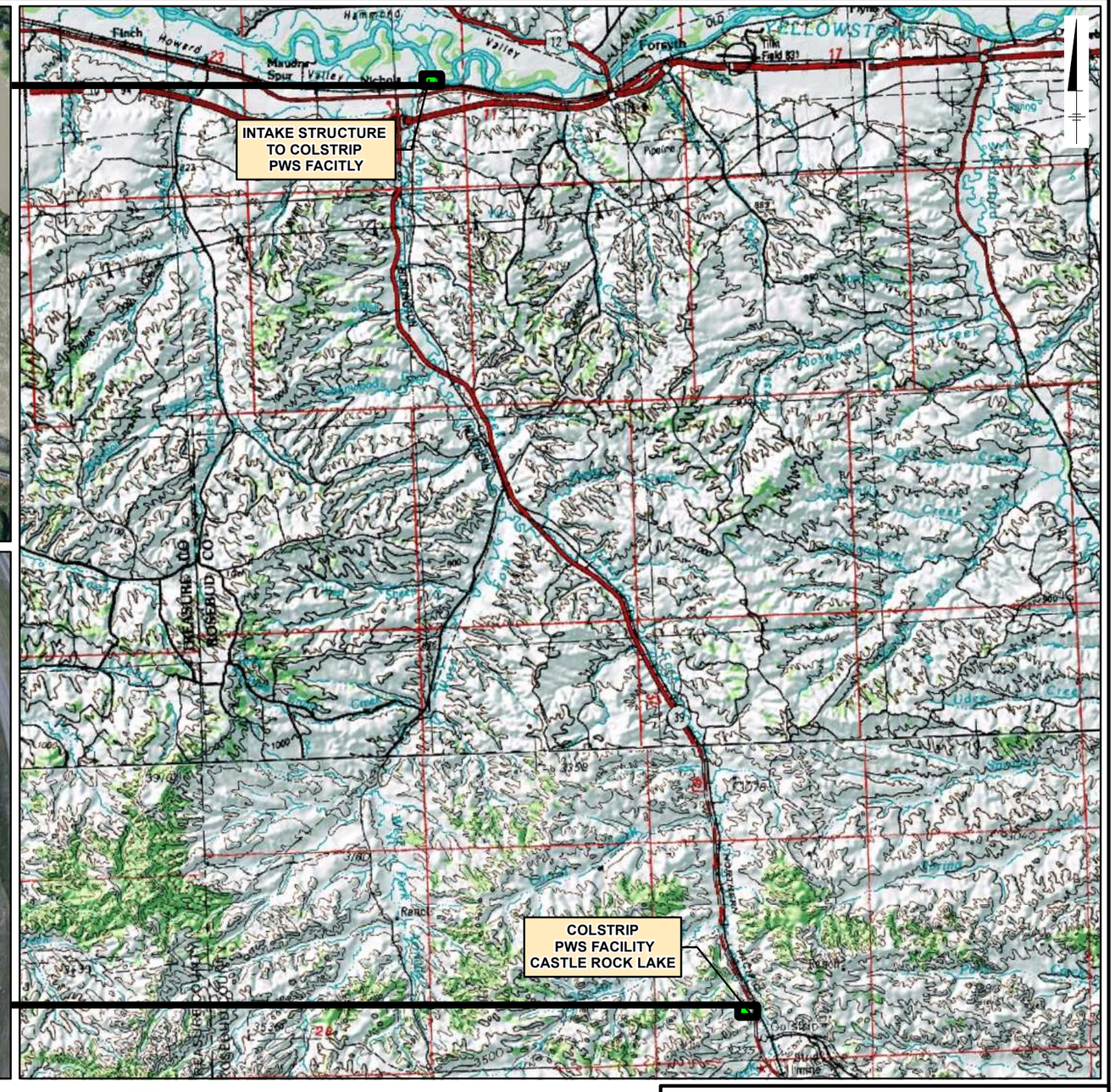

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

0 3.5 7 Miles

GRAPHIC SCALE

0 400 800 Feet

INSET GRAPHIC SCALE

NOTE:

1. BASEMAPPING TOPOGRAPHIC MAP PROVIDED BY ESRI ARCGIS ONLINE MAP SERVICE.
2. AERIALS: IMAGERY FOR DIVISIONS A THROUGH C WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.
3. AERIAL PHOTO TAKEN DURING FLOOD EVENT AND WATER LEVEL IS ABOVE NORMAL.
4. INSET MAP: CASTLE ROCK LAKE IS LOCATED APPROXIMATELY 30 MILES SOUTH OF THE YELLOWSTONE RIVER.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

COLSTRIP PUBLIC WATER SUPPLY FACILITY SAMPLING LOCATIONS
COLSTRIP, MONTANA

ARCADIS

FIGURE
7

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: gmckinney
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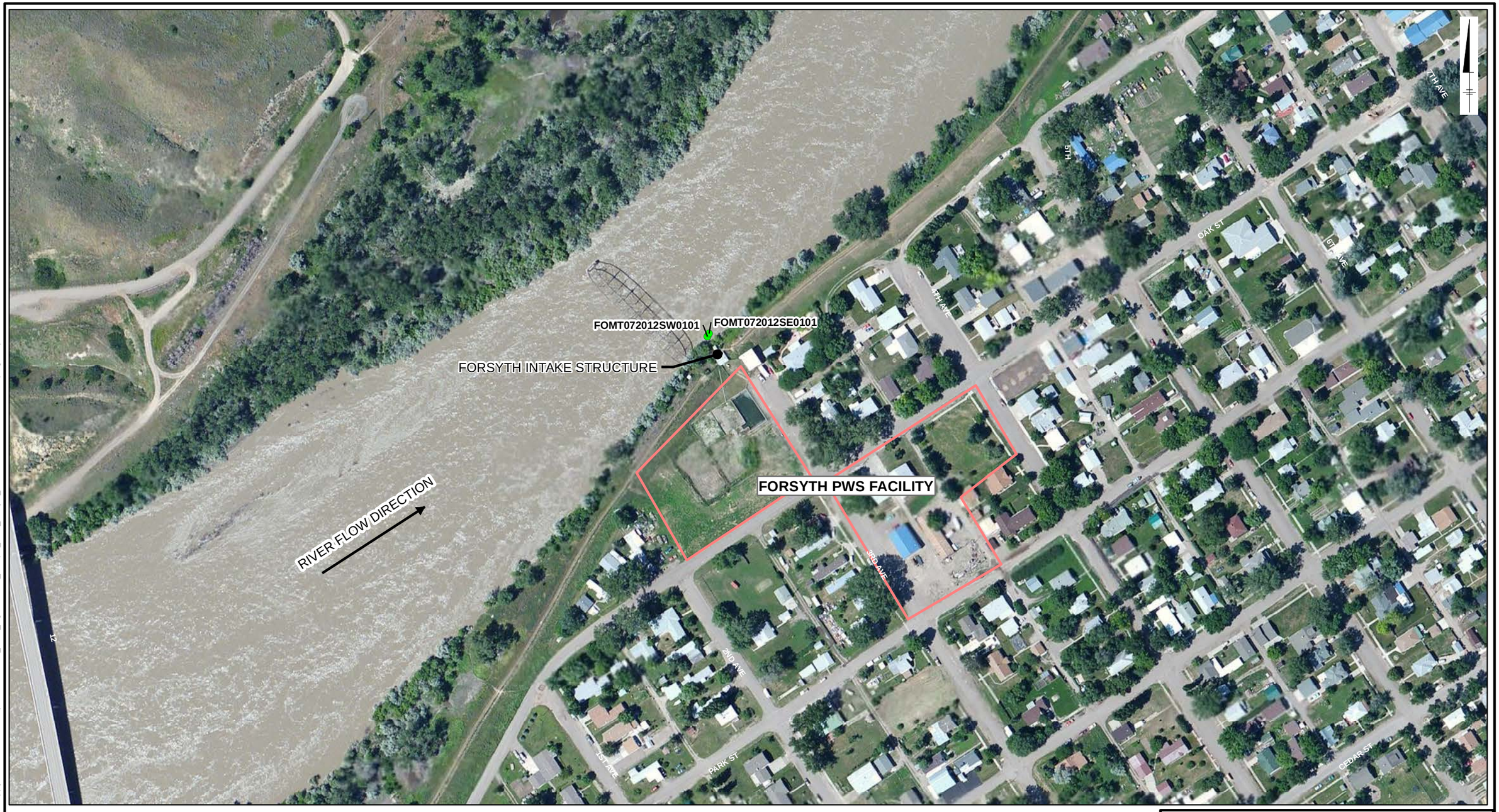

0 200 400 Feet

GRAPHIC SCALE

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

NOTE:

1. AERIALS: IMAGERY FOR DIVISIONS A THROUGH C WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.
2. AERIAL PHOTO TAKEN DURING FLOOD EVENT AND WATER LEVEL IS ABOVE NORMAL.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

FORSYTH PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
FORSYTH, MONTANA

ARCADIS

FIGURE
8

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
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0 200 400 Feet

GRAPHIC SCALE

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

NOTE:

1. AERIALS: IMAGERY FOR DIVISIONS A THROUGH C WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.
2. AERIAL PHOTO TAKEN DURING FLOOD EVENT AND WATER LEVEL IS ABOVE NORMAL.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

MILES CITY PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
MILES CITY, MONTANA

ARCADIS

FIGURE
9

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
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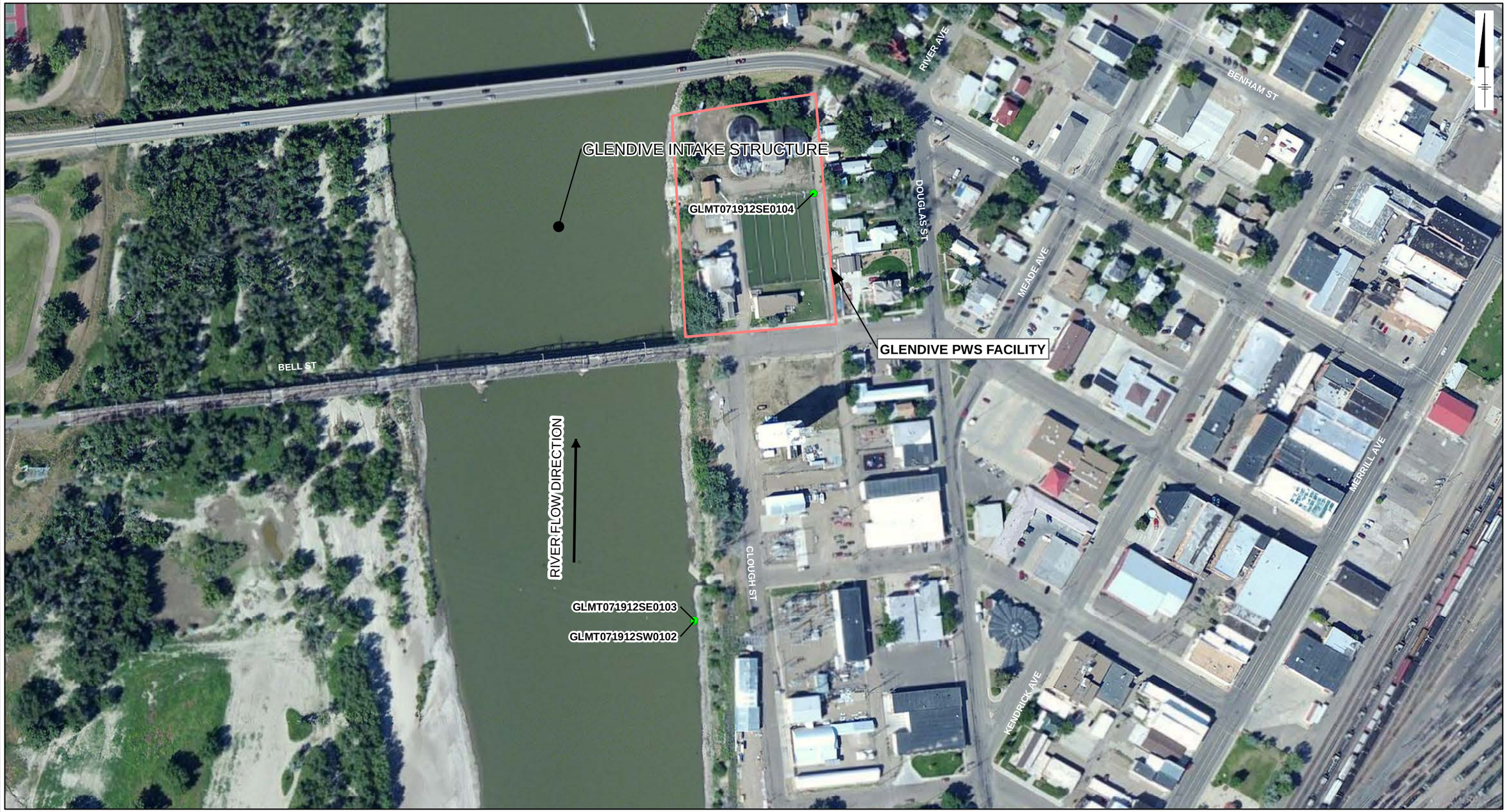

0 200 400 Feet

GRAPHIC SCALE

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

NOTE:

1. AERIALS: IMAGERY FOR DIVISIONS A THROUGH C WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.
2. AERIAL PHOTO TAKEN DURING FLOOD EVENT AND WATER LEVEL IS ABOVE NORMAL.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

GLENDIVE PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
GLENDIVE, MONTANA

ARCADIS

FIGURE
10

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
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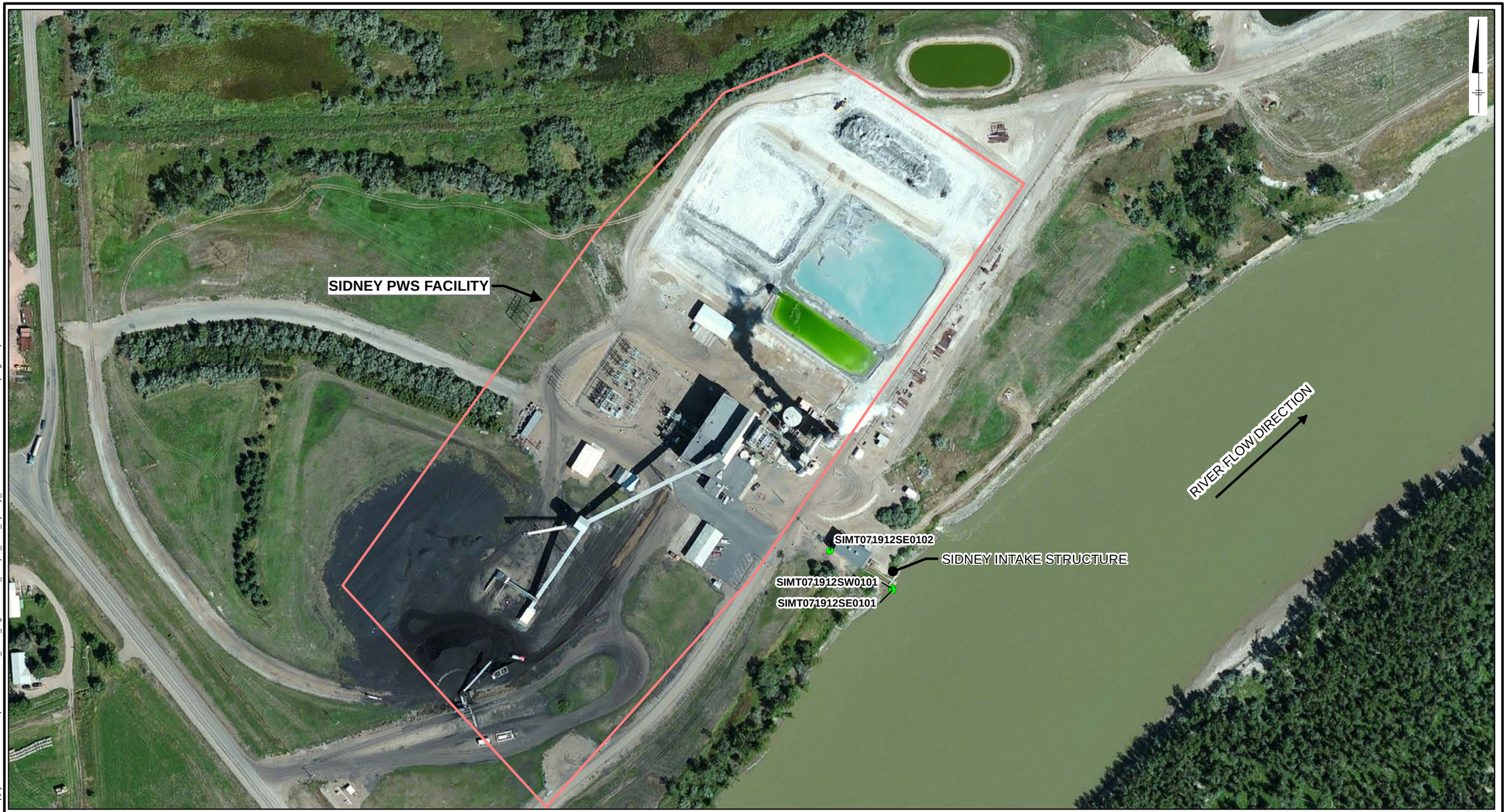

0 200 400 Feet

GRAPHIC SCALE

LEGEND:

- SAMPLING LOCATIONS
- PUBLIC WATER SUPPLY FACILITY

NOTE:

1. AERIALS: IMAGERY FOR DIVISIONS A THROUGH C WAS ACQUIRED APRIL 2, 2012. 4-BAND DIGITAL AERIAL PHOTOGRAPHY, 1-FOOT PIXEL RESOLUTION. IMAGERY FOR DIVISIONS D THROUGH H OBTAINED FROM BING MAPS AERIAL, SERVICED BY ESRI ARCGIS ONLINE.
2. AERIAL PHOTO TAKEN DURING FLOOD EVENT AND WATER LEVEL IS ABOVE NORMAL.

SILVERTIP PIPELINE INCIDENT
LAUREL, MONTANA

PUBLIC SURFACE WATER SUPPLY
SUMMER 2012 DATA SUMMARY REPORT

SIDNEY PUBLIC WATER SUPPLY FACILITY
SAMPLING LOCATIONS
SIDNEY, MONTANA

ARCADIS

FIGURE
11

City: SYR Div/Group: 90 Created By: mkohberger Last Saved By: mgress
Exxon-Mobil (B0085883.1103.00001)
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Appendix A

Public Surface Water Supply Field Notes

CONTENTS

PAGE	REFERENCE	DATE

Location Billings, MT Date 7-16-12

Project / Client PWS Sampling / XOM
Set up

Monday July 16, 2012
Weather: clear 90°F

0740 Met at Best Western to participate in Health and Safety meeting Led by Tom Burgess.

1000 Begin obtaining equipment for the collection of surface water and sediment samples.

1100 Begin getting coolers from hotel (44) with 8 boxes of DI water.

1545 Completed going through equipment. Went shopping to obtain battery and boat shoes.

1930 Met with Tom Burgess and WRI to go over boat safety.

2015 Completed for the day.

Location Billings, MT Date 7-17-12

Project / Client PWS Sampling / XOM

Tuesday July 17, 2012
Weather: Clear 95°F

0630 BWL on site @ Storage after picking up ice.

0645 Begin calibration of the MultiRae Plus to the following
PID = 0ppm
PID = 100ppm of Isobutylene

0750 Left the storage unit for Laurel Water Plant

0800 On site at City of Laurel Water Plant. Kirk Schweim, Laura Madsen, Brian Lougen met

0810 Met with Nathan Herman of City of Laurel. Nathan informed team that Pond ~~Sedimentation basin~~ BWL was cleaned out July 9th. Sample will be collected from the first mud chamber located most South last cleaned out approx 2 weeks ago.

Location Billings, MT Date 7-17-12

Project / Client PWS Sampling
LAMT071712SE0101 Laurel

0830 Begin decon of Ponar Dredge (6") with alconox wash and DI water Rinse

0840 Collected LAMT071712SE0101 by sending down ponar dredge 3-times and filled a 9x12 aluminum pan and filled:
4- Encores - VPH
4- Encores - 8260 w/GRO
1-4oz glass EPH
1-8oz SIMPAH 8270, TCL 8270, TOC, Moisture
1-8oz Archive.

* Collected with ponar dredge (decomed)
Depth of water = 5.08'
Sediment Thickness = 0.20'
Characteristics = Loose Silty SAND (SM) very wet Brown.
PID = 0.3ppm

GPS Coordinates: 45° 39.32802 N
108° 45.50001 W
# of Satellites = 9 of 13
Accuracy = 59 cm

Location Billings, MT Date 7-17-12

Project / Client PWS Sampling / XOM
Lockwood / LOMT071712SE0102

0915 Departed Laurel for Lockwood.

0940 Arrived at Lockwood. Met Tony Reed of Lockwood water Treatment Plant

Showed the location of the sample collection area. It is located in the building upstairs (2-Story) and was collected at the primary intake South east corner. Ferric chloride <10ppm
Poly Aluminum chloride < 20ppm

1001 Collected LOMT071712SE0102 and Matrix Spike and Matrix Spike Duplicate (less the archive) and filled ~~[illegible]~~:

12- Encores VPH
12- Encores 8260 GRO
3- 4oz glass EPH
3- 8oz glass SIM 8270, TCL 8270, TOC, Moisture
1- 8oz glass Archive

* Collected with ponar dredge (decontaminated)
Depth of water column = 16.41
Sediment Thickness = 0.5'

Location Billings, MT Date 7-17-12

Project / Client PWS Sampling
Lockwood

Characteristics: Brown silty SAND very loose, wet.
PID = 0.2 ppm
GPS Coordinates: 45° 47.84451 N
108° 28.053039 W
# of Satellites = 7 of 12
Accuracy = 1.6 meters

1040 Completed Lockwood. Depart for Billings.

1055 Arrived at City of Billings Water Treatment Plant. Signed in at the Administrative Office. Met with Mike Rubich

1115 Set up on the north side of Sedimentation Basin. Decided to collect the sample using the Ponar Dredge off the intake platform on the opposite side of where the dredger is presently located. Called Stan Barnick and informed him of changed location.

Location Billings, MT Date 7-17-12

Project / Client PWS Sampling / Xom

BIMT071712SE0103 / Billings / DUP1 (071712)

1120 Begin collection of sediment sample from north side of platform. 4 retrievals.

1136 Collected BIMT071712SE0103 and
NIR Blind Duplicate DUP1 (071712) and filled
8-Encores VPH
8-Encores VOC's 8260 + GRO
2-4oz glass EPH
2-8oz glass SIM8270 TCL8270 TOC, moisture
1-8oz glass Archive - No Duplicate
* Collected with Ponar Dredge (decomed)
Depth of water Column = 4.97'
Sediment Thickness = 0.2'

Characteristics: Silty Sand Brown
Soft. Loose Wet.
PID = 1.3 ppm
GPS Coordinates: 45° 46.44004 N
108° 28.67577 W
# of Satellites = 11 of 13
Accuracy = 47cm
Elevation = 935 meter (Top of concrete platform)

Location Billings, MT Date 7-17-12

Project / Client PWS Sampling / Xom

EBSE (071712)

Completed Billings.

Went back to storage unit to load up materials for the next three days.

1400 Collected EBSE (071712) Equipment blank by pouring laboratory supplied DI water over the ponar dredge and filled:
3-40ml vials HCl VOC's
3-40ml vials HCl VPH GRO
2-1Liter HCl EPH
3-1Liter PAH's / SVOC's 8270

1500 Begin packing coolers for shipment to Lancaster

1630 Bail to FedEx

Location Billings, MT Date 7-18-12

Project / Client PWS Sampling / XOM
Colstrip - Castle Rock Lake.

Wednesday July 18, 2012
Weather: Clear 85°F

0615 Met Kirk and Laura @ Exit 455 for travel to Colstrip.

0630 Left for Colstrip.

0830 Arrived at Colstrip - Castle Rock Lake and begin deploying equipment to be used in the collection of one surface water and one sediment sample.

Begin calibration of YSI 556 to the following:

	Was Reading	Adjusted to
pH =	7.02	N/A
pH =	10.03	N/A
pH =	4.01	N/A
Spec Cond =	1.400 ms/cm²	N/A
ORP =	240 mV	N/A
DO =	98.8% Sat	N/A
	(7.59 mg/L)	N/A

Location Billings, MT Date 7-18-12

Project / Client PWS Sampling / XOM
Colstrip - Castle Rock Lake.

Checked the Hach 2100P to the following: 100 ntu, 20 ntu > checked out

Deployed rubber boat to collect samples near intake.

0900 Calibrated the multi Rae to: 100 ppm of Isobutylene.

0920 Met with Brian Swan of the water treatment plant and informed him we will be collecting samples from lake near intake.

0930 Collected COMT071812SW0101 by using Solinst discrete stainless steel sampler for VOC's only and peristaltic pump for all other parameters and filled the following containers. Collected 8' below surface for all parameters. at same location as last year.

Location Billings, MT Date 7-18-12
Project / Client PWS Sampling / XOM
COMT071812SW0101

3 - 40ml vials HCl 8260 - Discrete
3 - 40ml vials HCl VPH - Discrete
3 - 1 Liter bottles PAH's, TCL SVOC
2 - 1 Liter HCl EPH
1 - 500ml plastic TSS

Exsitu water Quality Collected 8.0' below wtr

Time	Temp (°C)	SpecCond (mS/cm²)	DO (mg/L)	pH	ORP (mV)	Turb (ntu)
0945	25.89	0.419	6.66	8.17	-240	1.42

Characteristics: Clear Colorless

Begin the collection of Sediment Samples.

Location Billings, MT Date 7-18-12
Project / Client PWS Sampling / XOM
Colstrip Castle Rock Lake

1115 Collected COMT071812SE0101 and Filled:
4 - Encores 8260
4 - Encores VPH GPO
1 - 4oz glass EPH Screen
1 - 8oz glass TOC, PAH TCL 8270 % Moisture
1 - 8oz glass Archive
* Collected with Ponar Dredge
Depth of Water Column = 15.0'
Sediment Thickness = 0.5'

Characteristics = Dark Gray SILT with trace organics trace f-Sand.
PID = 0ppm

GPS Coordinates: Available in PDA

1130 Collected EBSW(071812) by pouring laboratory supplied DI water over a decomned discrete sampler and Filled
3 - 40ml vials HCl 8260
3 - 40ml vials HCl VPH GPO
Only no other parameters

Location Billings, MT Date 7-18-12

Project / Client PWS Sampling / X ON
Colstrip / Castle Rock Lake.

1145 Collected EBSE (071812) by pouring laboratory supplied DI water over a decontaminated ponar dredge and filled:

3-40ml vials HCl 8260
3-40ml vials VPH GRO
2-1Liter HCl EPH
3-1liter PAH's, TCL 8270

1200 BL makes to Billings to ship samples & get more bottles. LM & KS drive to Miles City to meet w/ WRI.

1310 Meet WRI @ Miles City boat launch
Tailgate H&S meeting
Load equipment
Launch boats.
Make to Intake location from last yr.
Water depth - 6'

1526 Collect MCMT071812SW0102 by same method as previous SW sample today

Location Billings MT Date 7-18-12

Project / Client PWS Sampling
Miles City, MT Sunny 103°

3-40mL VOAs HCL 8260
3-40 mL VOAs HCl VPH
3-1L amber PAH, TCL SVOC
2-1L amber HCl EPH
1-500 mL poly TSS

Water Quality Clear, colorless

Temp	28.12°c
Cond.	0.412 mS/cm
DO	6.82 mg/L
pH	8.57
ORP	-241 mV
Turbidity	13 ntu

Bottom very rocky @ intake, move upstream to last yr sediment sample location

1601 Collect MCMT071812SE0102
Used ponar dredge Wather thick 2'
Sed thick 3"
DK Gray silty sand PID = 0.0
GPS cood avail in PDA

1630 Make back to boat launch

Location Billings, MT Date 7-19-12
Project / Client PWS Sampling / UCMR
Miles City / Sidney

Thursday July 19, 2012

0645 Begin going through bottles

0700 Begin calibration of YSI 556

Was Reading	Adjusted to
pH = 7.04	N/A
pH = 9.98	N/A
pH = 4.05	N/A
ORP = 241 mv	N/A
Spc Cond = 1.415 mS/cm²	N/A
DO = 101% Sat (7.75 mg/L)	N/A

Checked the Hach Turbidimeter to 100 ntu, 20 ntu > checked out.

0730 Calibrated MultiRae PID to 100 ppm Isobutylene
Begin mobilizing to Sidney for sampling activities.

0930 Arrive @ Sidney Bridge Access
Tailgate H&S, get equip ready
Launch boats

Location Billings, MT Date 7-19-12
Project / Client PWS Sampling / UCMR
Sidney Water Treatment Plant

1048 Collect SIMT071912SW0101
by same method as previous SW samples

3-40mL VOA HCl 8260
3-40mL VOA HCl VPH
3-1L amber PAH, TCL SVOC
2-1L amber HCl EPH
1-500 mL poly TSS

Water Quality clear, slight lt brn

Temp	27.42 °C
Cond.	0.463 mS/cm²
DO	6.97 mg/L
pH	8.04
ORP	-245 mv
Turbidity	107 ntu

Collect sediment sample @ same location

1116 SIMT071912SE0101
Tried to collect Sidney facility sample in same location as last yr. The basin was cleaned w/a firehose in June, no sediment available. Collected sediment @ intake pump house instead.

Location Billings, MT Date 7/19/12

Project / Client PWS Sampling / XOM

Glendive River PWS Sunny 104°

1221 Collect SLMT071912SE0102

Used ponar dredge
Sediment 2" thick
2 grabs
DK gray silty sand PID 0.0 ppm

1240 Leave Sidney & drive to Glendive

1420 Arrived at the boat ramp in Glendive to access locations from the river. Used two boats from WRI to gain access.

1451 Collected GLMT071912SW0102 by same method as previous SW samples and filled:

- 3-40ml vials HCl 8260
- 3-40ml vials HCl VPH/GRO
- 3-1Liter Amber PAH's, TCL SVOCS
- 2-1Liter Amber HCl EPH Screen
- 1-500ml plastic TSS

Location Billings, MT Date 7-19-12

Project / Client PWS Sampling / XOM

Glendive River PWS Intake

Water Quality Parameters @ GLMT071912SW0102 using YSI:

Time	Temp	Cond (mS/cm)	DO (mg/L)	pH	ORP	Turb (ntu)
1455	30.45	0.466	6.43	8.41	-231	23.9

Characteristics: Clear & Colorless

1500 Begin the collection of the Sediment Sample.

1501 Collected GLMT071912SE0103 and filled:

- 4-Encores VOC's (8260)
- 4-Encores VPH GRO
- 1-4oz glass EPH Screen
- 1-8oz glass TOC, PAH TCL 8270.
- 1-8oz glass Archive

* Collected with Ponar Dredge

Depth of water Column = 3.5
Sediment Thickness = 0.2

Location Billings, MT Date 7-19-12

Project / Client PWS Sampling / XOM
Glendive River PWS Intake.

GLMT071912SE0103 Characteristics:
Dark Gray fine silty SAND Trace Organics

Completed collection of samples for the day on the river

1600 Collected EBSW(071912) by pouring laboratory supplied DI water over the decanned Stainless Steel discrete sampler and filled:
3-40ml vials HCl 8260
3-40ml vials HCl GRO VPH

1615 Collected EBSE(071912) by pouring laboratory supplied DI water over the decanned and filled the following containers:
3-40ml vials HCl (8260) VOCs
3-40ml vials HCl VPH GRO
3-1Liter Amber PAHs, TCL SVOCs
2-1Liter Amber HCl-EPH Screen

Location Billings, MT Date 7-19-12

Project / Client PWS Sampling / XOM
Glendive River PWS Intake

1620 Demobed from Glendive boat ramp for Miles City/Glendive PWS plant

1630 Arrived at the Glendive Water Treatment Plant located in Glendive.

Met with Tom Winchell. He instructed us to collect the sample from the the first tank where the influent from the river comes in South East Corner of tank #1

1640 Collected GLMT071912SE0104 and filled
4-Encores VOCs 8260
4-Encores VPH GRO
1-4oz glass EPA Screen
1-8oz glass TOC, PAH TCL 8270
1-8oz glass Archive
* Collected with Power Dredge
Water Column = 2.5' PID = 0ppm
Sediment Thickness > 1.0'

Characteristics Dark Gray silty f-SAND - Lower half

Location Billings, MT Date 7-20-12
Project / Client PWS Sampling / XOM
Glendive / Forsyth

1700 Drove back to Miles City.
1815 Arrived in Miles City. Iced down samples.

Friday July 20, 2012

0615 Get ice for days activities.
0630 Departed for Forsyth Boat Ramp
0720 Arrived at Forsyth Boat Ramp. Went over Health and Safety issues for the day.

0730 Begin calibration of YSI 556

Was Ready	Adjusted to
pH = 7.07	N/A
pH = 4.04	N/A
pH = 10.01	N/A
SpaCond = 1.413 ms/cm³	N/A
ORP = 237 mV	N/A
DO = 103.1 % Sat	N/A
7.80 mg/L	

Location Billings, MT Date 7-20-12
Project / Client PWS Sampling / XOM
Forsyth River Intake

0750 Checked the ~~YSI~~ Hach Turbidimeter to the following:
20 ntu
100 ntu > checked out.

0800 Departed on boat to obtain the Forsyth sample from the river intake.

0841 Collected FOMT072012SW0101 ~~FOMT~~ ~~FOMT072012SW~~ ~~FOMT072012~~ by same method as previous SW sample and filled:
3-40ml vials HCl 8260
3-40ml vials HCl VPH GRO
3-1Liter Amber PAH's, TCL SVOC's
2-1Liter HCl EPH Screen
1-500ml poly TSS

Water Quality Parameters with YSI:

Time	Temp (°C)	Cond (ms/cm²)	DO (mg/L)	pH	ORP (mV)	Turb (ntu)
0845	24.29	0.374	7.86	8.19	-270	11.4

Characteristics: Clear & Colorless
Depth of water = 8.0'

Location Billings, MT Date 7-20-12

Project / Client PWS Sampling / XOM
Forsyth Sampling River Intake.

Begin the collection of the Sediment Sample using the Power Dredge.

0851 Collected FOMT0720125E0101 and filled the following containers:

4-Encores VOC's 8260
4-Encores VPH/GRO
1-4oz glass EPH Screen
1-8oz glass TOC, PAH's TCL 8270
1-8oz glass Archive.

* Collected using Power Dredge
PID = 0ppm

Characteristics: Dark Gray Very Fine Silty SAND Loose Soft. Wet.

0900 Dropped off samples collected
0920 Headed for Colstrip River Intake.

0945 Collected COMT0720125W0102 using discrete sampler for all parameters and filled:

Location Billings, MT Date 7-20-12

Project / Client PWS Sampling / XOM
Forsyth / Colstrip

3-40ml vials HCl 8260 - Discrete
3-40ml vials HCl ~~TPH~~ VPH/GRO Discrete
3-1 liter Amber PAH's, TCL SVOCs
2-1 Liter HCl EPH
1-500ml poly TSS

Time	Temp	Cond (mS/cm)	DO (mg/L)	pH	ORP (mV)	Turb (ntu)
0950	24.27	0.372	7.00	8.31	-295	57.2

Depth of water column = 4.0

Characteristics: Slightly Turbid - Colorless

0950 Begin Sediment Sample collection

0956 Collected COMT072012SE0102 and filled:

4-Encores VOC's 8260
4-Encores VPH GRO
1-8oz TCL 8270, PAH's
1-8oz Archive
1-4oz TOC, % Moisture

Characteristics: Gray Clayey SILT Soft. Wet.

Location Billings, MT Date 7-20-12

Project / Client PWS Sampling / XOM

Colstrip River Intake

1030 Collected EBSW(072012) by pouring laboratory supplied DI water over a deconned discrete sampler and filled:

3-40ml vials HCl 8260

3-40ml vials HCl VPH/GRO

1045 Collected EBSE(072012) by pouring laboratory supplied DI water over a deconned ponar dredge and filled the following:

1120 Departed Forsyth Boat Ramp to go to storage to offload equipment

1345 Begin packing samples for shipment to Lancaster.

1615 BWL dropped off samples to FedEx.

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM

Set up

Monday July 23, 2012

Weather: Clear 85°F

0700 Met at Best Western and went over Health and safety issues for the day.

0730 Met with Laura and Kirk at the storage unit to load up for the day

0815 Met at Duck Creek Boat Ramp with WRI to collect samples from the boats at the river intakes at Laurel, Billings and Lockwood.

0820 Calibrated YSI 556 to the following:

Was Reading	Adjusted to
pH = 7.03	N/A
pH = 4.10	N/A
pH = 10.10	N/A
SpecCond = 1.394 ms/cm	N/A
ORP = 237 mV	N/A
DO = 98.3% Sat	N/A

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM
Laurel (River Intake)

0835 Checked the Hach Turbidimeter to:
100ntu
20ntu > Checked out.

0840 Departed boat ramp to collect samples from Laurel River intake.

0941 Collected LAMT072312SW0101 by same method as previous SW samples and filled enough bottles for the

0941 Matrix Spike and Matrix Spike Duplicate
9-40ml vials HCl 8260 - Discrete
9-40ml vials HCl VPH/GRO - Discrete
9-1Liter Amber PAH's, TCL SVOCs
6-1Liter HCl EPH Screen
3-500ml poly TSS

Water Quality Parameters with YSI:

Time	Temp °C	Cond mS/cm	DO mg/L	pH	ORP	Turb
0945	21.54	0.160	9.43	8.15	-219	4.2

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM
Laurel (River Intake)

Depth of water column = 4.0

Characteristics: Clear & Colorless

Begin the collection of Sediment Sample using Ponar Dredge.

0956 Collected LAMT072312SE0101 and filled the following:
4- Encores VOCs 8260
4- Encores VPH GRO
1- 8oz PAH's, SVOCs, TOC, % Moisture
1- 4oz EPH Screen
1- 8oz Archive.

* Collected using ponar dredge
PID = 0ppm
Characteristics: Dark Brown f- SAND. Loose wet.

1015 Dropped off samples and depart for Billings and Lockwood River Intakes.

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM
Billings (River Intake)

1030 Set up to collect Sediment and Surface water at Billings River Intake using Jet Boats.

1101 Collected BIMT072312SW0102 NIR and Blind Duplicate DUP2(072312) and by same method as previous SW Samples and filled:

- 6-40ml vials HCl 8260 - Discrete
- 6-40ml vials HCl VPH GRO - Discrete
- 6-1 Liter Amber PAH's SVOCS
- 4-1 Liter Amber EPH Screen HCl
- 2-500 ml poly TSS

Water Column = 6.0'.

YSI Readings:

Time	Temp °C	Cond mS/cm	DO mg/L	pH	ORP mV	Turb ntu
1105	22.34	0.164	9.31	8.27	-273	8.8

Characteristics: Clear & Colorless

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM
Billings (River Intake)

Begin the collection of Sediment at the river intake at Billings

1111 Collected BIMT072312SE0102 and filled the following:

- 4-Encores VOC's 8260
- 4-Encores VPH/GRO
- 1-8oz PAH's TCL SVOCS TOC % Moisture
- 1-8oz glass Archive

*Collected with Ponar Dredge
PID=0ppm
Characteristics: Dark Gray silty SAND (SM) Soft. Wet

1130 Begin mobilizing to the Lockwood River Intake

1145 Arrived at Lockwood. Set up to collect a Surface water and sediment location here.

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM
Lockwood (River Intake)

1156 Collected LOMT072312SW0103 and by the same method as previous SW sample collection and filled:

3-40ml vials HCl 8260 - Discrete
3-40ml vials HCl VPH/GRO - Discrete
3-1Liter Amber PAH's SVOC's ~~Pest~~ TCL
2-1Liter Amber HCl EPH Screen
1-500ml poly TSS

Water Column = 4.0'

YSI Readings:

Time	Temp	Cond mS/cm	DO	pH	ORP	Turb
1200	22.81	0.233	9.82	8.45	-268	8.8

Characteristics: Clear & Colorless

Begin the collection of sediment sample at Lockwood River Intake.

1206 Collected LOMT072312SE0103 and filled the following

4-Encores VOC's 8260
4-Encores VPH/GRO
1-8oz PAH, TCL 8270, TOC, % Moisture

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling / XOM
Equipment Blanks

1-8oz Archive
1-4oz EPH Screen

* Collected with a Ponar Dredge

Characteristics: Dark Gray silty SAND (SM) Soft. Wet.

1300 Mobilized to Storage to decon equipment and collect Equipment Blanks

1346 Collected EBSW(072312) by pouring laboratory supplied DI water over the deconned discrete sampler and filled:

3-40ml vials HCl 8260
3-40ml vials HCl VPH/GRO

1401 Collected EBSE(072312) by pouring laboratory supplied DI water over the deconned Ponar Dredge and filled the following containers:

Location Billings, MT Date 7-23-12

Project / Client PWS Sampling /X OM

3-40ml vials HCl 8260
3-40ml vials HCl VPHGRO
3-1Liter Amber PAH's, TCL 8270
2-1Liter Amber HCl EPH Screen

1500 Begin packing coolers for shipment to FedEx.

1700 At FedEx to drop off Samples

Location Miles City, MT Date 7/24/12

Project / Client PWS sampling

Cloudy 80s humid

0730 UM4 KS arrive @ storage unit. Gather equip + Calibrate YSI + PID.
0800 Leave Billings + drive to Miles City
1010 Arrive @ Miles City Facility PWS
Talk to Sam, opens gate so we can collect sediment sample from basin behind plant
(Sam Winkley) 3-4" sediment
Grey 20-30% silt/clay, 80-70% fine sand
1026 Collect MCMT07241201SE01
4- encores VOCs
4- encores VPH
1-8oz PAH, TCL 8270, TOC moist
1-8oz archive
1-4oz EPH screen
1055 Drive to Hysham
1200 Arrive @ Hysham PWS intake @ River
1301 Collect HYMT072412SW0101
w/ peri pump too shallow for discrete sampler

Location Hysham, MT Date 7/24/12

Project / Client PWS sampling

1311 Collect HYMT072412SE0102
8260, VPH, EPH screen, PAHs
8270 TCL, archive
Dk gray silty (40%) sand (60%)

1345 Drive back to Billings

1500 Arrive @ Billings storage unit.
Unload equipment

1521 Collect EBSE (072412) w/ DI water
& ponar
pack samples

Location Hysham, MT Date 8/1/12

Project / Client PWS sampling - resample

0800 LM & Gordon Levine meet @ storage unit. Tailgate safety meeting
Cold work permit fill out
Calibrate YSI 556

pH 9.90 → 10.00 21.80
pH 7.09 → 7.00 24.37°
pH 3.90 → 4.00 25.27°
spec Cond 1.502 → 1.415 25.29°
ORP 237.7 → 240.0 24.39°
DO cal to 760 mmHg → 79.7% → 100%

0900 Leave for Hysham. Text shelby

1013 Arrive @ Hysham PWS intake @ Yellowstone River to collect the resamples of EPH, PAHs & SVOCs that were lost by FedEx last week

1021 Collect HYMT080112SW0101
pH 8.13
temp 24.57
Sp Cond 0.478 mS/cm
DO 2.04 mg/L
ORP -55.8

1041 Finish collecting sample. Drive back to Billings.

Appendix B

Laboratory Analytical Reports and Data Validation Reports
(on Compact Disc)
Hard copy provided under separate cover

Imagine the result

ExxonMobil- Silvertip Pipeline Incident

Data Verification/Validation Report

BILLINGS, MONTANA

Volatile, Semivolatile, MADEP VPH/EPH, and TOC Analyses

SDG #ESM27 (132277)

Analyses Performed By:
Eurofins Lancaster Laboratories
Lancaster, Pennsylvania

Report #17091R
Review Level: Tier II
Project: B0085904.1205.00014

TIER 2 DATA VERIFICATION/VALIDATION REPORT

Project Name: Silvertip Pipeline Incident
QAPP: Draft Quality Assurance Project Plan Silvertip Pipeline Incident, Laurel, Montana, March 2012
SDG: ESM27 (132277)
Analytical Laboratory: Eurofins Lancaster Laboratories
Analytical Parameters/Method: VOC-8260, SVOC-8270, PAH-8270-SIM, MADEP VPH/EPH, and TOC-9060
Data Reviewer/Affiliation: Lyndi Mott/ARCADIS
Date Completed: August 26, 2012

This review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	SVOC - SIM	VPH/ EPH	TOC
LAMT071712SE0101	6723694	Sediment	7/17/2012		X	X	X	X	X
LOMT071712SE0102	6723695	Sediment	7/17/2012		X	X	X	X	X
BIMT071712SE0103	6723699	Sediment	7/17/2012		X	X	X	X	X
DUP1(071712)	6723700	Sediment	7/17/2012	BIMT071712SE0103	X	X	X	X	X
EBSE(071712)	6723701	Sediment	7/17/2012		X	X	X	X	
TB(071712)	6723702	Sediment	7/17/2012		X			X	

Note:
1. Volatile Petroleum Hydrocarbons/ Extractable Petroleum Hydrocarbons - VPH/EPH
2. Total Organic Carbon – TOC
3. Matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on sample location LOMT071712SE0102.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260, 8270, 8270-SIM, 9060, and Massachusetts Department of Environmental Protection (MADEP) Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH). Data were reviewed based on laboratory method criteria and/or USEPA's National Functional Guidelines for Organics Data Review (October 1999), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010). No raw data were reviewed.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  + Result may be biased high

  - Result may be biased low

  U Compound considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260	Water	14 days from collection to analysis	Cool to <6°C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were greater than the BAL. No other qualification of the sample results was required.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
LOMT071712SE0102	Tetrahydrofuran

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
LAMT071712SE0101 LOMT071712SE0102 BIMT071712SE0103	Acetone 2-Butanone 1,2-Dibromo-2-chloropropane	> UL
DUP1(071712)	1,1,1-Trichloroethane	<LL but >10%
EBSE(071712) TB(071712)	Dichlorofluoromethane	> UL

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT071712SE0103/ DUP1(071712)	Acetone	26 J	35 J	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X	X		
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X	X		
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R Percent recovery RPD Relative percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT071712SE0103/ DUP1(071712)	3&4 Methylphenol	210 U	110 J	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
LOMT071712SE0102	Naphthalene (EB)	Detected sample results <RL and <BAL	“U” at the RL
BIMT071712SE0103		Detected sample results >RL and <BAL	“U” at detected sample concentration

RL Reporting limit
EB Equipment Blank

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
LOMT071712SE0102	2-Methylnaphthalene	AC	>UL

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-
Parent sample concentration > four times the MS/MSD spiking solution concentration (D).	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT071712SE0103/ DUP1(071712)	Acenaphthene	11 U	7.6 J	AC
	Anthracene	11 U	8.5 J	AC
	Benzo(a)anthracene	5.7 J	5.1 J	AC
	Benzo(a)pyrene	5.3 J	4.8 J	AC
	Benzo(b)fluoranthene	7.8 J	7.8 J	AC
	Benzo(g,h,i)perylene	7.1 J	7.3 J	AC
	Chrysene	11	11	AC
	Fluoranthene	11	11	AC
	Fluorene	11 U	12	AC
	1-Methylnaphthalene	22	31	AC
	2-Methylnaphthalene	29	47	AC
	Naphthalene	17 U	90	NC
	Phenanthrene	21	29	AC
	Pyrene	16	14	AC

AC Acceptable
NC Not compliant

The compound naphthalene associated with sample locations BIMT071712SE0103 and DUP1 (071712) exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PAHs

SVOCs: SW-846 8270 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X	X		
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R Percent recovery
RPD Relative percent difference

VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP VPH	Water	14 days from collection to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to analysis	Cooled to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

Continuing calibration verification (CCV) summaries were reviewed. All VPH target compounds exhibited acceptable %D values (<25%) relative to the initial calibration responses.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires the surrogate compounds exhibit recoveries within the recovery range of 70 to 130%.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method-established acceptance limits of 70 to 130%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 70 to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT071712SE0103/ DUP1(071712)	All Compounds	10 U	10 U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VPH ANALYSIS

VPH; MADEP VPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Continuing calibration %Ds		X		X	

%R - percent recovery, RPD - relative percent difference,
%D – difference

EXTRACTABLE PETROLEUM HYDROCARBON (EPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP EPH	Water	14 days from collection to extraction and 40 days from extraction to analysis	Cooled @ 4°C ± 2°.; preserved to a pH of less than 2.
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled @ 4°C ± 2°.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

Continuing calibration verification (CCV) summaries were reviewed. All EPH target compounds exhibited acceptable %D values (<25%) relative to the initial calibration responses.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the acceptance limits of 40 to 140%.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method specified acceptance limits of 40 to 140%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 50%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD is spiked at 100 ppm for the EPH fractionation analysis. Since fractionation was not required, the MS/MSD recoveries were not reported.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 40 to 140%.

A LCS is not reported for EPH screen analysis. However, the continuing calibration verification standard % D was within acceptable limits.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT071712SE0103/ DUP1(071712)	EPH Screen	U	U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR EPH ANALYSIS

EPH; MADEP EPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R					X
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Continuing calibration %Ds		X		X	

%R - percent recovery, RPD - relative percent difference,
%D – difference

TOTAL ORGANIC CARBON (TOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Organic Carbon by SW-846 9060	Water	28 days from collection to analysis	Cooled @ 4°C ± 2°..; preserved to a pH of less than 2.
	Soil	28 days from collection to analysis	Cooled @ 4°C ± 2°.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

TOC was not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory established acceptance limits of 50 to 150%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on sample location LOMT071712SE0102 exhibited recoveries and RPD within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for field duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
BIMT071712SE0103/ DUP1(071712)	TOC	13200	7760	51.9%

The TOC results associated with samples locations BIMT071712SE0103 and DUP1(071712) exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TOC

General Chemistry: SW-846 9060	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
TOC Analyzer					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery, RPD - relative percent difference,

VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE:

DATE: August 28, 2012

PEER REVIEW: Dennis Capria

DATE: October 15, 2012

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LAMT071712SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723694
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 08:40 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA101 SDG#: ESM27-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	95 J		18	51		1.38
10237	Allyl Chloride	107-05-1	N.D.		3	13		1.38
10237	Benzene	71-43-2	N.D.		1	13		1.38
10237	Bromobenzene	108-86-1	N.D.		3	13		1.38
10237	Bromochloromethane	74-97-5	N.D.		3	13		1.38
10237	Bromodichloromethane	75-27-4	N.D.		3	13		1.38
10237	Bromoform	75-25-2	N.D.		3	13		1.38
10237	Bromomethane	74-83-9	N.D.		5	13		1.38
10237	2-Butanone	78-93-3	18	J	10	25		1.38
10237	n-Butylbenzene	104-51-8	N.D.		3	13		1.38
10237	sec-Butylbenzene	135-98-8	N.D.		3	13		1.38
10237	tert-Butylbenzene	98-06-6	N.D.		3	13		1.38
10237	Carbon Tetrachloride	56-23-5	N.D.		3	13		1.38
10237	Chlorobenzene	108-90-7	N.D.		3	13		1.38
10237	Chloroethane	75-00-3	N.D.		5	13		1.38
10237	Chloroform	67-66-3	N.D.		3	13		1.38
10237	Chloromethane	74-87-3	N.D.		5	13		1.38
10237	2-Chlorotoluene	95-49-8	N.D.		3	13		1.38
10237	4-Chlorotoluene	106-43-4	N.D.		3	13		1.38
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		5	13		1.38
10237	Dibromochloromethane	124-48-1	N.D.		3	13		1.38
10237	1,2-Dibromoethane	106-93-4	N.D.		3	13		1.38
10237	Dibromomethane	74-95-3	N.D.		3	13		1.38
10237	1,2-Dichlorobenzene	95-50-1	N.D.		3	13		1.38
10237	1,3-Dichlorobenzene	541-73-1	N.D.		3	13		1.38
10237	1,4-Dichlorobenzene	106-46-7	N.D.		3	13		1.38
10237	Dichlorodifluoromethane	75-71-8	N.D.		5	13		1.38
10237	1,1-Dichloroethane	75-34-3	N.D.		3	13		1.38
10237	1,2-Dichloroethane	107-06-2	N.D.		3	13		1.38
10237	1,1-Dichloroethene	75-35-4	N.D.		3	13		1.38
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		3	13		1.38
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		3	13		1.38
10237	Dichlorofluoromethane	75-43-4	N.D.		5	13		1.38
10237	1,2-Dichloropropane	78-87-5	N.D.		3	13		1.38
10237	1,3-Dichloropropane	142-28-9	N.D.		3	13		1.38
10237	2,2-Dichloropropane	594-20-7	N.D.		3	13		1.38
10237	1,1-Dichloropropene	563-58-6	N.D.		3	13		1.38
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		3	13		1.38
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		3	13		1.38
10237	Ethyl Ether	60-29-7	N.D.		3	13		1.38
10237	Ethylbenzene	100-41-4	N.D.		3	13		1.38
10237	Freon 113	76-13-1	N.D.		5	25		1.38
10237	Hexachlorobutadiene	87-68-3	N.D.		5	13		1.38
10237	Isopropylbenzene	98-82-8	N.D.		3	13		1.38
10237	p-Isopropyltoluene	99-87-6	3	J	3	13		1.38
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		1	13		1.38
10237	4-Methyl-2-pentanone	108-10-1	N.D.		8	25		1.38
10237	Methylene Chloride	75-09-2	N.D.		5	13		1.38
10237	n-Propylbenzene	103-65-1	N.D.		3	13		1.38
10237	Styrene	100-42-5	N.D.		3	13		1.38
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		3	13		1.38

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LAMT071712SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723694
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 08:40 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA101 SDG#: ESM27-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	3	13		1.38
10237	Tetrachloroethene	127-18-4	N.D.	3	13		1.38
10237	Tetrahydrofuran	109-99-9	N.D.	10	13		1.38
10237	Toluene	108-88-3	130	3	13		1.38
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	3	13		1.38
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	3	13		1.38
10237	1,1,1-Trichloroethane	71-55-6	N.D.	3	13		1.38
10237	1,1,2-Trichloroethane	79-00-5	N.D.	3	13		1.38
10237	Trichloroethene	79-01-6	N.D.	3	13		1.38
10237	Trichlorofluoromethane	75-69-4	N.D.	5	13		1.38
10237	1,2,3-Trichloropropane	96-18-4	N.D.	3	13		1.38
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	3	13		1.38
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	3	13		1.38
10237	Vinyl Chloride	75-01-4	N.D.	3	13		1.38
10237	Xylene (Total)	1330-20-7	N.D.	3	13		1.38
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: acetone.						
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	92	180		1
10727	Butylbenzylphthalate	85-68-7	N.D.	370	920		1
10727	Di-n-butylphthalate	84-74-2	N.D.	370	920		1
10727	Carbazole	86-74-8	N.D.	92	180		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	92	180		1
10727	4-Chloroaniline	106-47-8	N.D.	92	180		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	92	180		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	92	180		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	92	180		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	39	180		1
10727	2-Chlorophenol	95-57-8	N.D.	92	180		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	92	180		1
10727	Dibenzofuran	132-64-9	N.D.	92	180		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	550	1,800		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	92	180		1
10727	Diethylphthalate	84-66-2	N.D.	370	920		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	92	180		1
10727	Dimethylphthalate	131-11-3	N.D.	370	920		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	920	2,800		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,700	5,500		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	370	920		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	92	180		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	92	180		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	370	940		1
10727	Hexachlorobenzene	118-74-1	N.D.	18	94		1
10727	Hexachlorobutadiene	87-68-3	N.D.	92	180		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: LAMT071712SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723694
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 08:40 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA101 SDG#: ESM27-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		180	920		1
10727	Isophorone	78-59-1	N.D.		92	180		1
10727	2-Methylphenol	95-48-7	N.D.		92	180		1
10727	4-Methylphenol	106-44-5	480		92	180		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		92	180		1
10727	3-Nitroaniline	99-09-2	N.D.		370	920		1
10727	4-Nitroaniline	100-01-6	N.D.		370	920		1
10727	Nitrobenzene	98-95-3	N.D.		92	180		1
10727	2-Nitrophenol	88-75-5	N.D.		92	180		1
10727	4-Nitrophenol	100-02-7	N.D.		920	2,800		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		370	920		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		92	180		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		92	180		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		370	920		1
10727	Pentachlorophenol	87-86-5	N.D.		180	940		1
10727	Phenol	108-95-2	N.D.		92	180		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		92	180		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		92	180		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		3.7	9.2		1
10722	Acenaphthylene	208-96-8	N.D.		1.8	9.2		1
10722	Anthracene	120-12-7	N.D.		1.8	9.2		1
10722	Benzo(a)anthracene	56-55-3	N.D.		3.7	9.2		1
10722	Benzo(a)pyrene	50-32-8	4.0	J	3.7	9.2		1
10722	Benzo(b)fluoranthene	205-99-2	6.3	J	3.7	9.2		1
10722	Benzo(g,h,i)perylene	191-24-2	7.2	J	3.7	9.2		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		3.7	9.2		1
10722	Chrysene	218-01-9	9.2	J	1.8	9.2		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.7	9.2		1
10722	Fluoranthene	206-44-0	6.2	J	3.7	9.2		1
10722	Fluorene	86-73-7	5.7	J	3.7	9.2		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		3.7	9.2		1
10722	1-Methylnaphthalene	90-12-0	32		3.7	9.2		1
10722	2-Methylnaphthalene	91-57-6	45		3.7	9.2		1
10722	Naphthalene	91-20-3	26		3.7	9.2		1
10722	Phenanthrene	85-01-8	22		3.7	9.2		1
10722	Pyrene	129-00-0	9.7		3.7	9.2		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		4.71	9.43		50.99

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: LAMT071712SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723694
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 08:40 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA101 SDG#: ESM27-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	4.71	9.43		50.99
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	4.71	9.43		50.99
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	4.71	9.43		50.99
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	280	280	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	8,250	534	1,600		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	45.9	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	8260 Ext. Soil Master w/GRO	SW-846 8260B	1	A122111AA	07/29/2012	17:56	Andrea E Lando	1.38
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220028212	07/18/2012	16:54	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220028212	07/18/2012	16:54	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220028212	07/18/2012	16:11	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12201SLB026	07/20/2012	18:13	Linda M Hartenstine	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12201SLC026	07/20/2012	13:15	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12201SLB026	07/19/2012	13:30	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12201SLC026	07/19/2012	13:30	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12193A08B	07/20/2012	18:22	Nicholas R Rossi	50.99
05969	MT EPH Screen Soil	MT DEQ	1	122020027A	07/24/2012	16:04	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220028212	07/18/2012	16:09	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122020027A	07/21/2012	12:15	Sally L Appleyard	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: LAMT071712SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723694
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 08:40 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA101 SDG#: ESM27-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12200049531A	07/18/2012 23:43	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12202820008A	07/20/2012 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: LOMT071712SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723695
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 10:01 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA102 SDG#: ESM27-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	370 J		53	150		1.93
10237	Allyl Chloride	107-05-1	N.D.		8	38		1.93
10237	Benzene	71-43-2	N.D.		4	38		1.93
10237	Bromobenzene	108-86-1	N.D.		8	38		1.93
10237	Bromochloromethane	74-97-5	N.D.		8	38		1.93
10237	Bromodichloromethane	75-27-4	N.D.		8	38		1.93
10237	Bromoform	75-25-2	N.D.		8	38		1.93
10237	Bromomethane	74-83-9	N.D.		15	38		1.93
10237	2-Butanone	78-93-3	40	J	30	75		1.93
10237	n-Butylbenzene	104-51-8	N.D.		8	38		1.93
10237	sec-Butylbenzene	135-98-8	N.D.		8	38		1.93
10237	tert-Butylbenzene	98-06-6	N.D.		8	38		1.93
10237	Carbon Tetrachloride	56-23-5	N.D.		8	38		1.93
10237	Chlorobenzene	108-90-7	N.D.		8	38		1.93
10237	Chloroethane	75-00-3	N.D.		15	38		1.93
10237	Chloroform	67-66-3	510		8	38		1.93
10237	Chloromethane	74-87-3	N.D.		15	38		1.93
10237	2-Chlorotoluene	95-49-8	N.D.		8	38		1.93
10237	4-Chlorotoluene	106-43-4	N.D.		8	38		1.93
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		15	38		1.93
10237	Dibromochloromethane	124-48-1	N.D.		8	38		1.93
10237	1,2-Dibromoethane	106-93-4	N.D.		8	38		1.93
10237	Dibromomethane	74-95-3	N.D.		8	38		1.93
10237	1,2-Dichlorobenzene	95-50-1	N.D.		8	38		1.93
10237	1,3-Dichlorobenzene	541-73-1	N.D.		8	38		1.93
10237	1,4-Dichlorobenzene	106-46-7	N.D.		8	38		1.93
10237	Dichlorodifluoromethane	75-71-8	N.D.		15	38		1.93
10237	1,1-Dichloroethane	75-34-3	N.D.		8	38		1.93
10237	1,2-Dichloroethane	107-06-2	N.D.		8	38		1.93
10237	1,1-Dichloroethene	75-35-4	N.D.		8	38		1.93
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		8	38		1.93
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		8	38		1.93
10237	Dichlorofluoromethane	75-43-4	N.D.		15	38		1.93
10237	1,2-Dichloropropane	78-87-5	N.D.		8	38		1.93
10237	1,3-Dichloropropane	142-28-9	N.D.		8	38		1.93
10237	2,2-Dichloropropane	594-20-7	N.D.		8	38		1.93
10237	1,1-Dichloropropene	563-58-6	N.D.		8	38		1.93
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		8	38		1.93
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		8	38		1.93
10237	Ethyl Ether	60-29-7	N.D.		8	38		1.93
10237	Ethylbenzene	100-41-4	N.D.		8	38		1.93
10237	Freon 113	76-13-1	N.D.		15	75		1.93
10237	Hexachlorobutadiene	87-68-3	N.D.		15	38		1.93
10237	Isopropylbenzene	98-82-8	N.D.		8	38		1.93
10237	p-Isopropyltoluene	99-87-6	N.D.		8	38		1.93
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		4	38		1.93
10237	4-Methyl-2-pentanone	108-10-1	N.D.		23	75		1.93
10237	Methylene Chloride	75-09-2	20	J	15	38		1.93
10237	n-Propylbenzene	103-65-1	N.D.		8	38		1.93
10237	Styrene	100-42-5	N.D.		8	38		1.93
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		8	38		1.93

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: LOMT071712SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723695
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 10:01 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA102 SDG#: ESM27-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	8	38		1.93
10237	Tetrachloroethene	127-18-4	N.D.	8	38		1.93
10237	Tetrahydrofuran	109-99-9	N.D. UJ	30	38		1.93
10237	Toluene	108-88-3	N.D.	8	38		1.93
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	8	38		1.93
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	8	38		1.93
10237	1,1,1-Trichloroethane	71-55-6	N.D.	8	38		1.93
10237	1,1,2-Trichloroethane	79-00-5	N.D.	8	38		1.93
10237	Trichloroethene	79-01-6	N.D.	8	38		1.93
10237	Trichlorofluoromethane	75-69-4	N.D.	15	38		1.93
10237	1,2,3-Trichloropropane	96-18-4	N.D.	8	38		1.93
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	8	38		1.93
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	8	38		1.93
10237	Vinyl Chloride	75-01-4	N.D.	8	38		1.93
10237	Xylene (Total)	1330-20-7	N.D.	8	38		1.93
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: acetone.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	200	390		1
10727	Butylbenzylphthalate	85-68-7	N.D.	780	2,000		1
10727	Di-n-butylphthalate	84-74-2	N.D.	780	2,000		1
10727	Carbazole	86-74-8	N.D.	200	390		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	200	390		1
10727	4-Chloroaniline	106-47-8	N.D.	200	390		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	200	390		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	200	390		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	200	390		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	82	390		1
10727	2-Chlorophenol	95-57-8	N.D.	200	390		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	200	390		1
10727	Dibenzofuran	132-64-9	N.D.	200	390		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	1,200	3,900		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	200	390		1
10727	Diethylphthalate	84-66-2	N.D.	780	2,000		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	200	390		1
10727	Dimethylphthalate	131-11-3	N.D.	780	2,000		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	2,000	5,900		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	3,500	12,000		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	780	2,000		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	200	390		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	200	390		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	780	2,000		1
10727	Hexachlorobenzene	118-74-1	N.D.	39	200		1
10727	Hexachlorobutadiene	87-68-3	N.D.	200	390		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: LOMT071712SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723695
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 10:01 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA102 SDG#: ESM27-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		390	2,000		1
10727	Isophorone	78-59-1	N.D.		200	390		1
10727	2-Methylphenol	95-48-7	N.D.		200	390		1
10727	4-Methylphenol	106-44-5	750		200	390		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		200	390		1
10727	3-Nitroaniline	99-09-2	N.D.		780	2,000		1
10727	4-Nitroaniline	100-01-6	N.D.		780	2,000		1
10727	Nitrobenzene	98-95-3	N.D.		200	390		1
10727	2-Nitrophenol	88-75-5	N.D.		200	390		1
10727	4-Nitrophenol	100-02-7	N.D.		2,000	5,900		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		780	2,000		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		200	390		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		200	390		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		780	2,000		1
10727	Pentachlorophenol	87-86-5	N.D.		390	2,000		1
10727	Phenol	108-95-2	N.D.		200	390		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		200	390		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		200	390		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		7.8	20		1
10722	Acenaphthylene	208-96-8	N.D.		3.9	20		1
10722	Anthracene	120-12-7	N.D.		3.9	20		1
10722	Benzo(a)anthracene	56-55-3	N.D.		7.8	20		1
10722	Benzo(a)pyrene	50-32-8	N.D.		7.8	20		1
10722	Benzo(b)fluoranthene	205-99-2	N.D.		7.8	20		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		7.8	20		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		7.8	20		1
10722	Chrysene	218-01-9	7.7	J	3.9	20		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		7.8	20		1
10722	Fluoranthene	206-44-0	8.7	J	7.8	20		1
10722	Fluorene	86-73-7	N.D.		7.8	20		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		7.8	20		1
10722	1-Methylnaphthalene	90-12-0	21		7.8	20		1
10722	2-Methylnaphthalene	91-57-6	30 J+		7.8	20		1
10722	Naphthalene	91-20-3 20	~~19~~ U	~~J~~	7.8	20		1
10722	Phenanthrene	85-01-8	24		7.8	20		1
10722	Pyrene	129-00-0	12	J	7.8	20		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		11.3	22.7		58.09

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: LOMT071712SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723695
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 10:01 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA102 SDG#: ESM27-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	11.3	22.7		58.09
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	11.3	22.7		58.09
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	11.3	22.7		58.09
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	590	590	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	10,200	1,060	3,180		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	74.4	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	8260 Ext. Soil Master w/GRO	SW-846 8260B	1	A122111AA	07/29/2012	18:19	Andrea E Lando	1.93
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220028212	07/18/2012	16:54	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220028212	07/18/2012	16:55	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220028212	07/18/2012	16:20	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12201SLB026	07/20/2012	15:50	Linda M Hartenstine	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12201SLC026	07/20/2012	11:41	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12201SLB026	07/19/2012	13:30	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12201SLC026	07/19/2012	13:30	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12193A08B	07/20/2012	19:04	Nicholas R Rossi	58.09
05969	MT EPH Screen Soil	MT DEQ	1	122020027A	07/24/2012	16:25	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220028212	07/18/2012	16:17	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122020027A	07/21/2012	12:15	Sally L Appleyard	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: LOMT071712SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723695
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 10:01 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA102 SDG#: ESM27-02BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12200049531A	07/19/2012 00:12	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12202820008A	07/20/2012 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: BIMT071712SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723699
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 11:36 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA103 SDG#: ESM27-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	26	J	13	38		0.89
10237	Allyl Chloride	107-05-1	N.D.		2	10		0.89
10237	Benzene	71-43-2	N.D.		1	10		0.89
10237	Bromobenzene	108-86-1	N.D.		2	10		0.89
10237	Bromochloromethane	74-97-5	N.D.		2	10		0.89
10237	Bromodichloromethane	75-27-4	N.D.		2	10		0.89
10237	Bromoform	75-25-2	N.D.		2	10		0.89
10237	Bromomethane	74-83-9	N.D.		4	10		0.89
10237	2-Butanone	78-93-3	N.D.		8	19		0.89
10237	n-Butylbenzene	104-51-8	N.D.		2	10		0.89
10237	sec-Butylbenzene	135-98-8	N.D.		2	10		0.89
10237	tert-Butylbenzene	98-06-6	N.D.		2	10		0.89
10237	Carbon Tetrachloride	56-23-5	N.D.		2	10		0.89
10237	Chlorobenzene	108-90-7	N.D.		2	10		0.89
10237	Chloroethane	75-00-3	N.D.		4	10		0.89
10237	Chloroform	67-66-3	N.D.		2	10		0.89
10237	Chloromethane	74-87-3	N.D.		4	10		0.89
10237	2-Chlorotoluene	95-49-8	N.D.		2	10		0.89
10237	4-Chlorotoluene	106-43-4	N.D.		2	10		0.89
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		4	10		0.89
10237	Dibromochloromethane	124-48-1	N.D.		2	10		0.89
10237	1,2-Dibromoethane	106-93-4	N.D.		2	10		0.89
10237	Dibromomethane	74-95-3	N.D.		2	10		0.89
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	10		0.89
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	10		0.89
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	10		0.89
10237	Dichlorodifluoromethane	75-71-8	N.D.		4	10		0.89
10237	1,1-Dichloroethane	75-34-3	N.D.		2	10		0.89
10237	1,2-Dichloroethane	107-06-2	N.D.		2	10		0.89
10237	1,1-Dichloroethene	75-35-4	N.D.		2	10		0.89
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	10		0.89
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	10		0.89
10237	Dichlorofluoromethane	75-43-4	N.D.		4	10		0.89
10237	1,2-Dichloropropane	78-87-5	N.D.		2	10		0.89
10237	1,3-Dichloropropane	142-28-9	N.D.		2	10		0.89
10237	2,2-Dichloropropane	594-20-7	N.D.		2	10		0.89
10237	1,1-Dichloropropene	563-58-6	N.D.		2	10		0.89
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	10		0.89
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	10		0.89
10237	Ethyl Ether	60-29-7	N.D.		2	10		0.89
10237	Ethylbenzene	100-41-4	N.D.		2	10		0.89
10237	Freon 113	76-13-1	N.D.		4	19		0.89
10237	Hexachlorobutadiene	87-68-3	N.D.		4	10		0.89
10237	Isopropylbenzene	98-82-8	N.D.		2	10		0.89
10237	p-Isopropyltoluene	99-87-6	N.D.		2	10		0.89
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		1	10		0.89
10237	4-Methyl-2-pentanone	108-10-1	N.D.		6	19		0.89
10237	Methylene Chloride	75-09-2	N.D.		4	10		0.89
10237	n-Propylbenzene	103-65-1	N.D.		2	10		0.89
10237	Styrene	100-42-5	N.D.		2	10		0.89
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		2	10		0.89

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: BIMT071712SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723699
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 11:36 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA103 SDG#: ESM27-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	10		0.89
10237	Tetrachloroethene	127-18-4	N.D.	2	10		0.89
10237	Tetrahydrofuran	109-99-9	N.D.	8	10		0.89
10237	Toluene	108-88-3	N.D.	2	10		0.89
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	10		0.89
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	10		0.89
10237	1,1,1-Trichloroethane	71-55-6	N.D.	2	10		0.89
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	10		0.89
10237	Trichloroethene	79-01-6	N.D.	2	10		0.89
10237	Trichlorofluoromethane	75-69-4	N.D.	4	10		0.89
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	10		0.89
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	10		0.89
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	10		0.89
10237	Vinyl Chloride	75-01-4	N.D.	2	10		0.89
10237	Xylene (Total)	1330-20-7	N.D.	2	10		0.89
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: acetone.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	110	210		1
10727	Butylbenzylphthalate	85-68-7	N.D.	430	1,100		1
10727	Di-n-butylphthalate	84-74-2	N.D.	430	1,100		1
10727	Carbazole	86-74-8	N.D.	110	210		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	110	210		1
10727	4-Chloroaniline	106-47-8	N.D.	110	210		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	110	210		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	110	210		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	110	210		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	45	210		1
10727	2-Chlorophenol	95-57-8	N.D.	110	210		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	110	210		1
10727	Dibenzofuran	132-64-9	N.D.	110	210		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	640	2,100		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	110	210		1
10727	Diethylphthalate	84-66-2	N.D.	430	1,100		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	110	210		1
10727	Dimethylphthalate	131-11-3	N.D.	430	1,100		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	1,100	3,200		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,900	6,400		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	430	1,100		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	110	210		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	110	210		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	430	1,100		1
10727	Hexachlorobenzene	118-74-1	N.D.	21	110		1
10727	Hexachlorobutadiene	87-68-3	N.D.	110	210		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: BIMT071712SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723699
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 11:36 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA103 SDG#: ESM27-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		210	1,100		1
10727	Isophorone	78-59-1	N.D.		110	210		1
10727	2-Methylphenol	95-48-7	N.D.		110	210		1
10727	4-Methylphenol	106-44-5	N.D.		110	210		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		110	210		1
10727	3-Nitroaniline	99-09-2	N.D.		430	1,100		1
10727	4-Nitroaniline	100-01-6	N.D.		430	1,100		1
10727	Nitrobenzene	98-95-3	N.D.		110	210		1
10727	2-Nitrophenol	88-75-5	N.D.		110	210		1
10727	4-Nitrophenol	100-02-7	N.D.		1,100	3,200		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		430	1,100		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		110	210		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		110	210		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		430	1,100		1
10727	Pentachlorophenol	87-86-5	N.D.		210	1,100		1
10727	Phenol	108-95-2	N.D.		110	210		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		110	210		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		110	210		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		4.3	11		1
10722	Acenaphthylene	208-96-8	N.D.		2.1	11		1
10722	Anthracene	120-12-7	N.D.		2.1	11		1
10722	Benzo(a)anthracene	56-55-3	5.7	J	4.3	11		1
10722	Benzo(a)pyrene	50-32-8	5.3	J	4.3	11		1
10722	Benzo(b)fluoranthene	205-99-2	7.8	J	4.3	11		1
10722	Benzo(g,h,i)perylene	191-24-2	7.1	J	4.3	11		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		4.3	11		1
10722	Chrysene	218-01-9	11		2.1	11		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		4.3	11		1
10722	Fluoranthene	206-44-0	11		4.3	11		1
10722	Fluorene	86-73-7	N.D.		4.3	11		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		4.3	11		1
10722	1-Methylnaphthalene	90-12-0	22		4.3	11		1
10722	2-Methylnaphthalene	91-57-6	29		4.3	11		1
10722	Naphthalene	91-20-3	17	UJ	4.3	11		1
10722	Phenanthrene	85-01-8	21		4.3	11		1
10722	Pyrene	129-00-0	16		4.3	11		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		5.22	10.4		48.83

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: BIMT071712SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723699
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 11:36 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA103 SDG#: ESM27-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	5.22	10.4		48.83
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	5.22	10.4		48.83
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	5.22	10.4		48.83
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	320	320	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	13,200 J	761	2,280		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	53.2	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	8260 Ext. Soil Master w/GRO	SW-846 8260B	1	A122111AA	07/29/2012	18:42	Andrea E Lando	0.89
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220028212	07/18/2012	16:55	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220028212	07/18/2012	16:55	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220028212	07/18/2012	16:46	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12201SLB026	07/20/2012	18:37	Linda M Hartenstine	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12201SLC026	07/20/2012	13:46	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12201SLB026	07/19/2012	13:30	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12201SLC026	07/19/2012	13:30	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12193A08B	07/20/2012	21:08	Nicholas R Rossi	48.83
05969	MT EPH Screen Soil	MT DEQ	1	122020027A	07/24/2012	17:50	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220028212	07/18/2012	16:45	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122020027A	07/21/2012	12:15	Sally L Appleyard	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: BIMT071712SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723699
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 11:36 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LA103 SDG#: ESM27-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12200049531A	07/19/2012 00:58	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12202820008A	07/20/2012 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: DUP1(071712) Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723700
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAFD1 SDG#: ESM27-04FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	35	J	13	36		0.93
10237	Allyl Chloride	107-05-1	N.D.		2	9		0.93
10237	Benzene	71-43-2	N.D.		0.9	9		0.93
10237	Bromobenzene	108-86-1	N.D.		2	9		0.93
10237	Bromochloromethane	74-97-5	N.D.		2	9		0.93
10237	Bromodichloromethane	75-27-4	N.D.		2	9		0.93
10237	Bromoform	75-25-2	N.D.		2	9		0.93
10237	Bromomethane	74-83-9	N.D.		4	9		0.93
10237	2-Butanone	78-93-3	N.D.		7	18		0.93
10237	n-Butylbenzene	104-51-8	N.D.		2	9		0.93
10237	sec-Butylbenzene	135-98-8	N.D.		2	9		0.93
10237	tert-Butylbenzene	98-06-6	N.D.		2	9		0.93
10237	Carbon Tetrachloride	56-23-5	N.D.		2	9		0.93
10237	Chlorobenzene	108-90-7	N.D.		2	9		0.93
10237	Chloroethane	75-00-3	N.D.		4	9		0.93
10237	Chloroform	67-66-3	N.D.		2	9		0.93
10237	Chloromethane	74-87-3	N.D.		4	9		0.93
10237	2-Chlorotoluene	95-49-8	N.D.		2	9		0.93
10237	4-Chlorotoluene	106-43-4	N.D.		2	9		0.93
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		4	9		0.93
10237	Dibromochloromethane	124-48-1	N.D.		2	9		0.93
10237	1,2-Dibromoethane	106-93-4	N.D.		2	9		0.93
10237	Dibromomethane	74-95-3	N.D.		2	9		0.93
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	9		0.93
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	9		0.93
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	9		0.93
10237	Dichlorodifluoromethane	75-71-8	N.D.		4	9		0.93
10237	1,1-Dichloroethane	75-34-3	N.D.		2	9		0.93
10237	1,2-Dichloroethane	107-06-2	N.D.		2	9		0.93
10237	1,1-Dichloroethene	75-35-4	N.D.		2	9		0.93
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	9		0.93
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	9		0.93
10237	Dichlorofluoromethane	75-43-4	N.D.		4	9		0.93
10237	1,2-Dichloropropane	78-87-5	N.D.		2	9		0.93
10237	1,3-Dichloropropane	142-28-9	N.D.		2	9		0.93
10237	2,2-Dichloropropane	594-20-7	N.D.		2	9		0.93
10237	1,1-Dichloropropene	563-58-6	N.D.		2	9		0.93
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	9		0.93
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	9		0.93
10237	Ethyl Ether	60-29-7	N.D.		2	9		0.93
10237	Ethylbenzene	100-41-4	N.D.		2	9		0.93
10237	Freon 113	76-13-1	N.D.		4	18		0.93
10237	Hexachlorobutadiene	87-68-3	N.D.		4	9		0.93
10237	Isopropylbenzene	98-82-8	N.D.		2	9		0.93
10237	p-Isopropyltoluene	99-87-6	N.D.		2	9		0.93
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.9	9		0.93
10237	4-Methyl-2-pentanone	108-10-1	N.D.		5	18		0.93
10237	Methylene Chloride	75-09-2	N.D.		4	9		0.93
10237	n-Propylbenzene	103-65-1	N.D.		2	9		0.93
10237	Styrene	100-42-5	N.D.		2	9		0.93
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		2	9		0.93

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: DUP1(071712) Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723700
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAFD1 SDG#: ESM27-04FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	9		0.93
10237	Tetrachloroethene	127-18-4	N.D.	2	9		0.93
10237	Tetrahydrofuran	109-99-9	N.D.	7	9		0.93
10237	Toluene	108-88-3	N.D.	2	9		0.93
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	9		0.93
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	9		0.93
10237	1,1,1-Trichloroethane	71-55-6	N.D.UJ	2	9		0.93
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	9		0.93
10237	Trichloroethene	79-01-6	N.D.	2	9		0.93
10237	Trichlorofluoromethane	75-69-4	N.D.	4	9		0.93
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	9		0.93
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	9		0.93
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	9		0.93
10237	Vinyl Chloride	75-01-4	N.D.	2	9		0.93
10237	Xylene (Total)	1330-20-7	N.D.	2	9		0.93
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1,1-trichloroethane.						
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	97	190		1
10727	Butylbenzylphthalate	85-68-7	N.D.	390	970		1
10727	Di-n-butylphthalate	84-74-2	N.D.	390	970		1
10727	Carbazole	86-74-8	N.D.	97	190		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	97	190		1
10727	4-Chloroaniline	106-47-8	N.D.	97	190		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	97	190		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	97	190		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	97	190		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	41	190		1
10727	2-Chlorophenol	95-57-8	N.D.	97	190		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	97	190		1
10727	Dibenzofuran	132-64-9	N.D.	97	190		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	580	1,900		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	97	190		1
10727	Diethylphthalate	84-66-2	N.D.	390	970		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	97	190		1
10727	Dimethylphthalate	131-11-3	N.D.	390	970		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	970	2,900		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,800	5,800		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	390	970		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	97	190		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	97	190		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	390	990		1
10727	Hexachlorobenzene	118-74-1	N.D.	19	99		1
10727	Hexachlorobutadiene	87-68-3	N.D.	97	190		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: DUP1(071712) Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723700
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAFD1 SDG#: ESM27-04FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		190	970		1
10727	Isophorone	78-59-1	N.D.		97	190		1
10727	2-Methylphenol	95-48-7	N.D.		97	190		1
10727	4-Methylphenol	106-44-5	110	J	97	190		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		97	190		1
10727	3-Nitroaniline	99-09-2	N.D.		390	970		1
10727	4-Nitroaniline	100-01-6	N.D.		390	970		1
10727	Nitrobenzene	98-95-3	N.D.		97	190		1
10727	2-Nitrophenol	88-75-5	N.D.		97	190		1
10727	4-Nitrophenol	100-02-7	N.D.		970	2,900		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		390	970		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		97	190		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		97	190		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		390	970		1
10727	Pentachlorophenol	87-86-5	N.D.		190	990		1
10727	Phenol	108-95-2	N.D.		97	190		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		97	190		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		97	190		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	7.6	J	3.9	9.7		1
10722	Acenaphthylene	208-96-8	N.D.		1.9	9.7		1
10722	Anthracene	120-12-7	8.5	J	1.9	9.7		1
10722	Benzo(a)anthracene	56-55-3	5.1	J	3.9	9.7		1
10722	Benzo(a)pyrene	50-32-8	4.8	J	3.9	9.7		1
10722	Benzo(b)fluoranthene	205-99-2	7.8	J	3.9	9.7		1
10722	Benzo(g,h,i)perylene	191-24-2	7.3	J	3.9	9.7		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		3.9	9.7		1
10722	Chrysene	218-01-9	11		1.9	9.7		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.9	9.7		1
10722	Fluoranthene	206-44-0	11		3.9	9.7		1
10722	Fluorene	86-73-7	12		3.9	9.7		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		3.9	9.7		1
10722	1-Methylnaphthalene	90-12-0	31		3.9	9.7		1
10722	2-Methylnaphthalene	91-57-6	47		3.9	9.7		1
10722	Naphthalene	91-20-3	90	J	3.9	9.7		1
10722	Phenanthrene	85-01-8	29		3.9	9.7		1
10722	Pyrene	129-00-0	14		3.9	9.7		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		5.26	10.5		53.96

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: DUP1(071712) Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723700
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAFD1 SDG#: ESM27-04FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	5.26	10.5		53.96
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	5.26	10.5		53.96
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	5.26	10.5		53.96
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	290	290	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	7,760 J	990	2,970		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	48.7	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	8260 Ext. Soil Master w/GRO	SW-846 8260B	1	B122061AA	07/24/2012	21:51	Kerri E Legerlotz	0.93
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220028212	07/18/2012	16:55	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220028212	07/18/2012	16:55	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220028212	07/18/2012	16:51	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12201SLB026	07/20/2012	19:00	Linda M Hartenstine	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12201SLC026	07/20/2012	14:17	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12201SLB026	07/19/2012	13:30	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12201SLC026	07/19/2012	13:30	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12193A08B	07/20/2012	21:49	Nicholas R Rossi	53.96
05969	MT EPH Screen Soil	MT DEQ	1	122070020A	07/26/2012	10:44	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220028212	07/18/2012	16:50	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	2	122070020A	07/26/2012	02:30	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: DUP1(071712) Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6723700
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAFD1 SDG#: ESM27-04FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12200049531A	07/19/2012 01:14	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12202820008A	07/20/2012 19:10	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: EBSE(071712) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6723701
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 14:00 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAESE SDG#: ESM27-05EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.2 J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: EBSE(071712) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6723701
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 14:00 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAESE SDG#: ESM27-05EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: EBSE(071712) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6723701
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 14:00 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAESE SDG#: ESM27-05EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0096	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0096	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0096	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0096	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0096	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0096	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0096	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0096	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0096	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0096	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0096	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0096	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0096	0.048		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0096	0.048		1
08357	Naphthalene	91-20-3	0.029 J	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0096	0.048		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: EBSE(071712) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6723701
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012 14:00 by BL

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LAESE SDG#: ESM27-05EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	EPA SW846/8260 (water-25ml) #1	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	17:16	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	17:16	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12202WAE026	07/22/2012	20:33	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12202WAF026	07/23/2012	08:11	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12202WAE026	07/20/2012	22:05	Karen L Beyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12202WAF026	07/20/2012	22:05	Karen L Beyer	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	00:09	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122010007A	07/20/2012	14:26	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122010007A	07/19/2012	13:30	Kelli M Barto	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: TB(071712) Water
S20113949 Laurel, MT

LLI Sample # WW 6723702
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LATRB SDG#: ESM27-06TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: TB(071712) Water
S20113949 Laurel, MT

LLI Sample # WW 6723702
LLI Group # 1322777
Account # 13509

Project Name: Silvertip PWS

Collected: 07/17/2012

Submitted: 07/18/2012 09:20
Reported: 07/30/2012 17:21

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LATRB SDG#: ESM27-06TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	EPA SW846/8260 (water-25ml) #1	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	17:38	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	17:38	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	00:50	Elizabeth J Marin	1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1322777 Sample # 6723694-702
For Lancaster Laboratories use only
Instructions on reverse side correspond with circled numbers.

SCR#: _____

(1) Client Information

Facility #/SID: Silver Tip PWS
Site Address: Laurel, Montana
ExxonMobil PM: Tom Henson
Cost Center/AFE:
Consultant/Office: Arcadis-US 801 Corporate Center Drive Raleigh, NC
Consultant PM: Steve Barrick
Consultant Phone #: 919-415-2287
Sampler: Brian Lougran

(4) Matrix: Sediment [X], Soil [ ], Ground [ ], Potable [ ], Surface [ ], NPDES [ ], Water [ ], Air [ ], Oil [ ]

(5) Analyses Requested / Preservation Code

(2) Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	Total # of Containers	SIM PAH's 8270	TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOC's 8260	VPH/GRO	MT EPH Screen (H)	SIM PAH's/SVOC's 8270	VOC's (8260) 25ml purge (H)	VPH/GRO (H)	(6) Remarks
LAMT071712SE0101	7-17-12	0840	✓		10	1	✓	✓	1	4	4					
LOMT071712SE0102	7-17-12	1001	✓		30	3	✓	✓	3	12	12					MS/MSD Collected here
BIMT071712SE0103	7-17-12	1136	✓		10	1	✓	✓	1	4	4					
DUP1 (071712)	7-17-12	MIR	✓		10	1	✓	✓	1	4	4					
EBSE (071712)	7-17-12	1400	✓		11							2	3	3	3	
TB (071712)	7-17-12	MIR	✓		4									2	2	

Preservation Codes
H = HCl, T = Thiosulfate
N = HNO_3, B = NaOH
S = H_2SO_4, O = Other

(7) Turnaround Time Requested (TAT) (please circle)
Standard, 5 day, 4 day, 72 hour, 48 hour, 24 hour

(8) Data Package (circle if required)
Type I - Full
Type VI (Raw Data)
NJ Reduced
Other

EDD (circle if required)
Locus EIM (default)
Other _____

Relinquished by	Date	Time	Received by	Date	Time
Brian Lougran	7-17-12	1600	FedEx	7-17-12	1600

Relinquished by Commercial Carrier: UPS ____ FedEx ____ Other _____

Temperature Upon Receipt 10.1 °C

Custody Seals Intact? Yes No

(9)

Imagine the result

ExxonMobil- Silvertip Pipeline Incident

Data Verification/Validation Report

BILLINGS, MONTANA

Volatile, Semivolatile, MADEP VPH/EPH, and TOC Analyses

SDG #ESM28 (1323057)

Analyses Performed By:
Eurofins Lancaster Laboratories
Lancaster, Pennsylvania

Report #17118R
Review Level: Tier II
Project: B0085904.1205.00014

TIER 2 DATA VERIFICATION/VALIDATION REPORT

Project Name: Silvertip Pipeline Incident
QAPP: Draft Quality Assurance Project Plan Silvertip Pipeline Incident, Laurel, Montana, March 2012
SDG: ESM28 (1323057)
Analytical Laboratory: Eurofins Lancaster Laboratories
Analytical Parameters/Method: VOC-8260, SVOC-8270, PAH-8270-SIM, MADEP VPH/EPH, TOC-9060, and TSS-2540D
Data Reviewer/Affiliation: Lyndi Mott/ARCADIS
Date Completed: August 29, 2012

This review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	SVOC - SIM	VPH/ EPH	TOC
COMT071812SW0101	6725703	Water	7/18/2012		X	X	X	X	TSS
COMT071812SE0101	6725704	Sediment	7/18/2012		X	X	X	X	X
EBSW(071812)	6725705	Water	7/18/2012		X	X	X	X	
EBSE(071812)	6725706	Water	7/18/2012		X	X	X	X	X
TB(071812)	6725707	Water	7/18/2012		X			X	

Note:
1. Volatile Petroleum Hydrocarbons/ Extractable Petroleum Hydrocarbons - VPH/EPH
2. Total Organic Carbon – TOC, Total Suspended Solids - TSS

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260, 8270, 8270-SIM, 9060, and Massachusetts Department of Environmental Protection (MADEP) Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH). Data were reviewed based on laboratory method criteria and/or USEPA's National Functional Guidelines for Organics Data Review (October 1999), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010). No raw data were reviewed.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  + Result may be biased high

  - Result may be biased low

  U Compound considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260	Water	14 days from collection to analysis	Cool to <6°C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were non-detect. No other qualification of the sample results was required.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
COMT071812SW0101 EBSW(071812) EBSE(071812) TB(071812)	Dichlorofluoromethane	> UL

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected for a sample location associated with this SDG.

7. System Performance and Overall Assessment

Sample location COMT071812SE0101 was analyzed by the medium level volatiles method due to the high concentration of non-target compounds that would affect instrument performance. Therefore, detection limits are elevated.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
C. Trip blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R Percent recovery RPD Relative percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
COMT071812SE0101	4-Chloro-3-methylphenol	AC	>UL
	3&4-Methylphenol	AC	>UL
	4-Nitroaniline	AC	>UL
	n-Nitrosodimethylamine	AC	>UL
	Phenol	AC	>UL

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
COMT071812SE0101	4-Chloro-3-methylphenol
	4,6-Dinitro-2-methylphenol
	2,4-Dinitrophenol
	Hexachloroethane
	3&4-Methylphenol
	n-Nitrosodimethylamine
	Phenol
	2,4,6-Trichlorophenol

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X	X		
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were non-detect. No other qualification of the sample results was required.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
COMT071812SW0101	Fluoranthene-d10	AC
	Benzo(a)pyrene-d12	< LL but > 10%
	1-Methylnaphthalene	AC

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> upper control limit (UL)	Non-detect	No Action
	Detect	J+
< lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected for a sample location associated with this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PAHs

SVOCs: SW-846 8270 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

%R Percent recovery
RPD Relative percent difference

VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP VPH	Water	14 days from collection to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to analysis	Cooled to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

Continuing calibration verification (CCV) summaries were reviewed. All VPH target compounds exhibited acceptable %D values (<25%) relative to the initial calibration responses.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires the surrogate compounds exhibit recoveries within the recovery range of 70 to 130%.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method-established acceptance limits of 70 to 130%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 70 to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VPH ANALYSIS

VPH; MADEP VPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Continuing calibration %Ds		X		X	

%R - percent recovery, RPD - relative percent difference,
%D – difference

EXTRACTABLE PETROLEUM HYDROCARBON (EPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP EPH	Water	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

Continuing calibration verification (CCV) summaries were reviewed. All EPH target compounds exhibited acceptable %D values (<25%) relative to the initial calibration responses.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the acceptance limits of 40 to 140%.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method specified acceptance limits of 40 to 140%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 50%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 40 to 140%.

A LCS analysis is not reported for an EPH screen analysis.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR EPH ANALYSIS

EPH; MADEP EPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R					X
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Continuing calibration %Ds		X		X	

%R - percent recovery, RPD - relative percent difference,
%D – difference

TOTAL ORGANIC CARBON (TOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Organic Carbon by SW-846 9060	Water	28 days from collection to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	28 days from collection to analysis	Cooled to <6°C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

TOC was not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory established acceptance limits of 50 to 150%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TOC

General Chemistry: SW-846 9060	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
TOC Analyzer					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery, RPD - relative percent difference,

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to Standard Methods 2540D. Data were reviewed based on laboratory method criteria and/or United States Environmental Protection Agency (USEPA) National Functional Guidelines for Inorganic Data Review (October 2004), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010). No raw data were reviewed.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  + Result may be biased high

  - Result may be biased low

  U Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Suspended Solids By SM2540D	Water	7 days from collection to analysis	Cooled to <6°C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Laboratory Duplicate Analysis

Laboratory duplicate data are used to assess the precision of the analytical method. The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices.

A laboratory duplicate was not performed on a sample location associated with this SDG.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected on a sample location within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix

interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TSS

General Chemistry: SM2540D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Balance					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Lab Duplicate Precision (RPD)					X
Field Duplicate (RPD)					X
Dilution Factor		X		X	
Moisture Content					X

%R - percent recovery, RPD - relative percent difference,

VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE:

DATE: August 29, 2012

PEER REVIEW: Dennis Capria

DATE: September 19, 2012

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

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Analysis Report

Sample Description: COMT071812SW0101 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725703
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 09:30 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSW SDG#: ESM28-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	0.2 J	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: COMT071812SW0101 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725703
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 09:30 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSW SDG#: ESM28-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		ug/l	ug/l	ug/l	ug/l	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: COMT071812SW0101 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725703
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 09:30 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSW SDG#: ESM28-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0096	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0096	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0096	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0096	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0096	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0096	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0096	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0096	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0096	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0096	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0096	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0096	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0096	0.048		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0096	0.048		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0096	0.048		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: COMT071812SW0101 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725703
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 09:30 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSW SDG#: ESM28-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
	The surrogate QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
GC Petroleum Hydrocarbons		**MA DEP VPH 5/04**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons		**MT DEQ**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry		**SM20 2540 D**	**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	N.D.	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	EPA SW846/8260 (water-25ml) #1	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012 18:00	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012 18:00	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12202WAE026	07/22/2012 20:58	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12202WAF026	07/23/2012 08:43	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12202WAE026	07/20/2012 22:05	Karen L Beyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12202WAF026	07/20/2012 22:05	Karen L Beyer	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012 01:31	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122020010A	07/24/2012 19:15	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122020010A	07/20/2012 15:40	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12203020601B	07/21/2012 07:48	Hannah M Royer	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: COMT071812SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6725704
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:15 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSE SDG#: ESM28-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	1,600	4,700		85.03
10237	Allyl Chloride	107-05-1	N.D.	230	1,200		85.03
10237	Benzene	71-43-2	N.D.	120	1,200		85.03
10237	Bromobenzene	108-86-1	N.D.	230	1,200		85.03
10237	Bromochloromethane	74-97-5	N.D.	230	1,200		85.03
10237	Bromodichloromethane	75-27-4	N.D.	230	1,200		85.03
10237	Bromoform	75-25-2	N.D.	230	1,200		85.03
10237	Bromomethane	74-83-9	N.D.	470	1,200		85.03
10237	2-Butanone	78-93-3	N.D.	940	2,300		85.03
10237	n-Butylbenzene	104-51-8	N.D.	230	1,200		85.03
10237	sec-Butylbenzene	135-98-8	N.D.	230	1,200		85.03
10237	tert-Butylbenzene	98-06-6	N.D.	230	1,200		85.03
10237	Carbon Tetrachloride	56-23-5	N.D.	230	1,200		85.03
10237	Chlorobenzene	108-90-7	N.D.	230	1,200		85.03
10237	Chloroethane	75-00-3	N.D.	470	1,200		85.03
10237	Chloroform	67-66-3	N.D.	230	1,200		85.03
10237	Chloromethane	74-87-3	N.D.	470	1,200		85.03
10237	2-Chlorotoluene	95-49-8	N.D.	230	1,200		85.03
10237	4-Chlorotoluene	106-43-4	N.D.	230	1,200		85.03
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	470	1,200		85.03
10237	Dibromochloromethane	124-48-1	N.D.	230	1,200		85.03
10237	1,2-Dibromoethane	106-93-4	N.D.	230	1,200		85.03
10237	Dibromomethane	74-95-3	N.D.	230	1,200		85.03
10237	1,2-Dichlorobenzene	95-50-1	N.D.	230	1,200		85.03
10237	1,3-Dichlorobenzene	541-73-1	N.D.	230	1,200		85.03
10237	1,4-Dichlorobenzene	106-46-7	N.D.	230	1,200		85.03
10237	Dichlorodifluoromethane	75-71-8	N.D.	470	1,200		85.03
10237	1,1-Dichloroethane	75-34-3	N.D.	230	1,200		85.03
10237	1,2-Dichloroethane	107-06-2	N.D.	230	1,200		85.03
10237	1,1-Dichloroethene	75-35-4	N.D.	230	1,200		85.03
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	230	1,200		85.03
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	230	1,200		85.03
10237	Dichlorofluoromethane	75-43-4	N.D.	470	1,200		85.03
10237	1,2-Dichloropropane	78-87-5	N.D.	230	1,200		85.03
10237	1,3-Dichloropropane	142-28-9	N.D.	230	1,200		85.03
10237	2,2-Dichloropropane	594-20-7	N.D.	230	1,200		85.03
10237	1,1-Dichloropropene	563-58-6	N.D.	230	1,200		85.03
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	230	1,200		85.03
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	230	1,200		85.03
10237	Ethyl Ether	60-29-7	N.D.	230	1,200		85.03
10237	Ethylbenzene	100-41-4	N.D.	230	1,200		85.03
10237	Freon 113	76-13-1	N.D.	470	2,300		85.03
10237	Hexachlorobutadiene	87-68-3	N.D.	470	1,200		85.03
10237	Isopropylbenzene	98-82-8	N.D.	230	1,200		85.03
10237	p-Isopropyltoluene	99-87-6	N.D.	230	1,200		85.03
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	120	1,200		85.03
10237	4-Methyl-2-pentanone	108-10-1	N.D.	700	2,300		85.03
10237	Methylene Chloride	75-09-2	N.D.	470	1,200		85.03
10237	n-Propylbenzene	103-65-1	N.D.	230	1,200		85.03
10237	Styrene	100-42-5	N.D.	230	1,200		85.03
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	230	1,200		85.03

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: COMT071812SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6725704
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:15 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSE SDG#: ESM28-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	230	1,200		85.03
10237	Tetrachloroethene	127-18-4	N.D.	230	1,200		85.03
10237	Tetrahydrofuran	109-99-9	N.D.	940	1,200		85.03
10237	Toluene	108-88-3	N.D.	230	1,200		85.03
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	230	1,200		85.03
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	230	1,200		85.03
10237	1,1,1-Trichloroethane	71-55-6	N.D.	230	1,200		85.03
10237	1,1,2-Trichloroethane	79-00-5	N.D.	230	1,200		85.03
10237	Trichloroethene	79-01-6	N.D.	230	1,200		85.03
10237	Trichlorofluoromethane	75-69-4	N.D.	470	1,200		85.03
10237	1,2,3-Trichloropropane	96-18-4	N.D.	230	1,200		85.03
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	230	1,200		85.03
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	230	1,200		85.03
10237	Vinyl Chloride	75-01-4	N.D.	230	1,200		85.03
10237	Xylene (Total)	1330-20-7	N.D.	230	1,200		85.03
	Reporting limits were raised due to interference from the sample matrix.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	140	280		1
10727	Butylbenzylphthalate	85-68-7	N.D.	550	1,400		1
10727	Di-n-butylphthalate	84-74-2	N.D.	550	1,400		1
10727	Carbazole	86-74-8	N.D.	140	280		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D. UJ	140	280		1
10727	4-Chloroaniline	106-47-8	N.D.	140	280		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	140	280		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	140	280		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	140	280		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	58	270		1
10727	2-Chlorophenol	95-57-8	N.D.	140	280		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	140	280		1
10727	Dibenzofuran	132-64-9	N.D.	140	280		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	830	2,800		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	140	280		1
10727	Diethylphthalate	84-66-2	N.D.	550	1,400		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	140	280		1
10727	Dimethylphthalate	131-11-3	N.D.	550	1,400		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D. UJ	1,400	4,100		1
10727	2,4-Dinitrophenol	51-28-5	N.D. UJ	2,500	8,300		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	550	1,400		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	140	280		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	140	280		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	550	1,400		1
10727	Hexachlorobenzene	118-74-1	N.D.	28	140		1
10727	Hexachlorobutadiene	87-68-3	N.D.	140	280		1
10727	Hexachloroethane	67-72-1	N.D. UJ	280	1,400		1
10727	Isophorone	78-59-1	N.D.	140	280		1
10727	2-Methylphenol	95-48-7	N.D.	140	280		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: COMT071812SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6725704
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:15 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSE SDG#: ESM28-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Methylphenol	106-44-5	N.D.UJ		140	280		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		140	280		1
10727	3-Nitroaniline	99-09-2	N.D.		550	1,400		1
10727	4-Nitroaniline	100-01-6	N.D.		550	1,400		1
10727	Nitrobenzene	98-95-3	N.D.		140	280		1
10727	2-Nitrophenol	88-75-5	N.D.		140	280		1
10727	4-Nitrophenol	100-02-7	N.D.		1,400	4,100		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.UJ		550	1,400		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		140	280		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		140	280		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		550	1,400		1
10727	Pentachlorophenol	87-86-5	N.D.		280	1,400		1
10727	Phenol	108-95-2	N.D.UJ		140	280		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		140	280		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.UJ		140	280		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		5.5	14		1
10722	Acenaphthylene	208-96-8	N.D.		2.8	14		1
10722	Anthracene	120-12-7	6.3	J	2.8	14		1
10722	Benzo(a)anthracene	56-55-3	11	J	5.5	14		1
10722	Benzo(a)pyrene	50-32-8	8.6	J	5.5	14		1
10722	Benzo(b)fluoranthene	205-99-2	13	J	5.5	14		1
10722	Benzo(g,h,i)perylene	191-24-2	10	J	5.5	14		1
10722	Benzo(k)fluoranthene	207-08-9	5.9	J	5.5	14		1
10722	Chrysene	218-01-9	18		2.8	14		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		5.5	14		1
10722	Fluoranthene	206-44-0	19		5.5	14		1
10722	Fluorene	86-73-7	9.3	J	5.5	14		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	5.7	J	5.5	14		1
10722	1-Methylnaphthalene	90-12-0	22		5.5	14		1
10722	2-Methylnaphthalene	91-57-6	42		5.5	14		1
10722	Naphthalene	91-20-3	53		5.5	14		1
10722	Phenanthrene	85-01-8	22		5.5	14		1
10722	Pyrene	129-00-0	30		5.5	14		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		8.16	16.3		59.1
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.		8.16	16.3		59.1
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.		8.16	16.3		59.1
05988	Total Purgeable Hydrocarbons	n.a.	N.D.		8.16	16.3		59.1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: COMT071812SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6725704
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:15 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMSE SDG#: ESM28-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	410	410	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	9,410	1,830	5,480		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	63.8	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	8260 Ext. Soil Master w/GRO	SW-846 8260B	1	Q122131AA	07/31/2012 06:00	Stephanie A Selis	85.03
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220128231	07/19/2012 16:09	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220128231	07/19/2012 16:09	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220128231	07/19/2012 16:07	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12205SLA026	07/25/2012 08:58	Brian K Graham	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12213SLC026	08/01/2012 08:23	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12205SLA026	07/23/2012 13:30	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	2	12213SLC026	07/31/2012 15:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012 14:44	Nicholas R Rossi	59.1
05969	MT EPH Screen Soil	MT DEQ	1	122020027A	07/24/2012 18:32	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220128231	07/19/2012 16:05	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122020027A	07/21/2012 12:15	Sally L Appleyard	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12200049531A	07/19/2012 23:10	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12205820004A	07/23/2012 21:53	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: EBSW(071812) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725705
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:30 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB-SW SDG#: ESM28-03EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: EBSW(071812) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725705
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:30 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB-SW SDG#: ESM28-03EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	EPA SW846/8260 (water-25ml) #1	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	18:23	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	18:23	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	02:12	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: EBSE(071812) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725706
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:45 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB-SE SDG#: ESM28-04EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.2	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: EBSE(071812) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725706
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:45 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB-SE SDG#: ESM28-04EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Analysis Report

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Sample Description: EBSE(071812) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725706
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:45 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB-SE SDG#: ESM28-04EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0096	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0096	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0096	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0096	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0096	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0096	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0096	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0096	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0096	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0096	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0096	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0096	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0096	0.048		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0096	0.048		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0096	0.048		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: EBSE(071812) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6725706
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 11:45 by BL

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB-SE SDG#: ESM28-04EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	EPA SW846/8260 (water-25ml) #1	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	18:45	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	18:45	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12202WAE026	07/22/2012	21:23	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12202WAF026	07/23/2012	09:14	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12202WAE026	07/20/2012	22:05	Karen L Beyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12202WAF026	07/20/2012	22:05	Karen L Beyer	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	02:54	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122020010A	07/24/2012	19:36	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122020010A	07/20/2012	15:40	JoElla L Rice	1

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Analysis Report

Sample Description: TB(071812) Water
S20113949 Laurel, MT

LLI Sample # WW 6725707
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMTB SDG#: ESM28-05TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: TB(071812) Water
S20113949 Laurel, MT

LLI Sample # WW 6725707
LLI Group # 1323057
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012

Submitted: 07/19/2012 09:25
Reported: 08/03/2012 13:44

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

COMTB SDG#: ESM28-05TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	EPA SW846/8260 (water-25ml) #1	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	19:07	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	19:07	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	03:35	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

ExxonMobil Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 13509 Group # 1323057 Sample # 6725703-07

For Lancaster Laboratories use only

Instructions on reverse side correspond with circled numbers.

SCR#:

1 Client Information

Facility #/SID: Silver Tip PWS

Site Address: Laurel, Montana

ExxonMobil PM: Tom Henson

Cost Center/AFE:

Consultant/Office: Arcadis - US 801 Corporate Center Drive Raleigh, NC

Consultant PM: Steve Barrick

Consultant Phone #: 919-415-2287

Sampler: Brian Lovgren

4 Matrix: Sediment ☒ Soil ☐ Ground ☐ Potable ☐ Surface ☒ NPDES ☐ Water ☐ Air ☐ Oil ☐

5 Analyses Requested / Preservation Code

2 Sample Identification | Collected Date | Collected Time | **3** Grab | Composite | Total # of Containers | STM PAH's, TCL 8270 | TOC Solid, % Moisture | MT EPH Screen | VOC's 8260 | VPH/GRO | MT EPH Screen (H) | STM PAH's/SVOC's TCL 8270 (H) | VOC's (8260) 25ml purge (H) | VPH/GRO (H) | TSS

Sample Identification	Date	Time	Grab	Composite	Sediment	Ground	Surface	Water	Potable	NPDES	Air	Oil	Total # of Containers	STM PAH's, TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOC's 8260	VPH/GRO	MT EPH Screen (H)	STM PAH's/SVOC's TCL 8270 (H)	VOC's (8260) 25ml purge (H)	VPH/GRO (H)	TSS
COMT071812SW0101	7-18-12	0930	✓					✓					12						2	3	3	3	1
COMT071812SE0101	7-18-12	1115	✓		✓								10	1	✓	1	4	4					
EBSW(071812)	7-18-12	1130	✓					✓					6								3	3	
EBSE(071812)	7-18-12	1145	✓					✓					11						2	3	3	3	
TB(071812)	7-18-12	NIR	✓					✓					4								2	2	

Preservation Codes
H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

6 Remarks

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day

72 hour | 48 hour | 24 hour

8 Data Package (circle if required)
Type I - Full
Type VI (Raw Data)
NJ Reduced
Other

EDD (circle if required)
Locus EIM (default)
Other

Relinquished by	Date	Time	Received by	Date	Time
FS-3 Brian Lovgren	7-18-12	1630	FedEx	7-18-12	1630
Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____			Received by: [signature]	7.19.12	925

Temperature Upon Receipt 1.6-2.1 °C

Custody Seals Intact? Yes No

9

Imagine the result

ExxonMobil- Silvertip Pipeline Incident

Data Verification/Validation Report

BILLINGS, MONTANA

Volatile, Semivolatile, MADEP VPH/EPH, TOC and TSS Analyses

SDG #ESM31, ESM32 and ESM33 (1324075, 1324338 and 1326474)

Analyses Performed By:
Eurofins Lancaster Laboratories
Lancaster, Pennsylvania

Report #17356R
Review Level: Tier II
Project: B0085904.1205.00014

TIER 2 DATA VERIFICATION/VALIDATION REPORT

Project Name: Silvertip Pipeline Incident
QAPP: Draft Quality Assurance Project Plan Silvertip Pipeline Incident, Laurel, Montana, March 2012
SDG: ESM31, ESM32 and ESM33 (1324075, 1324338 and 1326474)
Analytical Laboratory: Pace Analytical
Analytical Parameters/Method: SVOC-8270, PAH-8270-SIM, MADEP VPH/EPH, TOC-9060 and TSS-2540
Data Reviewer/Affiliation: Andrew Korycinski/ARCADIS
Date Completed: September 26, 2012

This review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	SVOC - SIM	VPH/ EPH	TOC
ESM31	LAMT072312SW0101	6730709	Water	07/23/2012		X	X	X	X	TSS
	LAMT072312SE0101	6730713	Sediment	07/23/2012		X	X	X	X	X
	BIMT072312SW0102	6730714	Water	07/23/2012		X	X	X	X	TSS
	BIMT072312SE0102	6730715	Sediment	07/23/2012		X	X	X	X	X
	LOMT072312SW0103	6730716	Water	07/23/2012		X	X	X	X	TSS
	LOMT072312SE0103	6730717	Sediment	07/23/2012		X	X	X	X	X
	DUP2(072312)	6730718	Water	07/23/2012	BIMT072312SW0102	X	X	X	X	TSS
	EBSW(072312)	6730719	Water	07/23/2012		X			X	
	EBSE(072312)	6730720	Water	07/23/2012		X	X	X	X	
	TB(072312)	6730721	Water	07/23/2012		X			X	
ESM32	MCMT072412SE0101	6732201	Sediment	7/24/2012		X	X	X	X	X
	HYMT072412SW0101	6732202	Water	7/24/2012		X			X	TSS
	HYMT072412SE0102	6732203	Sediment	7/24/2012		X	X	X	X	X
	EBSE(072412)	6732204	Water	7/24/2012		X			X	
	TB(072412)	6732205	Water	7/24/2012		X			X	
ESM33	HYMT080112SW0101	6743728	Water	8/1/2012			X	X	X	

Note:
1. Volatile Petroleum Hydrocarbons/ Extractable Petroleum Hydrocarbons - VPH/EPH
2. Total Organic Carbon – TOC
3. Total Suspended Solids - TSS

4. Matrix spike/matrix spike duplicate (MS/MSD) analysis was performed on sample location LAMT072312SW0101.
5. Sample HYMT080112SW0101 was recollected due to temperature exceedance for the SVOC containers and reported in SDG ESM33.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260, 8270, 8270-SIM, 9060, and Massachusetts Department of Environmental Protection (MADEP) Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH). Data were reviewed based on laboratory method criteria and/or USEPA's National Functional Guidelines for Organics Data Review (October 1999), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010). No raw data were reviewed.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  + Result may be biased high

  - Result may be biased low

  U Compound considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260	Water	14 days from collection to analysis	Cool to <6°C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were non-detect. No other qualification of the sample results was required.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
LAMT072312SE0101 BIMT072312SE0102 LOMT072312SE0103 MCMT072412SE0101 HYMT072412SE0102	Acetone	> UL
	2-Butanone	
	1,2-Dibromo-3-chloropropane	

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT072312SW0102/ DUP2(072312)	All compounds	U	U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X	X		
C. Trip blanks		X	X		
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The laboratory narrative indicated that all criteria were within method requirements.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
MCMT072412SE0101	2-Chloronaphthalene	AC	>UL

AC – Acceptable

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
MCMT072412SE0101	4-Chloroaniline

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT072312SW0102/ DUP2(072312)	All compounds	U	U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X	X		
LCS/LCSD Precision (RPD)		X	X		
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The laboratory narrative indicated that all criteria were within method requirements.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT072312SW0102/ DUP2(072312)	Naphthalene	0.047 U	0.036 J	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PAHs

SVOCs: SW-846 8270 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP VPH	Water	14 days from collection to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to analysis	Cooled to <6°C

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The laboratory narrative indicated that all criteria were within method requirements.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires the surrogate compounds exhibit recoveries within the recovery range of 70 to 130%.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method-established acceptance limits of 70 to 130%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
LAMT072312SW0101	C9-C10 Aromatic Hydrocarbons	>UL	>UL

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL) of 130%	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) of 70% but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-
Parent sample concentration > four times the MS/MSD spiking solution concentration (D).	Detect	No Action
	Non-detect	

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 70 to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT072312SW0102/ DUP2(072312)	All Compounds	U	U	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VPH ANALYSIS

VPH; MADEP VPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Field blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Continuing calibration %Ds		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

EXTRACTABLE PETROLEUM HYDROCARBON (EPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP EPH	Water	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled to <6°C

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The laboratory narrative indicated that all criteria were within method requirements.

4. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the acceptance limits of 40 to 140%.

All surrogate recoveries were within control limits.

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method specified acceptance limits of 40 to 140%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 50%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with the SDG.

6. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 40 to 140%.

An LCS analysis is not reported for an EPH screen analysis.

7. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT072312SW0102/ DUP2(072312)	All Compounds	U	U	AC

AC Acceptable
ND Not detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR EPH ANALYSIS

EPH; MADEP EPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R					X
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X
Continuing calibration %Ds		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

TOTAL ORGANIC CARBON (TOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Organic Carbon by SW-846 9060	Water	28 days from collection to analysis	Cooled to <6°C; preserved to a pH of less than 2.
	Soil	28 days from collection to analysis	Cooled to <6°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

TOC was not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory established acceptance limits of 50 to 150%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Field duplicate analysis was not performed on a sample location for this analyte within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TOC

General Chemistry: SW-846 9060	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
TOC Analyzer					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery, RPD - relative percent difference,

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to Standard Methods 2540D. Data were reviewed based on laboratory method criteria and/or United States Environmental Protection Agency (USEPA) National Functional Guidelines for Inorganic Data Review (October 2004), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010). No raw data were reviewed.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  + Result may be biased high

  - Result may be biased low

  U Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Suspended Solids By SM2540D	Water	7 days from collection to analysis	Cooled to <6°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Laboratory Duplicate Analysis

Laboratory duplicate data are used to assess the precision of the analytical method. The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices.

The laboratory duplicate sample results exhibited RPD within the control limit.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
BIMT072312SW0102/ DUP2(072312)	Total Suspended Solids	14.8	19.6	27.9%

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TSS

General Chemistry: SM2540D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Balance					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Lab Duplicate Precision (RPD)		X		X	
Field Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

%R - percent recovery, RPD - relative percent difference,

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE: _____

DATE: September 25, 2012

PEER REVIEW: Dennis Capria

DATE: October 16, 2012

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1324075 Sample # 6730709-21

For Lancaster Laboratories use only
Instructions on reverse side correspond with circled numbers.

page 1 of 1

1 Client Information

Facility #/SID: Silver Tip PWS

Site Address: Laurel, Montana

ExxonMobil PM: Tom Henson

Cost Center/AFE:

Consultant/Office: Arcadis-US 801 Corporate Center Drive Raleigh, NC 27607

Consultant PM: Steve Barrick

Consultant Phone #: 919-415-2887

Sampler: Brian Lovgren

SCR#:

Preservation Codes
H = HCl, T = Thiosulfate
N = HNO_3, B = NaOH
S = H_2SO_4, O = Other

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Ground	Surface	Potable	NPDES	Water	Air	Oil	Total # of Containers	SIM PAHs, TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOCs (8260)	VPH/GRO	MT EPH Screen	SIM PAHs/SVOCs TCL 8270	VOCs (8260) 25ml purge	VPH/GRO	TSS	6 Remarks
																			H		H	H		
LAMT072312SW0101	7-23-12	0941	✓							✓			36						6	9	9	9	3	MS/MSD collected Here
LAMT072312SE0101	7-23-12	0956	✓		✓								10	1	✓	1	4	4						
BIMT072312SW0102	7-23-12	1101	✓							✓			12						2	3	3	3	1	
BIMT072312SE0102	7-23-12	1111	✓		✓								10	1	✓	1	4	4						
LOMT072312SW0103	7-23-12	1156	✓							✓			12						2	3	3	3	1	
LOMT072312SE0103	7-23-12	1206	✓		✓								10	1	✓	1	4	4						
DUP2(072312)	7-23-12	NIR	✓							✓			12						2	3	3	3	1	Duplicate Surface Water
EBSW(072312)	7-23-12	1346	✓							✓			6							✗	3	3		
EBSE(072312)	7-23-12	1401	✓							✓			11						2	3	3	3		
TB(072312)	7-23-12	NIR	✓							✓			4								2	2		

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)
Type I - Full
Type VI (Raw Data)
NJ Reduced
Other

EDD (circle if required)
Locus EIM (default)
Other

Relinquished by	Date	Time	Received by	Date	Time
23-3 Brian Lovgren	7-23-12	1630	FedEx	7-23-12	1630
			Deborah Nesell	7/24/12	0930

9

Relinquished by Commercial Carrier: UPS ____ FedEx (circled) Other ____

Temperature Upon Receipt 0.9-3.2 °C

Custody Seals Intact? Yes (circled) No

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: LAMT072312SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730709
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:41 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W0101 SDG#: ESM31-01BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LAMT072312SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730709
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:41 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W0101 SDG#: ESM31-01BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		ug/l	ug/l	ug/l	ug/l	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: LAMT072312SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730709
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:41 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W0101 SDG#: ESM31-01BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0097	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0097	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0097	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0097	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0097	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0097	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0097	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0097	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0097	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0097	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0097	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0097	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0097	0.048		1
08357	2-Methylnaphthalene	91-57-6	0.010 J	0.0097	0.048		1
08357	Naphthalene	91-20-3	0.041 J	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0097	0.048		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LAMT072312SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730709
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:41 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W0101 SDG#: ESM31-01BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	5.2 J	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	12:10	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	12:10	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12207WAC026	07/26/2012	23:10	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12207WAD026	07/29/2012	03:40	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12207WAC026	07/26/2012	08:45	Cynthia J Salvatori	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12207WAD026	07/26/2012	08:45	Cynthia J Salvatori	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012	14:55	Nicholas R Rossi	1
05968	MTEPH Screen Water	MT DEQ	1	122070008A	07/26/2012	14:22	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122070008A	07/25/2012	15:50	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12208020601B	07/26/2012	08:39	Clayton C Litchmore	1

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Analysis Report

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REVISED

Sample Description: LAMT072312SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730713
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

E0101 SDG#: ESM31-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	Volatiles SW-846 8260B		ug/kg		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	27	J	10	28		0.97
10237	Allyl Chloride	107-05-1	N.D.		1	7		0.97
10237	Benzene	71-43-2	N.D.		0.7	7		0.97
10237	Bromobenzene	108-86-1	N.D.		1	7		0.97
10237	Bromochloromethane	74-97-5	N.D.		1	7		0.97
10237	Bromodichloromethane	75-27-4	N.D.		1	7		0.97
10237	Bromoform	75-25-2	N.D.		1	7		0.97
10237	Bromomethane	74-83-9	N.D.		3	7		0.97
10237	2-Butanone	78-93-3	N.D.		6	14		0.97
10237	n-Butylbenzene	104-51-8	N.D.		1	7		0.97
10237	sec-Butylbenzene	135-98-8	N.D.		1	7		0.97
10237	tert-Butylbenzene	98-06-6	N.D.		1	7		0.97
10237	Carbon Tetrachloride	56-23-5	N.D.		1	7		0.97
10237	Chlorobenzene	108-90-7	N.D.		1	7		0.97
10237	Chloroethane	75-00-3	N.D.		3	7		0.97
10237	Chloroform	67-66-3	N.D.		1	7		0.97
10237	Chloromethane	74-87-3	N.D.		3	7		0.97
10237	2-Chlorotoluene	95-49-8	N.D.		1	7		0.97
10237	4-Chlorotoluene	106-43-4	N.D.		1	7		0.97
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	7		0.97
10237	Dibromochloromethane	124-48-1	N.D.		1	7		0.97
10237	1,2-Dibromoethane	106-93-4	N.D.		1	7		0.97
10237	Dibromomethane	74-95-3	N.D.		1	7		0.97
10237	1,2-Dichlorobenzene	95-50-1	N.D.		1	7		0.97
10237	1,3-Dichlorobenzene	541-73-1	N.D.		1	7		0.97
10237	1,4-Dichlorobenzene	106-46-7	N.D.		1	7		0.97
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	7		0.97
10237	1,1-Dichloroethane	75-34-3	N.D.		1	7		0.97
10237	1,2-Dichloroethane	107-06-2	N.D.		1	7		0.97
10237	1,1-Dichloroethene	75-35-4	N.D.		1	7		0.97
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		1	7		0.97
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		1	7		0.97
10237	Dichlorofluoromethane	75-43-4	N.D.		3	7		0.97
10237	1,2-Dichloropropane	78-87-5	N.D.		1	7		0.97
10237	1,3-Dichloropropane	142-28-9	N.D.		1	7		0.97
10237	2,2-Dichloropropane	594-20-7	N.D.		1	7		0.97
10237	1,1-Dichloropropene	563-58-6	N.D.		1	7		0.97
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		1	7		0.97
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		1	7		0.97
10237	Ethyl Ether	60-29-7	N.D.		1	7		0.97
10237	Ethylbenzene	100-41-4	N.D.		1	7		0.97
10237	Freon 113	76-13-1	N.D.		3	14		0.97
10237	Hexachlorobutadiene	87-68-3	N.D.		3	7		0.97
10237	Isopropylbenzene	98-82-8	N.D.		1	7		0.97
10237	p-Isopropyltoluene	99-87-6	N.D.		1	7		0.97
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.7	7		0.97
10237	4-Methyl-2-pentanone	108-10-1	N.D.		4	14		0.97
10237	Methylene Chloride	75-09-2	N.D.		3	7		0.97
10237	n-Propylbenzene	103-65-1	N.D.		1	7		0.97
10237	Styrene	100-42-5	N.D.		1	7		0.97
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1	7		0.97

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LAMT072312SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730713
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

E0101 SDG#: ESM31-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	7		0.97
10237	Tetrachloroethene	127-18-4	N.D.	1	7		0.97
10237	Tetrahydrofuran	109-99-9	N.D.	6	7		0.97
10237	Toluene	108-88-3	N.D.	1	7		0.97
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	7		0.97
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	7		0.97
10237	1,1,1-Trichloroethane	71-55-6	N.D.	1	7		0.97
10237	1,1,2-Trichloroethane	79-00-5	N.D.	1	7		0.97
10237	Trichloroethene	79-01-6	N.D.	1	7		0.97
10237	Trichlorofluoromethane	75-69-4	N.D.	3	7		0.97
10237	1,2,3-Trichloropropane	96-18-4	N.D.	1	7		0.97
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	7		0.97
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	7		0.97
10237	Vinyl Chloride	75-01-4	N.D.	1	7		0.97
10237	Xylene (Total)	1330-20-7	N.D.	1	7		0.97

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone

GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	72	140		1
10727	Butylbenzylphthalate	85-68-7	N.D.	290	720		1
10727	Di-n-butylphthalate	84-74-2	N.D.	290	720		1
10727	Carbazole	86-74-8	N.D.	72	140		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	72	140		1
10727	4-Chloroaniline	106-47-8	N.D.	72	140		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	72	140		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	72	140		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	72	140		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	30	140		1
10727	2-Chlorophenol	95-57-8	N.D.	72	140		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	72	140		1
10727	Dibenzofuran	132-64-9	N.D.	72	140		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	430	1,400		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	72	140		1
10727	Diethylphthalate	84-66-2	N.D.	290	720		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	72	140		1
10727	Dimethylphthalate	131-11-3	N.D.	290	720		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	720	2,100		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,300	4,300		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	290	720		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	72	140		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	72	140		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	290	730		1
10727	Hexachlorobenzene	118-74-1	N.D.	14	73		1
10727	Hexachlorobutadiene	87-68-3	N.D.	72	140		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax:717-656-2681 • www.lancasterlabs.com

Sample Description: LAMT072312SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730713
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

E0101 SDG#: ESM31-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		ug/kg		ug/kg	ug/kg	ug/kg	
10727	Hexachloroethane	67-72-1	N.D.		140	720		1
10727	Isophorone	78-59-1	N.D.		72	140		1
10727	2-Methylphenol	95-48-7	N.D.		72	140		1
10727	4-Methylphenol	106-44-5	N.D.		72	140		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		72	140		1
10727	3-Nitroaniline	99-09-2	N.D.		290	720		1
10727	4-Nitroaniline	100-01-6	N.D.		290	720		1
10727	Nitrobenzene	98-95-3	N.D.		72	140		1
10727	2-Nitrophenol	88-75-5	N.D.		72	140		1
10727	4-Nitrophenol	100-02-7	N.D.		720	2,100		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		290	720		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		72	140		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		72	140		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		290	720		1
10727	Pentachlorophenol	87-86-5	N.D.		140	730		1
10727	Phenol	108-95-2	N.D.		72	140		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		72	140		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		72	140		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS	**Semivolatiles SW-846 8270C SIM**		ug/kg		ug/kg	ug/kg	ug/kg	
10722	Acenaphthene	83-32-9	N.D.		2.9	7.2		1
10722	Acenaphthylene	208-96-8	N.D.		1.4	7.2		1
10722	Anthracene	120-12-7	N.D.		1.4	7.2		1
10722	Benzo(a)anthracene	56-55-3	N.D.		2.9	7.2		1
10722	Benzo(a)pyrene	50-32-8	N.D.		2.9	7.2		1
10722	Benzo(b)fluoranthene	205-99-2	N.D.		2.9	7.2		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		2.9	7.2		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		2.9	7.2		1
10722	Chrysene	218-01-9	2.4	J	1.4	7.2		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		2.9	7.2		1
10722	Fluoranthene	206-44-0	N.D.		2.9	7.2		1
10722	Fluorene	86-73-7	N.D.		2.9	7.2		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		2.9	7.2		1
10722	1-Methylnaphthalene	90-12-0	6.3	J	2.9	7.2		1
10722	2-Methylnaphthalene	91-57-6	8.5		2.9	7.2		1
10722	Naphthalene	91-20-3	4.7	J	2.9	7.2		1
10722	Phenanthrene	85-01-8	5.2	J	2.9	7.2		1
10722	Pyrene	129-00-0	3.0	J	2.9	7.2		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg		mg/kg	mg/kg	mg/kg	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		3.35	6.70		46.76

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: LAMT072312SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730713
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

E0101 SDG#: ESM31-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	3.35	6.70		46.76
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	3.35	6.70		46.76
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	3.35	6.70		46.76
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	210	210	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	1,700	255	765		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	30.2	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	21:22	Andrea E Lando	0.97
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220628287	07/24/2012	18:47	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220628287	07/24/2012	18:48	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220628287	07/24/2012	18:35	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012	03:40	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/02/2012	00:24	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012	14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012	14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	20:15	Nicholas R Rossi	46.76
05969	MT EPH Screen Soil	MT DEQ	1	122070020A	07/26/2012	11:05	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220628287	07/24/2012	18:34	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122070020A	07/26/2012	02:30	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12211049531A	07/29/2012	22:59	James S Mathiot	1

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Analysis Report

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Sample Description: LAMT072312SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730713
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 09:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

E0101 SDG#: ESM31-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12208820008A	07/26/2012 21:30	Scott W Freisher	1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

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Sample Description: BIMT072312SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730714
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BW102 SDG#: ESM31-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: BIMT072312SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730714
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BW102 SDG#: ESM31-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	0.9		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	0.9		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	0.9		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	0.9		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	0.9		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	0.9		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	0.9		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	0.9		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	0.9		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	0.9		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	0.9		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	0.9		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	0.9		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	0.9		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	0.9		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	0.9		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	9	28		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	0.9	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	0.9		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	0.9		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: BIMT072312SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730714
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BW102 SDG#: ESM31-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.09	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	0.9		1
04678	Hexachloroethane	67-72-1	N.D.	0.9	5		1
04678	Isophorone	78-59-1	N.D.	0.5	0.9		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	0.9		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	0.9		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	0.9		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	0.9		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	0.9		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	0.9		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	0.9		1
04678	4-Nitrophenol	100-02-7	N.D.	9	28		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	0.9		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	0.9		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	0.9	5		1
04678	Phenol	108-95-2	N.D.	0.5	0.9		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	0.9		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	0.9		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	0.9		1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0095	0.047		1
08357	Acenaphthylene	208-96-8	N.D.	0.0095	0.047		1
08357	Anthracene	120-12-7	N.D.	0.0095	0.047		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0095	0.047		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0095	0.047		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0095	0.047		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0095	0.047		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0095	0.047		1
08357	Chrysene	218-01-9	N.D.	0.0095	0.047		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0095	0.047		1
08357	Fluoranthene	206-44-0	N.D.	0.0095	0.047		1
08357	Fluorene	86-73-7	N.D.	0.0095	0.047		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0095	0.047		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0095	0.047		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0095	0.047		1
08357	Naphthalene	91-20-3	N.D.	0.028	0.047		1
08357	Phenanthrene	85-01-8	N.D.	0.028	0.047		1
08357	Pyrene	129-00-0	N.D.	0.0095	0.047		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: BIMT072312SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730714
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BW102 SDG#: ESM31-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		ug/l	ug/l	ug/l	ug/l	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		mg/l	mg/l	mg/l	mg/l	
00206	Total Suspended Solids	n.a.	14.8	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	16:57	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	16:57	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12207WAC026	07/27/2012	00:50	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12207WAD026	07/29/2012	15:12	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12207WAC026	07/26/2012	08:45	Cynthia J Salvatori	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12207WAD026	07/26/2012	08:45	Cynthia J Salvatori	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012	16:59	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122070008A	07/26/2012	15:25	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122070008A	07/25/2012	15:50	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12208020601A	07/26/2012	08:39	Clayton C Litchmore	1

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Analysis Report

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REVISED

Sample Description: BIMT072312SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730715
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:11 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BE102 SDG#: ESM31-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	Volatiles SW-846 8260B		ug/kg		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	57		11	31		0.96
10237	Allyl Chloride	107-05-1	N.D.		2	8		0.96
10237	Benzene	71-43-2	N.D.		0.8	8		0.96
10237	Bromobenzene	108-86-1	N.D.		2	8		0.96
10237	Bromochloromethane	74-97-5	N.D.		2	8		0.96
10237	Bromodichloromethane	75-27-4	N.D.		2	8		0.96
10237	Bromoform	75-25-2	N.D.		2	8		0.96
10237	Bromomethane	74-83-9	N.D.		3	8		0.96
10237	2-Butanone	78-93-3	11	J	6	15		0.96
10237	n-Butylbenzene	104-51-8	N.D.		2	8		0.96
10237	sec-Butylbenzene	135-98-8	N.D.		2	8		0.96
10237	tert-Butylbenzene	98-06-6	N.D.		2	8		0.96
10237	Carbon Tetrachloride	56-23-5	N.D.		2	8		0.96
10237	Chlorobenzene	108-90-7	N.D.		2	8		0.96
10237	Chloroethane	75-00-3	N.D.		3	8		0.96
10237	Chloroform	67-66-3	N.D.		2	8		0.96
10237	Chloromethane	74-87-3	N.D.		3	8		0.96
10237	2-Chlorotoluene	95-49-8	N.D.		2	8		0.96
10237	4-Chlorotoluene	106-43-4	N.D.		2	8		0.96
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	8		0.96
10237	Dibromochloromethane	124-48-1	N.D.		2	8		0.96
10237	1,2-Dibromoethane	106-93-4	N.D.		2	8		0.96
10237	Dibromomethane	74-95-3	N.D.		2	8		0.96
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	8		0.96
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	8		0.96
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	8		0.96
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	8		0.96
10237	1,1-Dichloroethane	75-34-3	N.D.		2	8		0.96
10237	1,2-Dichloroethane	107-06-2	N.D.		2	8		0.96
10237	1,1-Dichloroethene	75-35-4	N.D.		2	8		0.96
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	8		0.96
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	8		0.96
10237	Dichlorofluoromethane	75-43-4	N.D.		3	8		0.96
10237	1,2-Dichloropropane	78-87-5	N.D.		2	8		0.96
10237	1,3-Dichloropropane	142-28-9	N.D.		2	8		0.96
10237	2,2-Dichloropropane	594-20-7	N.D.		2	8		0.96
10237	1,1-Dichloropropene	563-58-6	N.D.		2	8		0.96
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	8		0.96
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	8		0.96
10237	Ethyl Ether	60-29-7	N.D.		2	8		0.96
10237	Ethylbenzene	100-41-4	N.D.		2	8		0.96
10237	Freon 113	76-13-1	N.D.		3	15		0.96
10237	Hexachlorobutadiene	87-68-3	N.D.		3	8		0.96
10237	Isopropylbenzene	98-82-8	N.D.		2	8		0.96
10237	p-Isopropyltoluene	99-87-6	N.D.		2	8		0.96
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.8	8		0.96
10237	4-Methyl-2-pentanone	108-10-1	N.D.		5	15		0.96
10237	Methylene Chloride	75-09-2	N.D.		3	8		0.96
10237	n-Propylbenzene	103-65-1	N.D.		2	8		0.96
10237	Styrene	100-42-5	N.D.		2	8		0.96
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		2	8		0.96

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Analysis Report

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REVISED

Sample Description: BIMT072312SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730715
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:11 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BE102 SDG#: ESM31-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	8		0.96
10237	Tetrachloroethene	127-18-4	N.D.	2	8		0.96
10237	Tetrahydrofuran	109-99-9	N.D.	6	8		0.96
10237	Toluene	108-88-3	31	2	8		0.96
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	8		0.96
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	8		0.96
10237	1,1,1-Trichloroethane	71-55-6	N.D.	2	8		0.96
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	8		0.96
10237	Trichloroethene	79-01-6	N.D.	2	8		0.96
10237	Trichlorofluoromethane	75-69-4	N.D.	3	8		0.96
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	8		0.96
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	8		0.96
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	8		0.96
10237	Vinyl Chloride	75-01-4	N.D.	2	8		0.96
10237	Xylene (Total)	1330-20-7	N.D.	2	8		0.96

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone and 2-Butanone

GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	79	160		1
10727	Butylbenzylphthalate	85-68-7	N.D.	320	790		1
10727	Di-n-butylphthalate	84-74-2	N.D.	320	790		1
10727	Carbazole	86-74-8	N.D.	79	160		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	79	160		1
10727	4-Chloroaniline	106-47-8	N.D.	79	160		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	79	160		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	79	160		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	79	160		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	33	160		1
10727	2-Chlorophenol	95-57-8	N.D.	79	160		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	79	160		1
10727	Dibenzofuran	132-64-9	N.D.	79	160		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	480	1,600		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	79	160		1
10727	Diethylphthalate	84-66-2	N.D.	320	790		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	79	160		1
10727	Dimethylphthalate	131-11-3	N.D.	320	790		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	790	2,400		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,400	4,800		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	320	790		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	79	160		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	79	160		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	320	810		1
10727	Hexachlorobenzene	118-74-1	N.D.	16	81		1
10727	Hexachlorobutadiene	87-68-3	N.D.	79	160		1

*=This limit was used in the evaluation of the final result
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BE102 SDG#: ESM31-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		ug/kg		ug/kg	ug/kg	ug/kg	
10727	Hexachloroethane	67-72-1	N.D.		160	790		1
10727	Isophorone	78-59-1	N.D.		79	160		1
10727	2-Methylphenol	95-48-7	N.D.		79	160		1
10727	4-Methylphenol	106-44-5	N.D.		79	160		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		79	160		1
10727	3-Nitroaniline	99-09-2	N.D.		320	790		1
10727	4-Nitroaniline	100-01-6	N.D.		320	790		1
10727	Nitrobenzene	98-95-3	N.D.		79	160		1
10727	2-Nitrophenol	88-75-5	N.D.		79	160		1
10727	4-Nitrophenol	100-02-7	N.D.		790	2,400		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		320	790		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		79	160		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		79	160		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		320	790		1
10727	Pentachlorophenol	87-86-5	N.D.		160	810		1
10727	Phenol	108-95-2	N.D.		79	160		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		79	160		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		79	160		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS	**Semivolatiles SW-846 8270C SIM**		ug/kg		ug/kg	ug/kg	ug/kg	
10722	Acenaphthene	83-32-9	N.D.		3.2	7.9		1
10722	Acenaphthylene	208-96-8	N.D.		1.6	7.9		1
10722	Anthracene	120-12-7	N.D.		1.6	7.9		1
10722	Benzo(a)anthracene	56-55-3	5.2	J	3.2	7.9		1
10722	Benzo(a)pyrene	50-32-8	5.2	J	3.2	7.9		1
10722	Benzo(b)fluoranthene	205-99-2	8.8		3.2	7.9		1
10722	Benzo(g,h,i)perylene	191-24-2	6.2	J	3.2	7.9		1
10722	Benzo(k)fluoranthene	207-08-9	3.2	J	3.2	7.9		1
10722	Chrysene	218-01-9	7.8	J	1.6	7.9		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.2	7.9		1
10722	Fluoranthene	206-44-0	9.4		3.2	7.9		1
10722	Fluorene	86-73-7	N.D.		3.2	7.9		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	3.3	J	3.2	7.9		1
10722	1-Methylnaphthalene	90-12-0	14		3.2	7.9		1
10722	2-Methylnaphthalene	91-57-6	19		3.2	7.9		1
10722	Naphthalene	91-20-3	11		3.2	7.9		1
10722	Phenanthrene	85-01-8	9.0		3.2	7.9		1
10722	Pyrene	129-00-0	9.2		3.2	7.9		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg		mg/kg	mg/kg	mg/kg	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		3.78	7.56		47.62

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: BIMT072312SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730715
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:11 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BE102 SDG#: ESM31-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	3.78	7.56		47.62
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	3.78	7.56		47.62
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	3.78	7.56		47.62
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	240	240	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	4,040	322	967		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	37.0	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	21:44	Andrea E Lando	0.96
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220628287	07/24/2012	18:48	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220628287	07/24/2012	18:48	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220628287	07/24/2012	18:39	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012	04:03	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012	18:38	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012	14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012	14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	20:56	Nicholas R Rossi	47.62
05969	MT EPH Screen Soil	MT DEQ	1	122070020A	07/26/2012	12:09	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220628287	07/24/2012	18:38	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122070020A	07/26/2012	02:30	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12211049531A	07/29/2012	22:18	James S Mathiot	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: BIMT072312SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730715
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:11 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

BE102 SDG#: ESM31-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12208820008A	07/26/2012 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: LOMT072312SW0103 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730716
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LW103 SDG#: ESM31-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LOMT072312SW0103 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730716
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LW103 SDG#: ESM31-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	0.9		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	0.9		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	0.9		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	0.9		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	0.9		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	0.9		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	0.9		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	0.9		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	0.9		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	0.9		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	0.9		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	0.9		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	0.9		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	0.9		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	0.9		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	0.9		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	9	28		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	0.9	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	0.9		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	0.9		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

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Sample Description: LOMT072312SW0103 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730716
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LW103 SDG#: ESM31-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		ug/l	ug/l	ug/l	ug/l	
04678	Hexachlorobenzene	118-74-1	N.D.	0.09	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	0.9		1
04678	Hexachloroethane	67-72-1	N.D.	0.9	5		1
04678	Isophorone	78-59-1	N.D.	0.5	0.9		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	0.9		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	0.9		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	0.9		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	0.9		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	0.9		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	0.9		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	0.9		1
04678	4-Nitrophenol	100-02-7	N.D.	9	28		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	0.9		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	0.9		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	0.9	5		1
04678	Phenol	108-95-2	N.D.	0.5	0.9		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	0.9		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	0.9		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	0.9		1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.0095	0.047		1
08357	Acenaphthylene	208-96-8	N.D.	0.0095	0.047		1
08357	Anthracene	120-12-7	N.D.	0.0095	0.047		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0095	0.047		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0095	0.047		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0095	0.047		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0095	0.047		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0095	0.047		1
08357	Chrysene	218-01-9	N.D.	0.0095	0.047		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0095	0.047		1
08357	Fluoranthene	206-44-0	N.D.	0.0095	0.047		1
08357	Fluorene	86-73-7	N.D.	0.0095	0.047		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0095	0.047		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0095	0.047		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0095	0.047		1
08357	Naphthalene	91-20-3	0.039 J	0.028	0.047		1
08357	Phenanthrene	85-01-8	N.D.	0.028	0.047		1
08357	Pyrene	129-00-0	N.D.	0.0095	0.047		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LOMT072312SW0103 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730716
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 11:56 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LW103 SDG#: ESM31-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	8.8 J	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	14:00	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	14:00	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12207WAC026	07/27/2012	01:15	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12207WAD026	07/29/2012	15:44	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12207WAC026	07/26/2012	08:45	Cynthia J Salvatori	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12207WAD026	07/26/2012	08:45	Cynthia J Salvatori	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012	17:40	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122070008A	07/26/2012	15:46	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122070008A	07/25/2012	15:50	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12208020601A	07/26/2012	08:39	Clayton C Litchmore	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: LOMT072312SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730717
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 12:06 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LE103 SDG#: ESM31-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	29	J	12	35		1.04
10237	Allyl Chloride	107-05-1	N.D.		2	9		1.04
10237	Benzene	71-43-2	N.D.		0.9	9		1.04
10237	Bromobenzene	108-86-1	N.D.		2	9		1.04
10237	Bromochloromethane	74-97-5	N.D.		2	9		1.04
10237	Bromodichloromethane	75-27-4	N.D.		2	9		1.04
10237	Bromoform	75-25-2	N.D.		2	9		1.04
10237	Bromomethane	74-83-9	N.D.		3	9		1.04
10237	2-Butanone	78-93-3	N.D.		7	17		1.04
10237	n-Butylbenzene	104-51-8	N.D.		2	9		1.04
10237	sec-Butylbenzene	135-98-8	N.D.		2	9		1.04
10237	tert-Butylbenzene	98-06-6	N.D.		2	9		1.04
10237	Carbon Tetrachloride	56-23-5	N.D.		2	9		1.04
10237	Chlorobenzene	108-90-7	N.D.		2	9		1.04
10237	Chloroethane	75-00-3	N.D.		3	9		1.04
10237	Chloroform	67-66-3	N.D.		2	9		1.04
10237	Chloromethane	74-87-3	N.D.		3	9		1.04
10237	2-Chlorotoluene	95-49-8	N.D.		2	9		1.04
10237	4-Chlorotoluene	106-43-4	N.D.		2	9		1.04
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	9		1.04
10237	Dibromochloromethane	124-48-1	N.D.		2	9		1.04
10237	1,2-Dibromoethane	106-93-4	N.D.		2	9		1.04
10237	Dibromomethane	74-95-3	N.D.		2	9		1.04
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	9		1.04
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	9		1.04
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	9		1.04
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	9		1.04
10237	1,1-Dichloroethane	75-34-3	N.D.		2	9		1.04
10237	1,2-Dichloroethane	107-06-2	N.D.		2	9		1.04
10237	1,1-Dichloroethene	75-35-4	N.D.		2	9		1.04
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	9		1.04
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	9		1.04
10237	Dichlorofluoromethane	75-43-4	N.D.		3	9		1.04
10237	1,2-Dichloropropane	78-87-5	N.D.		2	9		1.04
10237	1,3-Dichloropropane	142-28-9	N.D.		2	9		1.04
10237	2,2-Dichloropropane	594-20-7	N.D.		2	9		1.04
10237	1,1-Dichloropropene	563-58-6	N.D.		2	9		1.04
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	9		1.04
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	9		1.04
10237	Ethyl Ether	60-29-7	N.D.		2	9		1.04
10237	Ethylbenzene	100-41-4	N.D.		2	9		1.04
10237	Freon 113	76-13-1	N.D.		3	17		1.04
10237	Hexachlorobutadiene	87-68-3	N.D.		3	9		1.04
10237	Isopropylbenzene	98-82-8	N.D.		2	9		1.04
10237	p-Isopropyltoluene	99-87-6	N.D.		2	9		1.04
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.9	9		1.04
10237	4-Methyl-2-pentanone	108-10-1	N.D.		5	17		1.04
10237	Methylene Chloride	75-09-2	N.D.		3	9		1.04
10237	n-Propylbenzene	103-65-1	N.D.		2	9		1.04
10237	Styrene	100-42-5	N.D.		2	9		1.04
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		2	9		1.04

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: LOMT072312SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730717
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 12:06 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LE103 SDG#: ESM31-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		2	9		1.04
10237	Tetrachloroethene	127-18-4	N.D.		2	9		1.04
10237	Tetrahydrofuran	109-99-9	N.D.		7	9		1.04
10237	Toluene	108-88-3	3	J	2	9		1.04
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.		2	9		1.04
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.		2	9		1.04
10237	1,1,1-Trichloroethane	71-55-6	N.D.		2	9		1.04
10237	1,1,2-Trichloroethane	79-00-5	N.D.		2	9		1.04
10237	Trichloroethene	79-01-6	N.D.		2	9		1.04
10237	Trichlorofluoromethane	75-69-4	N.D.		3	9		1.04
10237	1,2,3-Trichloropropane	96-18-4	N.D.		2	9		1.04
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.		2	9		1.04
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.		2	9		1.04
10237	Vinyl Chloride	75-01-4	N.D.		2	9		1.04
10237	Xylene (Total)	1330-20-7	N.D.		2	9		1.04

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone

GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.		84	170		1
10727	Butylbenzylphthalate	85-68-7	N.D.		330	840		1
10727	Di-n-butylphthalate	84-74-2	N.D.		330	840		1
10727	Carbazole	86-74-8	N.D.		84	170		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.		84	170		1
10727	4-Chloroaniline	106-47-8	N.D.		84	170		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.		84	170		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.		84	170		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.		84	170		1

Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.

10727	2-Chloronaphthalene	91-58-7	N.D.		35	170		1
10727	2-Chlorophenol	95-57-8	N.D.		84	170		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.		84	170		1
10727	Dibenzofuran	132-64-9	N.D.		84	170		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.		500	1,700		1
10727	2,4-Dichlorophenol	120-83-2	N.D.		84	170		1
10727	Diethylphthalate	84-66-2	N.D.		330	840		1
10727	2,4-Dimethylphenol	105-67-9	N.D.		84	170		1
10727	Dimethylphthalate	131-11-3	N.D.		330	840		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		840	2,500		1
10727	2,4-Dinitrophenol	51-28-5	N.D.		1,500	5,000		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.		330	840		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.		84	170		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.		84	170		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.		330	850		1
10727	Hexachlorobenzene	118-74-1	N.D.		17	85		1
10727	Hexachlorobutadiene	87-68-3	N.D.		84	170		1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: LOMT072312SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730717
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 12:06 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LE103 SDG#: ESM31-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		ug/kg		ug/kg	ug/kg	ug/kg	
10727	Hexachloroethane	67-72-1	N.D.		170	840		1
10727	Isophorone	78-59-1	N.D.		84	170		1
10727	2-Methylphenol	95-48-7	N.D.		84	170		1
10727	4-Methylphenol	106-44-5	480		84	170		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		84	170		1
10727	3-Nitroaniline	99-09-2	N.D.		330	840		1
10727	4-Nitroaniline	100-01-6	N.D.		330	840		1
10727	Nitrobenzene	98-95-3	N.D.		84	170		1
10727	2-Nitrophenol	88-75-5	N.D.		84	170		1
10727	4-Nitrophenol	100-02-7	N.D.		840	2,500		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		330	840		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		84	170		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		84	170		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		330	840		1
10727	Pentachlorophenol	87-86-5	N.D.		170	850		1
10727	Phenol	108-95-2	N.D.		84	170		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		84	170		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		84	170		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS	**Semivolatiles SW-846 8270C SIM**		ug/kg		ug/kg	ug/kg	ug/kg	
10722	Acenaphthene	83-32-9	N.D.		3.3	8.4		1
10722	Acenaphthylene	208-96-8	N.D.		1.7	8.4		1
10722	Anthracene	120-12-7	2.6	J	1.7	8.4		1
10722	Benzo(a)anthracene	56-55-3	7.6	J	3.3	8.4		1
10722	Benzo(a)pyrene	50-32-8	6.0	J	3.3	8.4		1
10722	Benzo(b)fluoranthene	205-99-2	9.5		3.3	8.4		1
10722	Benzo(g,h,i)perylene	191-24-2	4.0	J	3.3	8.4		1
10722	Benzo(k)fluoranthene	207-08-9	3.7	J	3.3	8.4		1
10722	Chrysene	218-01-9	11		1.7	8.4		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.3	8.4		1
10722	Fluoranthene	206-44-0	19		3.3	8.4		1
10722	Fluorene	86-73-7	N.D.		3.3	8.4		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		3.3	8.4		1
10722	1-Methylnaphthalene	90-12-0	15		3.3	8.4		1
10722	2-Methylnaphthalene	91-57-6	20		3.3	8.4		1
10722	Naphthalene	91-20-3	13		3.3	8.4		1
10722	Phenanthrene	85-01-8	14		3.3	8.4		1
10722	Pyrene	129-00-0	16		3.3	8.4		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg		mg/kg	mg/kg	mg/kg	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		3.99	7.99		47.77

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: LOMT072312SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730717
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 12:06 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LE103 SDG#: ESM31-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg	mg/kg	mg/kg	mg/kg	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	3.99	7.99		47.77
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	3.99	7.99		47.77
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	3.99	7.99		47.77
GC Petroleum Hydrocarbons	**MT DEQ**		mg/kg	mg/kg	mg/kg	mg/kg	
05969	MT EPH Screen Soil	n.a.	N.D.	240	240	200	1
Wet Chemistry	**SM20 5310 B modified**		mg/kg	mg/kg	mg/kg	mg/kg	
02079	TOC Solids/Sludges Combustion	n.a.	5,650	299	898		1
Wet Chemistry	**SM20 2540 G**		%	%	%	%	
00111	Moisture	n.a.	40.2	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012 22:07	Andrea E Lando	1.04
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220628287	07/24/2012 18:48	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220628287	07/24/2012 18:48	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220628287	07/24/2012 18:43	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012 04:25	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/02/2012 00:56	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012 14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012 14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012 21:37	Nicholas R Rossi	47.77
05969	MT EPH Screen Soil	MT DEQ	1	122070020A	07/26/2012 12:57	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220628287	07/24/2012 18:43	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122070020A	07/26/2012 02:30	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12211049531A	07/29/2012 22:28	James S Mathiot	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: LOMT072312SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6730717
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 12:06 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

LE103 SDG#: ESM31-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12208820008A	07/26/2012 21:30	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: DUP2(072312) Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730718
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FD2-- SDG#: ESM31-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: DUP2(072312) Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730718
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FD2-- SDG#: ESM31-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Volatiles SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS	**Semivolatiles SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	0.9		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	0.9		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	0.9		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	0.9		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	0.9		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	0.9		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	0.9		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	0.9		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	0.9		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	0.9		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	0.9		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	0.9		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	0.9		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	0.9		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	0.9		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	0.9		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	9	28		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	0.9	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	0.9		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	0.9		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: DUP2(072312) Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730718
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FD2-- SDG#: ESM31-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.09	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	0.9		1
04678	Hexachloroethane	67-72-1	N.D.	0.9	5		1
04678	Isophorone	78-59-1	N.D.	0.5	0.9		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	0.9		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	0.9		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	0.9		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	0.9		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	0.9		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	0.9		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	0.9		1
04678	4-Nitrophenol	100-02-7	N.D.	9	28		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	0.9		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	0.9		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	0.9	5		1
04678	Phenol	108-95-2	N.D.	0.5	0.9		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	0.9		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	0.9		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	0.9		1
GC/MS	**Semivolatiles SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0095	0.047		1
08357	Acenaphthylene	208-96-8	N.D.	0.0095	0.047		1
08357	Anthracene	120-12-7	N.D.	0.0095	0.047		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0095	0.047		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0095	0.047		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0095	0.047		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0095	0.047		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0095	0.047		1
08357	Chrysene	218-01-9	N.D.	0.0095	0.047		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0095	0.047		1
08357	Fluoranthene	206-44-0	N.D.	0.0095	0.047		1
08357	Fluorene	86-73-7	N.D.	0.0095	0.047		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0095	0.047		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0095	0.047		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0095	0.047		1
08357	Naphthalene	91-20-3	0.036 J	0.028	0.047		1
08357	Phenanthrene	85-01-8	N.D.	0.028	0.047		1
08357	Pyrene	129-00-0	N.D.	0.0095	0.047		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: DUP2(072312) Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6730718
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FD2-- SDG#: ESM31-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		ug/l	ug/l	ug/l	ug/l	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		mg/l	mg/l	mg/l	mg/l	
00206	Total Suspended Solids	n.a.	19.6	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	16:35	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	16:35	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12207WAC026	07/27/2012	01:40	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12207WAD026	07/29/2012	16:16	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12207WAC026	07/26/2012	08:45	Cynthia J Salvatori	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12207WAD026	07/26/2012	08:45	Cynthia J Salvatori	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012	18:22	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122070008A	07/26/2012	16:07	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122070008A	07/25/2012	15:50	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12208020601A	07/26/2012	08:39	Clayton C Litchmore	1

*=This limit was used in the evaluation of the final result
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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSW(072312) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6730719
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 13:46 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBSW- SDG#: ESM31-08EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3 J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSW(072312) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6730719
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 13:46 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBSW- SDG#: ESM31-08EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012 14:22	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012 14:22	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012 19:03	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSE(072312) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6730720
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 14:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBSE- SDG#: ESM31-09EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.2 J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: EBSE(072312) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6730720
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 14:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBSE- SDG#: ESM31-09EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: EBSE(072312) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6730720
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 14:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBSE- SDG#: ESM31-09EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		ug/l	ug/l	ug/l	ug/l	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
GC/MS	**Semivolatiles SW-846 8270C SIM**		ug/l	ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.0095	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0095	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0095	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0095	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0095	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0095	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0095	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0095	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0095	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0095	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0095	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0095	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0095	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0095	0.048		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0095	0.048		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0095	0.048		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSE(072312) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6730720
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012 14:01 by BL

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBSE- SDG#: ESM31-09EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		ug/l	ug/l	ug/l	ug/l	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	14:44	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	14:44	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12207WAC026	07/27/2012	02:05	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12207WAD026	07/29/2012	16:47	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12207WAC026	07/26/2012	08:45	Cynthia J Salvatori	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12207WAD026	07/26/2012	08:45	Cynthia J Salvatori	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012	19:44	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122070008A	07/26/2012	16:28	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122070008A	07/25/2012	15:50	JoElla L Rice	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: TB(072312) Water
S20113949 Laurel, MT

LLI Sample # WW 6730721
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W0101 SDG#: ESM31-10TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3 J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: TB(072312) Water
S20113949 Laurel, MT

LLI Sample # WW 6730721
LLI Group # 1324075
Account # 13509

Project Name: Silvertip PWS

Collected: 07/23/2012

Submitted: 07/24/2012 09:30
Reported: 08/20/2012 08:54

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W0101 SDG#: ESM31-10TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012 15:07	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012 15:07	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012 20:26	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1324332 Sample # 6732201-05 Page 1 of 1

For Lancaster Laboratories use only

Instructions on reverse side correspond with circled numbers.

SCR#:

1 Client Information

Facility #/SID: Silver Tip PWS

Site Address: Laurel, Montana

ExxonMobil PM: Tom Henson

Cost Center/AFE:

Consultant/Office: Arcadis-US 801 Corporate Center Drive Raleigh, NC 27607

Consultant PM: Steve Barrick

Consultant Phone #: 919-415-2287

Sampler: Brian Lovgren

4 Matrix

5 Analyses Requested

Preservation Code

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Soil	Water (Ground / Potable / Surface / NPDES)	Oil	Air	Total # of Containers	SIM PAH's, TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOC's (8260)	VPH/GRO	MT EPH Screen	SIM PAH's/SVOC's TCL 8270	VOC's (8260) 85ml purge	VPH/GRO	TSS
															H		H	H	
MCMT072412SE0101	7-24-12	1026	✓		✓				10	1	✓	1	4	4					
HYMT072412SW0101	7-24-12	1301	✓			✓			12						2	3	3	3	1
HYMT072412SE0102	7-24-12	1311	✓		✓				10	1	✓	1	4	4					
EBSE(072412)	7-24-12	1521	✓			✓			11						2	3	3	3	
TB(072412)	7-24-12	NIR	✓			✓			4								2	2	

Preservation Codes

H = HCl T = Thiosulfate
N = HNO_3 B = NaOH
S = H_2SO_4 O = Other

6 Remarks

7 Turnaround Time Requested (TAT) (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

8 Data Package (circle if required)

Type I - Full
Type VI (Raw Data)
NJ Reduced
Other

EDD (circle if required)

Locus EIM (default)
Other _____

Relinquished by	Date	Time	Received by	Date	Time
Brian Lovgren	7-24-12	1700	FedEx	7-24-12	1700

9

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Received by: [signature] Date 7/25/12 Time 920

Temperature Upon Receipt 1.6 °C

Custody Seals Intact? Yes No

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: MCMT072412SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732201
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 10:26 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MC101 SDG#: ESM32-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	Volatiles SW-846 8260B		ug/kg		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	15	J	10	30		0.98
10237	Allyl Chloride	107-05-1	N.D.		1	7		0.98
10237	Benzene	71-43-2	N.D.		0.7	7		0.98
10237	Bromobenzene	108-86-1	N.D.		1	7		0.98
10237	Bromochloromethane	74-97-5	N.D.		1	7		0.98
10237	Bromodichloromethane	75-27-4	N.D.		1	7		0.98
10237	Bromoform	75-25-2	N.D.		1	7		0.98
10237	Bromomethane	74-83-9	N.D.		3	7		0.98
10237	2-Butanone	78-93-3	N.D.		6	15		0.98
10237	n-Butylbenzene	104-51-8	N.D.		1	7		0.98
10237	sec-Butylbenzene	135-98-8	N.D.		1	7		0.98
10237	tert-Butylbenzene	98-06-6	N.D.		1	7		0.98
10237	Carbon Tetrachloride	56-23-5	N.D.		1	7		0.98
10237	Chlorobenzene	108-90-7	N.D.		1	7		0.98
10237	Chloroethane	75-00-3	N.D.		3	7		0.98
10237	Chloroform	67-66-3	N.D.		1	7		0.98
10237	Chloromethane	74-87-3	N.D.		3	7		0.98
10237	2-Chlorotoluene	95-49-8	N.D.		1	7		0.98
10237	4-Chlorotoluene	106-43-4	N.D.		1	7		0.98
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	7		0.98
10237	Dibromochloromethane	124-48-1	N.D.		1	7		0.98
10237	1,2-Dibromoethane	106-93-4	N.D.		1	7		0.98
10237	Dibromomethane	74-95-3	N.D.		1	7		0.98
10237	1,2-Dichlorobenzene	95-50-1	N.D.		1	7		0.98
10237	1,3-Dichlorobenzene	541-73-1	N.D.		1	7		0.98
10237	1,4-Dichlorobenzene	106-46-7	N.D.		1	7		0.98
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	7		0.98
10237	1,1-Dichloroethane	75-34-3	N.D.		1	7		0.98
10237	1,2-Dichloroethane	107-06-2	N.D.		1	7		0.98
10237	1,1-Dichloroethene	75-35-4	N.D.		1	7		0.98
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		1	7		0.98
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		1	7		0.98
10237	Dichlorofluoromethane	75-43-4	N.D.		3	7		0.98
10237	1,2-Dichloropropane	78-87-5	N.D.		1	7		0.98
10237	1,3-Dichloropropane	142-28-9	N.D.		1	7		0.98
10237	2,2-Dichloropropane	594-20-7	N.D.		1	7		0.98
10237	1,1-Dichloropropene	563-58-6	N.D.		1	7		0.98
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		1	7		0.98
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		1	7		0.98
10237	Ethyl Ether	60-29-7	N.D.		1	7		0.98
10237	Ethylbenzene	100-41-4	N.D.		1	7		0.98
10237	Freon 113	76-13-1	N.D.		3	15		0.98
10237	Hexachlorobutadiene	87-68-3	N.D.		3	7		0.98
10237	Isopropylbenzene	98-82-8	N.D.		1	7		0.98
10237	p-Isopropyltoluene	99-87-6	2	J	1	7		0.98
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.7	7		0.98
10237	4-Methyl-2-pentanone	108-10-1	N.D.		4	15		0.98
10237	Methylene Chloride	75-09-2	N.D.		3	7		0.98
10237	n-Propylbenzene	103-65-1	N.D.		1	7		0.98
10237	Styrene	100-42-5	N.D.		1	7		0.98
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1	7		0.98

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MCMT072412SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732201
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 10:26 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MC101 SDG#: ESM32-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	7		0.98
10237	Tetrachloroethene	127-18-4	N.D.	1	7		0.98
10237	Tetrahydrofuran	109-99-9	N.D.	6	7		0.98
10237	Toluene	108-88-3	6 J	1	7		0.98
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	7		0.98
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	7		0.98
10237	1,1,1-Trichloroethane	71-55-6	N.D.	1	7		0.98
10237	1,1,2-Trichloroethane	79-00-5	N.D.	1	7		0.98
10237	Trichloroethene	79-01-6	N.D.	1	7		0.98
10237	Trichlorofluoromethane	75-69-4	N.D.	3	7		0.98
10237	1,2,3-Trichloropropane	96-18-4	N.D.	1	7		0.98
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	7		0.98
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	7		0.98
10237	Vinyl Chloride	75-01-4	N.D.	1	7		0.98
10237	Xylene (Total)	1330-20-7	N.D.	1	7		0.98

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone

GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	25	51		1
10727	Butylbenzylphthalate	85-68-7	N.D.	100	250		1
10727	Di-n-butylphthalate	84-74-2	N.D.	100	250		1
10727	Carbazole	86-74-8	N.D.	25	51		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	25	51		1
10727	4-Chloroaniline	106-47-8	N.D. J	25	51		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	25	51		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	25	51		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	25	51		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	11	50		1
10727	2-Chlorophenol	95-57-8	N.D.	25	51		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	25	51		1
10727	Dibenzofuran	132-64-9	N.D.	25	51		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	150	510		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	25	51		1
10727	Diethylphthalate	84-66-2	N.D.	100	250		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	25	51		1
10727	Dimethylphthalate	131-11-3	N.D.	100	250		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	250	760		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	460	1,500		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	100	250		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	25	51		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	25	51		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	100	260		1
10727	Hexachlorobenzene	118-74-1	N.D.	5	26		1
10727	Hexachlorobutadiene	87-68-3	N.D.	25	51		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MCMT072412SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732201
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 10:26 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MC101 SDG#: ESM32-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		ug/kg		ug/kg	ug/kg	ug/kg	
10727	Hexachloroethane	67-72-1	N.D.		51	250		1
10727	Isophorone	78-59-1	N.D.		25	51		1
10727	2-Methylphenol	95-48-7	N.D.		25	51		1
10727	4-Methylphenol	106-44-5	N.D.		25	51		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		25	51		1
10727	3-Nitroaniline	99-09-2	N.D.		100	250		1
10727	4-Nitroaniline	100-01-6	N.D.		100	250		1
10727	Nitrobenzene	98-95-3	N.D.		25	51		1
10727	2-Nitrophenol	88-75-5	N.D.		25	51		1
10727	4-Nitrophenol	100-02-7	N.D.		250	760		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		100	250		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		25	51		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		25	51		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		100	250		1
10727	Pentachlorophenol	87-86-5	N.D.		51	260		1
10727	Phenol	108-95-2	N.D.		25	51		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		25	51		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		25	51		1
GC/MS	**Semivolatiles SW-846 8270C SIM**		ug/kg		ug/kg	ug/kg	ug/kg	
10722	Acenaphthene	83-32-9	N.D.		1.0	2.5		1
10722	Acenaphthylene	208-96-8	N.D.		0.51	2.5		1
10722	Anthracene	120-12-7	0.60	J	0.51	2.5		1
10722	Benzo(a)anthracene	56-55-3	1.5	J	1.0	2.5		1
10722	Benzo(a)pyrene	50-32-8	1.5	J	1.0	2.5		1
10722	Benzo(b)fluoranthene	205-99-2	3.7		1.0	2.5		1
10722	Benzo(g,h,i)perylene	191-24-2	1.8	J	1.0	2.5		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		1.0	2.5		1
10722	Chrysene	218-01-9	3.4		0.51	2.5		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		1.0	2.5		1
10722	Fluoranthene	206-44-0	3.6		1.0	2.5		1
10722	Fluorene	86-73-7	1.0	J	1.0	2.5		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	1.0	J	1.0	2.5		1
10722	1-Methylnaphthalene	90-12-0	4.3		1.0	2.5		1
10722	2-Methylnaphthalene	91-57-6	5.6		1.0	2.5		1
10722	Naphthalene	91-20-3	3.7		1.0	2.5		1
10722	Phenanthrene	85-01-8	5.0		1.0	2.5		1
10722	Pyrene	129-00-0	4.0		1.0	2.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg		mg/kg	mg/kg	mg/kg	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		3.66	7.32		48.17
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.		3.66	7.32		48.17
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.		3.66	7.32		48.17

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MCMT072412SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732201
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 10:26 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MC101 SDG#: ESM32-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	3.66	7.32		48.17
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	230	230	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	3,590	249	748		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	34.2	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	22:30	Andrea E Lando	0.98
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220728300	07/25/2012	18:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220728300	07/25/2012	18:50	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220728300	07/25/2012	18:44	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12214SLB026	08/03/2012	09:15	Brian K Graham	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12215SLA026	08/03/2012	05:23	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	2	12214SLB026	08/01/2012	18:20	Sally L Appleyard	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	2	12215SLA026	08/02/2012	13:00	Wanda F Oswald	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	22:19	Nicholas R Rossi	48.17
05969	MT EPH Screen Soil	MT DEQ	1	122080006A	07/27/2012	15:31	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220728300	07/25/2012	18:43	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122080006A	07/26/2012	13:30	Kelli M Barto	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531B	07/26/2012	23:28	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12209820002A	07/27/2012	11:36	William C Schwebel	1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: HYMT072412SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6732202
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:01 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY101 SDG#: ESM32-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

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Analysis Report

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REVISED

Sample Description: HYMT072412SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6732202
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:01 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY101 SDG#: ESM32-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
Wet Chemistry	**SM20 2540 D**		mg/l	mg/l	mg/l	mg/l	
00206	Total Suspended Solids	n.a.	592	8.8	35.3		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

Missing cooler received on 07/26/12 for EPH/SVOCs.
The temperature of the temperature blank bottle(s) in the delayed cooler upon receipt at the lab was >10 C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 10.5-11.8 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012 15:29	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012 15:29	Jason M Long	1

*=This limit was used in the evaluation of the final result
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Analysis Report

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REVISED

Sample Description: HYMT072412SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6732202
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:01 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY101 SDG#: ESM32-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012 21:07	Elizabeth J Marin	1
00206	Total Suspended Solids	SM20 2540 D	1	12208020602A	07/26/2012 12:46	Clayton C Litchmore	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: HYMT072412SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732203
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:11 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY102 SDG#: ESM32-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	15	J	11	33		1.05
10237	Allyl Chloride	107-05-1	N.D.		2	8		1.05
10237	Benzene	71-43-2	N.D.		0.8	8		1.05
10237	Bromobenzene	108-86-1	N.D.		2	8		1.05
10237	Bromochloromethane	74-97-5	N.D.		2	8		1.05
10237	Bromodichloromethane	75-27-4	N.D.		2	8		1.05
10237	Bromoform	75-25-2	N.D.		2	8		1.05
10237	Bromomethane	74-83-9	N.D.		3	8		1.05
10237	2-Butanone	78-93-3	N.D.		7	16		1.05
10237	n-Butylbenzene	104-51-8	N.D.		2	8		1.05
10237	sec-Butylbenzene	135-98-8	N.D.		2	8		1.05
10237	tert-Butylbenzene	98-06-6	N.D.		2	8		1.05
10237	Carbon Tetrachloride	56-23-5	N.D.		2	8		1.05
10237	Chlorobenzene	108-90-7	N.D.		2	8		1.05
10237	Chloroethane	75-00-3	N.D.		3	8		1.05
10237	Chloroform	67-66-3	N.D.		2	8		1.05
10237	Chloromethane	74-87-3	N.D.		3	8		1.05
10237	2-Chlorotoluene	95-49-8	N.D.		2	8		1.05
10237	4-Chlorotoluene	106-43-4	N.D.		2	8		1.05
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		3	8		1.05
10237	Dibromochloromethane	124-48-1	N.D.		2	8		1.05
10237	1,2-Dibromoethane	106-93-4	N.D.		2	8		1.05
10237	Dibromomethane	74-95-3	N.D.		2	8		1.05
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	8		1.05
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	8		1.05
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	8		1.05
10237	Dichlorodifluoromethane	75-71-8	N.D.		3	8		1.05
10237	1,1-Dichloroethane	75-34-3	N.D.		2	8		1.05
10237	1,2-Dichloroethane	107-06-2	N.D.		2	8		1.05
10237	1,1-Dichloroethene	75-35-4	N.D.		2	8		1.05
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	8		1.05
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	8		1.05
10237	Dichlorofluoromethane	75-43-4	N.D.		3	8		1.05
10237	1,2-Dichloropropane	78-87-5	N.D.		2	8		1.05
10237	1,3-Dichloropropane	142-28-9	N.D.		2	8		1.05
10237	2,2-Dichloropropane	594-20-7	N.D.		2	8		1.05
10237	1,1-Dichloropropene	563-58-6	N.D.		2	8		1.05
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	8		1.05
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	8		1.05
10237	Ethyl Ether	60-29-7	N.D.		2	8		1.05
10237	Ethylbenzene	100-41-4	N.D.		2	8		1.05
10237	Freon 113	76-13-1	N.D.		3	16		1.05
10237	Hexachlorobutadiene	87-68-3	N.D.		3	8		1.05
10237	Isopropylbenzene	98-82-8	N.D.		2	8		1.05
10237	p-Isopropyltoluene	99-87-6	N.D.		2	8		1.05
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.8	8		1.05
10237	4-Methyl-2-pentanone	108-10-1	N.D.		5	16		1.05
10237	Methylene Chloride	75-09-2	N.D.		3	8		1.05
10237	n-Propylbenzene	103-65-1	N.D.		2	8		1.05
10237	Styrene	100-42-5	N.D.		2	8		1.05
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		2	8		1.05

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: HYMT072412SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732203
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:11 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY102 SDG#: ESM32-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	8		1.05
10237	Tetrachloroethene	127-18-4	N.D.	2	8		1.05
10237	Tetrahydrofuran	109-99-9	N.D.	7	8		1.05
10237	Toluene	108-88-3	12	2	8		1.05
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	8		1.05
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	8		1.05
10237	1,1,1-Trichloroethane	71-55-6	N.D.	2	8		1.05
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	8		1.05
10237	Trichloroethene	79-01-6	N.D.	2	8		1.05
10237	Trichlorofluoromethane	75-69-4	N.D.	3	8		1.05
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	8		1.05
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	8		1.05
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	8		1.05
10237	Vinyl Chloride	75-01-4	N.D.	2	8		1.05
10237	Xylene (Total)	1330-20-7	N.D.	2	8		1.05

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone

GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	ug/kg	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	78	160		1
10727	Butylbenzylphthalate	85-68-7	N.D.	310	780		1
10727	Di-n-butylphthalate	84-74-2	N.D.	310	780		1
10727	Carbazole	86-74-8	N.D.	78	160		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	78	160		1
10727	4-Chloroaniline	106-47-8	N.D.	78	160		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	78	160		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	78	160		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	78	160		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	33	150		1
10727	2-Chlorophenol	95-57-8	N.D.	78	160		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	78	160		1
10727	Dibenzofuran	132-64-9	N.D.	78	160		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	470	1,600		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	78	160		1
10727	Diethylphthalate	84-66-2	N.D.	310	780		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	78	160		1
10727	Dimethylphthalate	131-11-3	N.D.	310	780		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	780	2,300		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,400	4,700		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	310	780		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	78	160		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	78	160		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,100	310	800		1
10727	Hexachlorobenzene	118-74-1	N.D.	16	80		1
10727	Hexachlorobutadiene	87-68-3	N.D.	78	160		1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: HYMT072412SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732203
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:11 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY102 SDG#: ESM32-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	**Semivolatiles SW-846 8270C**		ug/kg		ug/kg	ug/kg	ug/kg	
10727	Hexachloroethane	67-72-1	N.D.		160	780		1
10727	Isophorone	78-59-1	N.D.		78	160		1
10727	2-Methylphenol	95-48-7	N.D.		78	160		1
10727	4-Methylphenol	106-44-5	N.D.		78	160		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		78	160		1
10727	3-Nitroaniline	99-09-2	N.D.		310	780		1
10727	4-Nitroaniline	100-01-6	N.D.		310	780		1
10727	Nitrobenzene	98-95-3	N.D.		78	160		1
10727	2-Nitrophenol	88-75-5	140	J	78	160		1
10727	4-Nitrophenol	100-02-7	N.D.		780	2,300		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		310	780		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		78	160		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		78	160		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		310	780		1
10727	Pentachlorophenol	87-86-5	N.D.		160	800		1
10727	Phenol	108-95-2	N.D.		78	160		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		78	160		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		78	160		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS	**Semivolatiles SW-846 8270C SIM**		ug/kg		ug/kg	ug/kg	ug/kg	
10722	Acenaphthene	83-32-9	N.D.		1.0	2.6		1
10722	Acenaphthylene	208-96-8	N.D.		0.52	2.6		1
10722	Anthracene	120-12-7	N.D.		0.52	2.6		1
10722	Benzo(a)anthracene	56-55-3	1.1	J	1.0	2.6		1
10722	Benzo(a)pyrene	50-32-8	1.2	J	1.0	2.6		1
10722	Benzo(b)fluoranthene	205-99-2	2.0	J	1.0	2.6		1
10722	Benzo(g,h,i)perylene	191-24-2	1.5	J	1.0	2.6		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		1.0	2.6		1
10722	Chrysene	218-01-9	2.1	J	0.52	2.6		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		1.0	2.6		1
10722	Fluoranthene	206-44-0	2.2	J	1.0	2.6		1
10722	Fluorene	86-73-7	1.3	J	1.0	2.6		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		1.0	2.6		1
10722	1-Methylnaphthalene	90-12-0	6.1		1.0	2.6		1
10722	2-Methylnaphthalene	91-57-6	7.9		1.0	2.6		1
10722	Naphthalene	91-20-3	5.4		1.0	2.6		1
10722	Phenanthrene	85-01-8	5.1		1.0	2.6		1
10722	Pyrene	129-00-0	3.3		1.0	2.6		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg		mg/kg	mg/kg	mg/kg	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		4.89	9.77		62.45
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.		4.89	9.77		62.45

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: HYMT072412SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732203
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:11 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY102 SDG#: ESM32-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		mg/kg	mg/kg	mg/kg	mg/kg	
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	4.89	9.77		62.45
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	4.89	9.77		62.45
GC Petroleum Hydrocarbons	**MT DEQ**		mg/kg	mg/kg	mg/kg	mg/kg	
05969	MT EPH Screen Soil	n.a.	N.D.	230	230	200	1
Wet Chemistry	**SM20 5310 B modified**		mg/kg	mg/kg	mg/kg	mg/kg	
02079	TOC Solids/Sludges Combustion	n.a.	8,250	296	887		1
Wet Chemistry	**SM20 2540 G**		%	%	%	%	
00111	Moisture	n.a.	36.1	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	22:52	Andrea E Lando	1.05
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220728300	07/25/2012	18:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220728300	07/25/2012	18:50	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220728300	07/25/2012	18:47	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012	05:55	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12215SLA026	08/03/2012	05:54	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012	14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	2	12215SLA026	08/02/2012	13:00	Wanda F Oswald	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	23:00	Nicholas R Rossi	62.45
05969	MT EPH Screen Soil	MT DEQ	1	122080006A	07/27/2012	16:34	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220728300	07/25/2012	18:47	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122080006A	07/26/2012	13:30	Kelli M Barto	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531B	07/26/2012	23:58	James S Mathiot	1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: HYMT072412SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6732203
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 13:11 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HY102 SDG#: ESM32-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12209820002A	07/27/2012 11:36	William C Schwebel	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSE(072412) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6732204
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 15:21 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB724 SDG#: ESM32-04EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSE(072412) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6732204
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012 15:21 by BL

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EB724 SDG#: ESM32-04EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

Missing cooler received on 07/26/12 for EPH/SVOCs.
The temperature of the temperature blank bottle(s) in the delayed cooler upon receipt at the lab was >10 C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 10.5-11.8 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012 15:51	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012 15:51	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012 21:49	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: TB(072412) Water
S20113949 Laurel, MT

LLI Sample # WW 6732205
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

TB724 SDG#: ESM32-05TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B 25mL purge		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.4 J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: TB(072412) Water
S20113949 Laurel, MT

LLI Sample # WW 6732205
LLI Group # 1324338
Account # 13509

Project Name: Silvertip PWS

Collected: 07/24/2012

Submitted: 07/25/2012 09:20
Reported: 08/20/2012 09:00

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

TB724 SDG#: ESM32-05TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012 16:13	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012 16:13	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12208A54A	07/26/2012 22:30	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1326474 Sample # 6743728

For Lancaster Laboratories use only
Instructions on reverse side correspond with circled numbers.

SCR#: _____

1 Client Information

Facility #/SID: Silvertip PWS sampling

Site Address: Billings MT

ExxonMobil PM: Tom Hanson

Cost Center/AFE:

Consultant/Office: Arcadis - Raleigh

Consultant PM: Steve Barrick

Consultant Phone #:

Sampler: Laura Madsen

4 Matrix: Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☒ Oil ☐ Air ☐

5 Analyses Requested / Preservation Code

Preservation Codes: H = HCl; N = HNO_3; S = H_2SO_4; T = Thiosulfate; B = NaOH; O = Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	MT EPH screen (H)	PAH, TCL SVOCs
HYMT080112SW0101	8/1/12	1021	X		5	2	3

7 Turnaround Time Requested (TAT) (please circle): Standard; 5 day; 4 day; 72 hour; 48 hour; 24 hour

8 Data Package (circle if required): Type I - Full; Type VI (Raw Data); NJ Reduced; Other

EDD (circle if required): Locus EIM (default); Other _____

Relinquished by	Date	Time	Received by	Date	Time
Gordon Lenn	8/2/12	0700			

Relinquished by Commercial Carrier: UPS ____ FedEx X Other _____

Temperature Upon Receipt 4.3 °C

Custody Seals Intact? Yes No

9

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: HYMT080112SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6743728
LLI Group # 1326474
Account # 13509

Project Name: Silvertip PWS

Collected: 08/01/2012 10:21 by LM

Submitted: 08/03/2012 09:20
Reported: 08/13/2012 09:16

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HYM01 SDG#: ESM33-01*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS	Semivolatiles SW-846 8270C		ug/l	ug/l	ug/l	ug/l	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: HYMT080112SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6743728
LLI Group # 1326474
Account # 13509

Project Name: Silvertip PWS

Collected: 08/01/2012 10:21 by LM

Submitted: 08/03/2012 09:20
Reported: 08/13/2012 09:16

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HYM01 SDG#: ESM33-01*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		ug/l	ug/l	ug/l	ug/l	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l	ug/l	ug/l	ug/l	
08357	Acenaphthene	83-32-9	N.D.	0.0097	0.049		1
08357	Acenaphthylene	208-96-8	N.D.	0.0097	0.049		1
08357	Anthracene	120-12-7	N.D.	0.0097	0.049		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0097	0.049		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0097	0.049		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0097	0.049		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0097	0.049		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	0.049		1
08357	Chrysene	218-01-9	N.D.	0.0097	0.049		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0097	0.049		1
08357	Fluoranthene	206-44-0	N.D.	0.0097	0.049		1
08357	Fluorene	86-73-7	N.D.	0.0097	0.049		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0097	0.049		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0097	0.049		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0097	0.049		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.049		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.049		1
08357	Pyrene	129-00-0	N.D.	0.0097	0.049		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC Petroleum Hydrocarbons	**MT DEQ**		ug/l	ug/l	ug/l	ug/l	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12219WAA026	08/07/2012 10:27	Brian K Graham	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12219WAB026	08/07/2012 07:39	Mark A Clark	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

eurofins | Lancaster Laboratories

Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: HYMT080112SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6743728
LLI Group # 1326474
Account # 13509

Project Name: Silvertip PWS

Collected: 08/01/2012 10:21 by LM

Submitted: 08/03/2012 09:20
Reported: 08/13/2012 09:16

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

HYM01 SDG#: ESM33-01*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00813	BNA Water Extraction	SW-846 3510C	1	12219WAA026	08/06/2012 17:30	Nicholas W Shroyer	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12219WAB026	08/06/2012 17:30	Nicholas W Shroyer	1
05968	MTEPH Screen Water	MT DEQ	1	122190008A	08/08/2012 19:13	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122190008A	08/06/2012 14:15	Kelli M Barto	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Imagine the result

ExxonMobil- Silvertip Pipeline Incident

Data Verification/Validation Report

BILLINGS, MONTANA

Volatile, Semivolatile, MADEP VPH/EPH, TOC and TSS Analyses

SDG #ESM29 and ESM30 (1323422 and 1323649)

Analyses Performed By:
Eurofins Lancaster Laboratories
Lancaster, Pennsylvania

Report #17199R
Review Level: Tier III
Project: B0085904.1205.00014

TIER 3 DATA VERIFICATION/VALIDATION REPORT

Project Name: Silvertip Pipeline Incident
QAPP: Draft Quality Assurance Project Plan Silvertip Pipeline Incident, Laurel, Montana, March 2012
SDG: ESM29 and ESM30 (1323422 and 1323649)
Analytical Laboratory: Eurofins Lancaster Laboratories
Analytical Parameters/Method: VOC-8260, SVOC-8270, PAH-8270-SIM, MADEP VPH/EPH, TOC-9060, and TSS-2540D
Data Reviewer/Affiliation: Lyndi Mott/ARCADIS
Date Completed: September 11, 2012

This review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	SVOC - SIM	VPH/ EPH	TOC
ESM29	MCMT071812SW0102	6727421	Water	7/18/2012		X	X	X	X	TSS
	MCMT071812SE0102	6727422	Sediment	7/18/2012		X	X	X	X	X
	TB(071812)	6727423	Water	7/18/2012		X			X	
ESM30	SIMT071912SW0101	6728884	Water	7/19/2012		X	X	X	X	TSS
	SIMT071912SE0101	6728885	Sediment	7/19/2012		X	X	X	X	X
	SIMT071912SE0102	6728886	Sediment	7/19/2012		X	X	X	X	X
	GLMT071912SW0102	6728887	Water	7/19/2012		X	X	X	X	TSS
	GLMT071912SE0103	6728888	Sediment	7/19/2012		X	X	X	X	X
	EBSW(071912)	6728889	Water	7/19/2012		X			X	
	EBSE(071912)	6728890	Water	7/19/2012		X	X	X	X	
	GLMT071912SE0104	6728891	Sediment	7/19/2012		X	X	X	X	X
	FOMT072012SW0101	6728892	Water	7/20/2012		X	X	X	X	TSS
	FOMT072012SE0101	6728893	Sediment	7/20/2012		X	X	X	X	X
	COMT072012SW0102	6728894	Water	7/20/2012		X	X	X	X	TSS
	COMT072012SE0102	6728895	Sediment	7/20/2012		X	X	X	X	X
	EBSW(072012)	6728896	Water	7/20/2012		X			X	
	EBSE(072012)	6728897	Water	7/20/2012		X	X	X	X	
	TB(072012)	6728898	Water	7/20/2012		X			X	

Note:
1. Volatile Petroleum Hydrocarbons/ Extractable Petroleum Hydrocarbons - VPH/EPH
2. Total Organic Carbon – TOC, Total Suspended Solids - TSS

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260, 8270, 8270-SIM, 9060, and Massachusetts Department of Environmental Protection (MADEP) Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH). Data were reviewed based on laboratory method criteria and/or USEPA's National Functional Guidelines for Organics Data Review (October 1999), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

  B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers

  E The compound was quantitated above the calibration range.

  D Concentration is based on a diluted sample analysis.

- Validation Qualifiers

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

  + Result may be biased high

  - Result may be biased low

  U Compound considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260	Water	14 days from collection to analysis	Cool to <6°C±; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6°C.

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were non-detect. No other qualification of the sample results was required.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
MCMT071812SE0102 SIMT071912SE0101 SIMT071912SE0102 GLMT071912SE0103 GLMT071912SE0104 FOMT072012SE0102 COMT072012SE0102	ICV %D	Dichlorodifluoromethane	-24%
		Dichlorofluoromethane	-31%
		Acetone	+79%
SIMT071912SE0101 SIMT071912SE0102 GLMT071912SE0103 GLMT071912SE0104 FOMT072012SE0102 COMT072012SE0102	CCV %D	Carbon tetrachloride	+22%
		1,2-Dichloroethane	+24%
		2,2-Dichloropropane	+24%
		Trichlorofluoromethane	+31%
SIMT071912SW0101 GLMT071912SW0102 EBSW(071912) EBSE(071912) FOMT072012SW0101 COMT072012SW0102 EBSW(072012) EBSE(072012) TB(072012)	CCV %D	4-Methyl-2-pentanone	+23%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J-
	RRF <0.01[1]	Non-detect	R
		Detect	J-
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J+
	%D >20% (decrease in sensitivity)	Non-detect	UJ-
		Detect	J-

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

8. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
COMT071812SW0101 EBSW(071812) EBSE(071812) TB(071812)	Dichlorofluoromethane	> UL
SIMT071912SE0101 SIMT071912SE0102 GLMT071912SE0103 GLMT071912SE0104 FOMT072012SE0102 COMT072012SE0102	Acetone	> UL
	2-Butanone	
	1,2-Dibromo-3-chloropropane	

The criteria used to evaluate the LCS recoveries are presented in the following table. In the case of an LCS deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J+
< the lower control limit (LL) but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected for a sample location associated with this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
SIMT071912SE0102	Toluene	4110 E	4900	4900 D

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X	X		
C. Trip blanks		X	X		
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
SIMT071912SW0101 GLMT071912SW0102 EBSE(071912) FOMT072012SW0101 COMT072012SW0102 EBSW(072012) EBSE(072012)	CCV %D	bis(2-Chloroisopropyl)ether	-22%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J+
	%D >20% (decrease in sensitivity)	Non-detect	UJ-
		Detect	J-

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
MCMT071812SW0102	1,4-Dichlorobenzene-d4	>UL
	Naphthalene-d8	>UL
	Acenaphthene-d10	>UL
	Phenanthrene-d10	>UL
	Pyrene-d10	>UL
	Perylene-d12	AC

AC Acceptable

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	UJ
	Detect	J
< 25%	Non-detect	R
	Detect	J

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on sample location SIMT071912SE0101 exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270 SIM	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were detected in the associated QA blanks; however, the associated sample results were non-detect. No other qualification of the sample results was required.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (15%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the calibrations were within the specified control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria insure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the SVOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

7. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis performed on sample location SIMT071912SE0101 exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected for a sample location associated with this SDG.

10. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PAHs

PAHs: SW-846 8270 SIM	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X		X	
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

VOLATILE PETROLEUM HYDROCARBON (VPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP VPH	Water	14 days from collection to analysis	Cool to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to analysis	Cool to <6°C

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. System Performance

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

A maximum RSD of 25% or a correlation coefficient of greater than 0.99 is allowed.

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (25%).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires the surrogate compounds exhibit recoveries within the recovery range of 70 to 130%.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
MCMT071812SE0102 SIMT071912SE0101 GLMT071912SE0103	a,a,a-Trifluorotoluene-P	< LL but > 10%
	a,a,a-Trifluorotoluene-F	AC
SIMT071912SE0102 GLMT071912SE0104 FOMT072012SE0101 MCMT071812SE0102 RE SIMT071912SE0101 RE SIMT071912SE0102 RE GLMT071912SE0104 RE FOMT072012SE0102 RE	a,a,a-Trifluorotoluene-P	< LL but > 10%
	a,a,a-Trifluorotoluene-F	

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> upper control limit (UL) of 130%	Non-detect	No Action
	Detect	J+
< lower control limit (LL) of 70% but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

All sample locations were reanalyzed to confirm low surrogate recoveries. The reanalysis exhibited similar recoveries confirming matrix interference for all sample locations except GLMT071912SE0103.

Sample location GLMT071912SE0103 was reanalyzed to confirm low surrogate recoveries. The reanalysis exhibited recoveries within acceptable control limits. Sample results were non-detect for initial and re-analysis. Therefore, results for sample location GLMT071912SE0103 do not require qualification.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method-established acceptance limits of 70 to 130%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

7. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 70 to 130%.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

9. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows on the column.

All identified compounds met the specified criteria.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VPH ANALYSIS

VPH; MADEP VPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
C. Trip blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
Initial calibration %RSDs		X		X	
Continuing calibration %Ds		X		X	
System performance and column resolution		X		X	
Compound identification and quantitation					
A. Quantitation Reports		X		X	
B. RT of sample compounds within the established RT windows		X		X	
C. Pattern identification		X		X	
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

EXTRACTABLE PETROLEUM HYDROCARBON (EPH) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
MADEP EPH	Water	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C; preserved to a pH of less than 2.
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6°C

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. System Performance

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

A maximum RSD of 25% or a correlation coefficient of greater than 0.99 is allowed.

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (25%).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the acceptance limits of 40 to 140%.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
EBSE(071912)	Orthoterphenyl	AC
	1-Chloro-octadecane	> UL

Acceptable (AC)

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> upper control limit (UL) of 140%	Non-detect	No Action
	Detect	J+
< lower control limit (LL) of 40% but > 10%	Non-detect	UJ-
	Detect	J-
< 10%	Non-detect	R
	Detect	J-

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method specified acceptance limits of 40 to 140%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 50%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

7. Laboratory Duplicate Analysis

Laboratory duplicate data are used to assess the precision of the analytical method. The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices.

The laboratory duplicate analysis performed on sample location COMT072012SW0102 exhibited RPD within the control limit.

8. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the acceptance limits of 40 to 140%.

A LCS analysis is not reported for an EPH screen analysis.

9. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

10. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows on the column.

All identified compounds met the specified criteria.

11. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR EPH ANALYSIS

EPH; MADEP EPH	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R	X				
Laboratory Control Sample Duplicate(LCSD) %R	X				
LCS/LCSD Precision (RPD)	X				
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
Lab Duplicate (RPD)		X		X	
Field Duplicate (RPD)					X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
Initial calibration %RSDs		X		X	
Continuing calibration %Ds		X		X	
System performance and column resolution		X		X	
Compound identification and quantitation					
A. Quantitation Reports		X		X	
B. RT of sample compounds within the established RT windows		X		X	
C. Pattern identification					X
D. Transcription/calculations acceptable		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

TOTAL ORGANIC CARBON (TOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Organic Carbon (TOC) by SW-846 9060	Water	28 days from collection to analysis	Cool to <6°C.; preserved to a pH of less than 2.
	Soil	28 days from collection to analysis	Cool to <6°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

TOC was not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and the initial calibration verification standard recovery was within control limits.

TOC calibration standard recoveries were within control limits, with the exception presented in the following table.

Sample Locations	Initial/Continuing	Standard Recovery
MCMT071812SE0102	CCV	111%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Analytes	Control Limit	Sample Result	Qualification
TOC	75% to 89%	Non-detect	UJ
		Detect	J-
	> 110%	Non-detect	No Action
		Detect	J+
	<75%	Non-detect	R
		Detect	J-

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory established acceptance limits of 50 to 150%. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within 30%.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD was not performed on a sample location associated with this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not collected on a sample location associated with this SDG.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TOC

General Chemistry: SW-846 9060	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
TOC Analyzer					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field Duplicate (RPD)					X
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
Initial calibration correlation coefficient		X		X	
Continuing calibration %R		X	X		
Raw Data					
Transcription/calculations acceptable		X		X	
Reporting limits adjusted to reflect sample dilutions		X		X	

%R - percent recovery, RPD - relative percent difference,

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to Standard Methods 2540D. Data were reviewed based on laboratory method criteria and/or United States Environmental Protection Agency (USEPA) National Functional Guidelines for Inorganic Data Review (October 2004), and Montana Department of Environmental Quality Data Validation Guideline for Evaluating Analytical Data (updated August 5, 2010).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers

  U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.

  B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).

- Quantitation (Q) Qualifiers

  E The reported value is estimated due to the presence of interference.

  N Spiked sample recovery is not within control limits.

  * Duplicate analysis is not within control limits.

- Validation Qualifiers

  J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

  UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

  + Result may be biased high

  - Result may be biased low

  U Analyte considered non-detect at the listed value due to associated blank contamination.

  R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Suspended Solids By SM2540D	Water	7 days from collection to analysis	Cool to <6°C

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Laboratory Duplicate Analysis

Laboratory duplicate data are used to assess the precision of the analytical method. The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices.

The laboratory duplicate analysis performed on sample location COMT072012SW0102 exhibited RPD within the control limit.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate was not collected on a sample location within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR TSS

General Chemistry: SM2540D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Balance					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Lab Duplicate Precision (RPD)		X		X	
Field Duplicate (RPD)					X
Dilution Factor		X		X	
Moisture Content					X
Tier III Validation					
Raw Data		X		X	
Transcription/calculations acceptable		X		X	
Reporting limits adjusted to reflect sample dilutions		X		X	

%R - percent recovery, RPD - relative percent difference,

VALIDATION PERFORMED BY: Lyndi Mott

SIGNATURE:

DATE: September 11, 2012

PEER REVIEW: Dennis Capria

DATE: October 17, 2012

CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS

eurofins | Lancaster Laboratories

Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MCMT071812SW0102 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6727421
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 15:26 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSW SDG#: ESM29-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: MCMT071812SW0102 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6727421
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 15:26 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSW SDG#: ESM29-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MCMT071812SW0102 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6727421
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 15:26 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSW SDG#: ESM29-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0097	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0097	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0097	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0097	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0097	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0097	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0097	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0097	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0097	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0097	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0097	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0097	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0097	0.048		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0097	0.048		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0097	0.048		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MCMT071812SW0102 Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6727421
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 15:26 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSW SDG#: ESM29-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	30.0	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	19:29	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	19:29	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12203WAC026	07/25/2012	04:50	Jennifer R Riggs	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12203WAD026	07/24/2012	08:20	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12203WAC026	07/23/2012	10:00	Cynthia J Salvatori	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12203WAD026	07/23/2012	10:00	Cynthia J Salvatori	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	04:16	Elizabeth J Marin	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012	20:18	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012	16:15	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12203020601A	07/21/2012	07:48	Hannah M Royer	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: MCMT071812SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6727422
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 16:01 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSE SDG#: ESM29-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	N.D.	9	27		0.92
10237	Allyl Chloride	107-05-1	N.D.	1	7		0.92
10237	Benzene	71-43-2	N.D.	0.7	7		0.92
10237	Bromobenzene	108-86-1	N.D.	1	7		0.92
10237	Bromochloromethane	74-97-5	N.D.	1	7		0.92
10237	Bromodichloromethane	75-27-4	N.D.	1	7		0.92
10237	Bromoform	75-25-2	N.D.	1	7		0.92
10237	Bromomethane	74-83-9	N.D.	3	7		0.92
10237	2-Butanone	78-93-3	N.D.	5	14		0.92
10237	n-Butylbenzene	104-51-8	N.D.	1	7		0.92
10237	sec-Butylbenzene	135-98-8	N.D.	1	7		0.92
10237	tert-Butylbenzene	98-06-6	N.D.	1	7		0.92
10237	Carbon Tetrachloride	56-23-5	N.D.	1	7		0.92
10237	Chlorobenzene	108-90-7	N.D.	1	7		0.92
10237	Chloroethane	75-00-3	N.D.	3	7		0.92
10237	Chloroform	67-66-3	N.D.	1	7		0.92
10237	Chloromethane	74-87-3	N.D.	3	7		0.92
10237	2-Chlorotoluene	95-49-8	N.D.	1	7		0.92
10237	4-Chlorotoluene	106-43-4	N.D.	1	7		0.92
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	7		0.92
10237	Dibromochloromethane	124-48-1	N.D.	1	7		0.92
10237	1,2-Dibromoethane	106-93-4	N.D.	1	7		0.92
10237	Dibromomethane	74-95-3	N.D.	1	7		0.92
10237	1,2-Dichlorobenzene	95-50-1	N.D.	1	7		0.92
10237	1,3-Dichlorobenzene	541-73-1	N.D.	1	7		0.92
10237	1,4-Dichlorobenzene	106-46-7	N.D.	1	7		0.92
10237	Dichlorodifluoromethane	75-71-8	N.D. UJ-	3	7		0.92
10237	1,1-Dichloroethane	75-34-3	N.D.	1	7		0.92
10237	1,2-Dichloroethane	107-06-2	N.D.	1	7		0.92
10237	1,1-Dichloroethene	75-35-4	N.D.	1	7		0.92
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	1	7		0.92
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	1	7		0.92
10237	Dichlorofluoromethane	75-43-4	N.D. UJ-	3	7		0.92
10237	1,2-Dichloropropane	78-87-5	N.D.	1	7		0.92
10237	1,3-Dichloropropane	142-28-9	N.D.	1	7		0.92
10237	2,2-Dichloropropane	594-20-7	N.D.	1	7		0.92
10237	1,1-Dichloropropene	563-58-6	N.D.	1	7		0.92
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	1	7		0.92
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	1	7		0.92
10237	Ethyl Ether	60-29-7	N.D.	1	7		0.92
10237	Ethylbenzene	100-41-4	N.D.	1	7		0.92
10237	Freon 113	76-13-1	N.D.	3	14		0.92
10237	Hexachlorobutadiene	87-68-3	N.D.	3	7		0.92
10237	Isopropylbenzene	98-82-8	N.D.	1	7		0.92
10237	p-Isopropyltoluene	99-87-6	N.D.	1	7		0.92
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.7	7		0.92
10237	4-Methyl-2-pentanone	108-10-1	N.D.	4	14		0.92
10237	Methylene Chloride	75-09-2	N.D.	3	7		0.92
10237	n-Propylbenzene	103-65-1	N.D.	1	7		0.92
10237	Styrene	100-42-5	N.D.	1	7		0.92
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	1	7		0.92

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: MCMT071812SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6727422
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 16:01 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSE SDG#: ESM29-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	7		0.92
10237	Tetrachloroethene	127-18-4	N.D.	1	7		0.92
10237	Tetrahydrofuran	109-99-9	N.D.	5	7		0.92
10237	Toluene	108-88-3	N.D.	1	7		0.92
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	7		0.92
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	7		0.92
10237	1,1,1-Trichloroethane	71-55-6	N.D.	1	7		0.92
10237	1,1,2-Trichloroethane	79-00-5	N.D.	1	7		0.92
10237	Trichloroethene	79-01-6	N.D.	1	7		0.92
10237	Trichlorofluoromethane	75-69-4	N.D.	3	7		0.92
10237	1,2,3-Trichloropropane	96-18-4	N.D.	1	7		0.92
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	7		0.92
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	7		0.92
10237	Vinyl Chloride	75-01-4	N.D.	1	7		0.92
10237	Xylene (Total)	1330-20-7	N.D.	1	7		0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	73	150		1
10727	Butylbenzylphthalate	85-68-7	N.D.	290	730		1
10727	Di-n-butylphthalate	84-74-2	N.D.	290	730		1
10727	Carbazole	86-74-8	N.D.	73	150		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	73	150		1
10727	4-Chloroaniline	106-47-8	N.D.	73	150		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	73	150		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	73	150		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	73	150		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	31	150		1
10727	2-Chlorophenol	95-57-8	N.D.	73	150		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	73	150		1
10727	Dibenzofuran	132-64-9	N.D.	73	150		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	440	1,500		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	73	150		1
10727	Diethylphthalate	84-66-2	N.D.	290	730		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	73	150		1
10727	Dimethylphthalate	131-11-3	N.D.	290	730		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	730	2,200		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,300	4,400		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	290	730		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	73	150		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	73	150		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	290	750		1
10727	Hexachlorobenzene	118-74-1	N.D.	15	75		1
10727	Hexachlorobutadiene	87-68-3	N.D.	73	150		1
10727	Hexachloroethane	67-72-1	N.D.	150	730		1
10727	Isophorone	78-59-1	N.D.	73	150		1
10727	2-Methylphenol	95-48-7	N.D.	73	150		1
10727	4-Methylphenol	106-44-5	N.D.	73	150		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: MCMT071812SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6727422
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 16:01 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSE SDG#: ESM29-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		73	150		1
10727	3-Nitroaniline	99-09-2	N.D.		290	730		1
10727	4-Nitroaniline	100-01-6	N.D.		290	730		1
10727	Nitrobenzene	98-95-3	N.D.		73	150		1
10727	2-Nitrophenol	88-75-5	N.D.		73	150		1
10727	4-Nitrophenol	100-02-7	N.D.		730	2,200		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		290	730		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		73	150		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		73	150		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		290	730		1
10727	Pentachlorophenol	87-86-5	N.D.		150	750		1
10727	Phenol	108-95-2	N.D.		73	150		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		73	150		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		73	150		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		2.9	7.3		1
10722	Acenaphthylene	208-96-8	N.D.		1.5	7.3		1
10722	Anthracene	120-12-7	N.D.		1.5	7.3		1
10722	Benzo(a)anthracene	56-55-3	N.D.		2.9	7.3		1
10722	Benzo(a)pyrene	50-32-8	N.D.		2.9	7.3		1
10722	Benzo(b)fluoranthene	205-99-2	N.D.		2.9	7.3		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		2.9	7.3		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		2.9	7.3		1
10722	Chrysene	218-01-9	3.6	J	1.5	7.3		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		2.9	7.3		1
10722	Fluoranthene	206-44-0	4.8	J	2.9	7.3		1
10722	Fluorene	86-73-7	N.D.		2.9	7.3		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		2.9	7.3		1
10722	1-Methylnaphthalene	90-12-0	8.0		2.9	7.3		1
10722	2-Methylnaphthalene	91-57-6	13		2.9	7.3		1
10722	Naphthalene	91-20-3	7.5		2.9	7.3		1
10722	Phenanthrene	85-01-8	8.2		2.9	7.3		1
10722	Pyrene	129-00-0	5.9	J	2.9	7.3		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		3.40	6.80		46.32
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	UJ-	3.40	6.80		46.32
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.		3.40	6.80		46.32
05988	Total Purgeable Hydrocarbons	n.a.	N.D.		3.40	6.80		46.32

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: MCMT071812SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6727422
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/18/2012 16:01 by BL

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMSE SDG#: ESM29-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	220	220	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	1,780 J+	325	974		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	31.9	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122142AA	08/01/2012	22:14	Andrea E Lando	0.92
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220228253	07/20/2012	17:55	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220228253	07/20/2012	17:55	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220228253	07/20/2012	17:48	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12205SLA026	07/25/2012	12:18	Brian K Graham	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12213SLC026	08/01/2012	09:58	Mark A Clark	1
10809	BNA Soil Microwave	SW-846 3546	1	12205SLA026	07/23/2012	13:30	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	2	12213SLC026	07/31/2012	15:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	15:25	Nicholas R Rossi	46.32
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012	15:57	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220228253	07/20/2012	17:55	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012	03:00	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/26/2012	22:10	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12205820006B	07/23/2012	20:21	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: TB(071912) Water
S20113949 Laurel, MT

LLI Sample # WW 6727423
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMTB SDG#: ESM29-03TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	3.0 J	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.9	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: TB(071912) Water
S20113949 Laurel, MT

LLI Sample # WW 6727423
LLI Group # 1323422
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012

Submitted: 07/20/2012 09:25
Reported: 08/20/2012 08:48

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

MCMTB SDG#: ESM29-03TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122061AA	07/24/2012	19:51	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122061AA	07/24/2012	19:51	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54A	07/24/2012	04:58	Elizabeth J Marin	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1323422 Sample # 6727421-23

For Lancaster Laboratories use only

Instructions on reverse side correspond with circled numbers.

SCR#:

1 Client Information

Facility #/SID: Silver Tip PWS

Site Address: Laurel, Montana

ExxonMobil PM: Tom Hanson

Cost Center/AFE:

Consultant/Office: Arcadis-US 801 Corporate Center Drive Raleigh, NC 27607

Consultant PM: Steve Barrick

Consultant Phone #: 919-415-2287

Sampler: Brian Lovgren

4 Matrix: Soil ☐ Sediment ☒ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☒ Oil ☐ Air ☐

5 Analyses Requested / Preservation Code

Preservation Codes: H = HCl, N = HNO_3, S = H_2SO_4, T = Thiosulfate, B = NaOH, O = Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	SIM PAH's, TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOC's (8260)	VPH/GRO	MT EPH Screen (H)	SIM PAH's/SVOC's TCL 8270	VOC's (8260) 25ml purge (H)	VPH/GRO (H)	TSS	Remarks
MCMT071812SW0102	7-18-12	1526	✓		12						2	3	3	3	1	
MCMT071812SE0102	7-18-12	1601	✓		10	1	✓	1	4	4						
TB(071912)	7-19-12	NIR			4							~~2~~	2	2		KAK/SSS pH vials and

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)

Type I - Full
Type VI (Raw Data)
NJ Reduced
Other

EDD (circle if required)

Locus EIM (default)
Other

Relinquished by	Date	Time	Received by	Date	Time
23= Z Brian Lovgren	7-19-12	1000	FedEx	7-19-12	1000

9

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Received by: Ryan Bair — Date: 7/20/12 — Time: 0925

Temperature Upon Receipt 1.6 °C

Custody Seals Intact? Yes No

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Analysis Report

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Sample Description: SIMT071912SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728884
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 10:48 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

WT101 SDG#: ESM30-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	3.8 J	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: SIMT071912SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728884
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 10:48 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

WT101 SDG#: ESM30-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		ug/l	ug/l	ug/l	ug/l	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D. UJ-	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: SIMT071912SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728884
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 10:48 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

WT101 SDG#: ESM30-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0098	0.049		1
08357	Acenaphthylene	208-96-8	N.D.	0.0098	0.049		1
08357	Anthracene	120-12-7	N.D.	0.0098	0.049		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0098	0.049		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0098	0.049		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0098	0.049		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0098	0.049		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0098	0.049		1
08357	Chrysene	218-01-9	N.D.	0.0098	0.049		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0098	0.049		1
08357	Fluoranthene	206-44-0	N.D.	0.0098	0.049		1
08357	Fluorene	86-73-7	N.D.	0.0098	0.049		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0098	0.049		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0098	0.049		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0098	0.049		1
08357	Naphthalene	91-20-3	0.030 J	0.029	0.049		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.049		1
08357	Pyrene	129-00-0	N.D.	0.0098	0.049		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: SIMT071912SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728884
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 10:48 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

WT101 SDG#: ESM30-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	149	5.0	20.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122082AA	07/27/2012	03:38	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122082AA	07/27/2012	03:38	Kevin A Sposito	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12205WAD026	07/25/2012	22:00	Holly Berry	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12205WAE026	07/24/2012	08:51	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12205WAD026	07/23/2012	22:00	Elaine F Stoltzfus	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12205WAE026	07/23/2012	22:00	Elaine F Stoltzfus	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	17:35	Marie D John	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012	20:39	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012	16:15	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12207020601B	07/25/2012	09:58	Hannah M Royer	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

REVISED

Sample Description: SIMT071912SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728885
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 11:16 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE101 SDG#: ESM30-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	N.D.	11	30		0.97
10237	Allyl Chloride	107-05-1	N.D.	2	8		0.97
10237	Benzene	71-43-2	N.D.	0.8	8		0.97
10237	Bromobenzene	108-86-1	N.D.	2	8		0.97
10237	Bromochloromethane	74-97-5	N.D.	2	8		0.97
10237	Bromodichloromethane	75-27-4	N.D.	2	8		0.97
10237	Bromoform	75-25-2	N.D.	2	8		0.97
10237	Bromomethane	74-83-9	N.D.	3	8		0.97
10237	2-Butanone	78-93-3	N.D.	6	15		0.97
10237	n-Butylbenzene	104-51-8	N.D.	2	8		0.97
10237	sec-Butylbenzene	135-98-8	N.D.	2	8		0.97
10237	tert-Butylbenzene	98-06-6	N.D.	2	8		0.97
10237	Carbon Tetrachloride	56-23-5	N.D.	2	8		0.97
10237	Chlorobenzene	108-90-7	N.D.	2	8		0.97
10237	Chloroethane	75-00-3	N.D.	3	8		0.97
10237	Chloroform	67-66-3	N.D.	2	8		0.97
10237	Chloromethane	74-87-3	N.D.	3	8		0.97
10237	2-Chlorotoluene	95-49-8	N.D.	2	8		0.97
10237	4-Chlorotoluene	106-43-4	N.D.	2	8		0.97
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	8		0.97
10237	Dibromochloromethane	124-48-1	N.D.	2	8		0.97
10237	1,2-Dibromoethane	106-93-4	N.D.	2	8		0.97
10237	Dibromomethane	74-95-3	N.D.	2	8		0.97
10237	1,2-Dichlorobenzene	95-50-1	N.D.	2	8		0.97
10237	1,3-Dichlorobenzene	541-73-1	N.D.	2	8		0.97
10237	1,4-Dichlorobenzene	106-46-7	N.D.	2	8		0.97
10237	Dichlorodifluoromethane	75-71-8	N.D. UJ-	3	8		0.97
10237	1,1-Dichloroethane	75-34-3	N.D.	2	8		0.97
10237	1,2-Dichloroethane	107-06-2	N.D.	2	8		0.97
10237	1,1-Dichloroethene	75-35-4	N.D.	2	8		0.97
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	2	8		0.97
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	2	8		0.97
10237	Dichlorofluoromethane	75-43-4	N.D. UJ-	3	8		0.97
10237	1,2-Dichloropropane	78-87-5	N.D.	2	8		0.97
10237	1,3-Dichloropropane	142-28-9	N.D.	2	8		0.97
10237	2,2-Dichloropropane	594-20-7	N.D.	2	8		0.97
10237	1,1-Dichloropropene	563-58-6	N.D.	2	8		0.97
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	2	8		0.97
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	2	8		0.97
10237	Ethyl Ether	60-29-7	N.D.	2	8		0.97
10237	Ethylbenzene	100-41-4	N.D.	2	8		0.97
10237	Freon 113	76-13-1	N.D.	3	15		0.97
10237	Hexachlorobutadiene	87-68-3	N.D.	3	8		0.97
10237	Isopropylbenzene	98-82-8	N.D.	2	8		0.97
10237	p-Isopropyltoluene	99-87-6	N.D.	2	8		0.97
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.8	8		0.97
10237	4-Methyl-2-pentanone	108-10-1	N.D.	5	15		0.97
10237	Methylene Chloride	75-09-2	N.D.	3	8		0.97
10237	n-Propylbenzene	103-65-1	N.D.	2	8		0.97
10237	Styrene	100-42-5	N.D.	2	8		0.97
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	2	8		0.97

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: SIMT071912SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728885
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 11:16 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE101 SDG#: ESM30-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	8		0.97
10237	Tetrachloroethene	127-18-4	N.D.	2	8		0.97
10237	Tetrahydrofuran	109-99-9	N.D.	6	8		0.97
10237	Toluene	108-88-3	N.D.	2	8		0.97
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	8		0.97
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	8		0.97
10237	1,1,1-Trichloroethane	71-55-6	N.D.	2	8		0.97
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	8		0.97
10237	Trichloroethene	79-01-6	N.D.	2	8		0.97
10237	Trichlorofluoromethane	75-69-4	N.D.	3	8		0.97
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	8		0.97
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	8		0.97
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	8		0.97
10237	Vinyl Chloride	75-01-4	N.D.	2	8		0.97
10237	Xylene (Total)	1330-20-7	N.D.	2	8		0.97
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	78	160		1
10727	Butylbenzylphthalate	85-68-7	N.D.	310	780		1
10727	Di-n-butylphthalate	84-74-2	N.D.	310	780		1
10727	Carbazole	86-74-8	N.D.	78	160		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	78	160		1
10727	4-Chloroaniline	106-47-8	N.D.	78	160		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	78	160		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	78	160		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	78	160		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	33	160		1
10727	2-Chlorophenol	95-57-8	N.D.	78	160		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	78	160		1
10727	Dibenzofuran	132-64-9	N.D.	78	160		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	470	1,600		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	78	160		1
10727	Diethylphthalate	84-66-2	N.D.	310	780		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	78	160		1
10727	Dimethylphthalate	131-11-3	N.D.	310	780		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	780	2,400		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,400	4,700		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	310	780		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	78	160		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	78	160		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	310	800		1
10727	Hexachlorobenzene	118-74-1	N.D.	16	80		1
10727	Hexachlorobutadiene	87-68-3	N.D.	78	160		1
10727	Hexachloroethane	67-72-1	N.D.	160	780		1
10727	Isophorone	78-59-1	N.D.	78	160		1
10727	2-Methylphenol	95-48-7	N.D.	78	160		1
10727	4-Methylphenol	106-44-5	N.D.	78	160		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: SIMT071912SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728885
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 11:16 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE101 SDG#: ESM30-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		78	160		1
10727	3-Nitroaniline	99-09-2	N.D.		310	780		1
10727	4-Nitroaniline	100-01-6	N.D.		310	780		1
10727	Nitrobenzene	98-95-3	N.D.		78	160		1
10727	2-Nitrophenol	88-75-5	N.D.		78	160		1
10727	4-Nitrophenol	100-02-7	N.D.		780	2,400		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		310	780		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		78	160		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		78	160		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		310	780		1
10727	Pentachlorophenol	87-86-5	N.D.		160	800		1
10727	Phenol	108-95-2	N.D.		78	160		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		78	160		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		78	160		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		3.1	7.8		1
10722	Acenaphthylene	208-96-8	N.D.		1.6	7.8		1
10722	Anthracene	120-12-7	N.D.		1.6	7.8		1
10722	Benzo(a)anthracene	56-55-3	N.D.		3.1	7.8		1
10722	Benzo(a)pyrene	50-32-8	N.D.		3.1	7.8		1
10722	Benzo(b)fluoranthene	205-99-2	8.1		3.1	7.8		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		3.1	7.8		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		3.1	7.8		1
10722	Chrysene	218-01-9	3.3	J	1.6	7.8		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.1	7.8		1
10722	Fluoranthene	206-44-0	3.4	J	3.1	7.8		1
10722	Fluorene	86-73-7	N.D.		3.1	7.8		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		3.1	7.8		1
10722	1-Methylnaphthalene	90-12-0	N.D.		3.1	7.8		1
10722	2-Methylnaphthalene	91-57-6	3.2	J	3.1	7.8		1
10722	Naphthalene	91-20-3	N.D.		3.1	7.8		1
10722	Phenanthrene	85-01-8	3.2	J	3.1	7.8		1
10722	Pyrene	129-00-0	3.9	J	3.1	7.8		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		3.64	7.28		46.47
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	UJ-	3.64	7.28		46.47
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.		3.64	7.28		46.47
05988	Total Purgeable Hydrocarbons	n.a.	N.D.		3.64	7.28		46.47

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: SIMT071912SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728885
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 11:16 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE101 SDG#: ESM30-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	240	240	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	3,550	755	2,270		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	36.2	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012 19:05	Andrea E Lando	0.97
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220328261	07/21/2012 13:16	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220328261	07/21/2012 13:16	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220328261	07/21/2012 12:50	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012 00:40	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012 20:12	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012 14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012 14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012 16:06	Nicholas R Rossi	46.47
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012 17:00	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220328261	07/21/2012 12:50	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012 03:00	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/24/2012 22:01	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12208820005A	07/26/2012 19:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

REVISED

Sample Description: SIMT071912SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728886
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 12:21 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE102 SDG#: ESM30-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	22	J+	14	41		1.2
10237	Allyl Chloride	107-05-1	N.D.		2	10		1.2
10237	Benzene	71-43-2	N.D.		1	10		1.2
10237	Bromobenzene	108-86-1	N.D.		2	10		1.2
10237	Bromochloromethane	74-97-5	N.D.		2	10		1.2
10237	Bromodichloromethane	75-27-4	N.D.		2	10		1.2
10237	Bromoform	75-25-2	N.D.		2	10		1.2
10237	Bromomethane	74-83-9	N.D.		4	10		1.2
10237	2-Butanone	78-93-3	N.D.		8	21		1.2
10237	n-Butylbenzene	104-51-8	N.D.		2	10		1.2
10237	sec-Butylbenzene	135-98-8	N.D.		2	10		1.2
10237	tert-Butylbenzene	98-06-6	N.D.		2	10		1.2
10237	Carbon Tetrachloride	56-23-5	N.D.		2	10		1.2
10237	Chlorobenzene	108-90-7	N.D.		2	10		1.2
10237	Chloroethane	75-00-3	N.D.		4	10		1.2
10237	Chloroform	67-66-3	N.D.		2	10		1.2
10237	Chloromethane	74-87-3	N.D.		4	10		1.2
10237	2-Chlorotoluene	95-49-8	N.D.		2	10		1.2
10237	4-Chlorotoluene	106-43-4	N.D.		2	10		1.2
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		4	10		1.2
10237	Dibromochloromethane	124-48-1	N.D.		2	10		1.2
10237	1,2-Dibromoethane	106-93-4	N.D.		2	10		1.2
10237	Dibromomethane	74-95-3	N.D.		2	10		1.2
10237	1,2-Dichlorobenzene	95-50-1	N.D.		2	10		1.2
10237	1,3-Dichlorobenzene	541-73-1	N.D.		2	10		1.2
10237	1,4-Dichlorobenzene	106-46-7	N.D.		2	10		1.2
10237	Dichlorodifluoromethane	75-71-8	N.D.	UJ-	4	10		1.2
10237	1,1-Dichloroethane	75-34-3	N.D.		2	10		1.2
10237	1,2-Dichloroethane	107-06-2	N.D.		2	10		1.2
10237	1,1-Dichloroethene	75-35-4	N.D.		2	10		1.2
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		2	10		1.2
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		2	10		1.2
10237	Dichlorofluoromethane	75-43-4	N.D.	UJ-	4	10		1.2
10237	1,2-Dichloropropane	78-87-5	N.D.		2	10		1.2
10237	1,3-Dichloropropane	142-28-9	N.D.		2	10		1.2
10237	2,2-Dichloropropane	594-20-7	N.D.		2	10		1.2
10237	1,1-Dichloropropene	563-58-6	N.D.		2	10		1.2
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		2	10		1.2
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		2	10		1.2
10237	Ethyl Ether	60-29-7	N.D.		2	10		1.2
10237	Ethylbenzene	100-41-4	13		2	10		1.2
10237	Freon 113	76-13-1	N.D.		4	21		1.2
10237	Hexachlorobutadiene	87-68-3	N.D.		4	10		1.2
10237	Isopropylbenzene	98-82-8	N.D.		2	10		1.2
10237	p-Isopropyltoluene	99-87-6	N.D.		2	10		1.2
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		1	10		1.2
10237	4-Methyl-2-pentanone	108-10-1	N.D.		6	21		1.2
10237	Methylene Chloride	75-09-2	N.D.		4	10		1.2
10237	n-Propylbenzene	103-65-1	3	J	2	10		1.2
10237	Styrene	100-42-5	N.D.		2	10		1.2
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		2	10		1.2

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: SIMT071912SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728886
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 12:21 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE102 SDG#: ESM30-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	10		1.2
10237	Tetrachloroethene	127-18-4	N.D.	2	10		1.2
10237	Tetrahydrofuran	109-99-9	N.D.	8	10		1.2
10237	Toluene	108-88-3	4,900 D	200	1,000		117.1
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	10		1.2
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	10		1.2
10237	1,1,1-Trichloroethane	71-55-6	N.D.	2	10		1.2
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	10		1.2
10237	Trichloroethene	79-01-6	N.D.	2	10		1.2
10237	Trichlorofluoromethane	75-69-4	N.D.	4	10		1.2
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	10		1.2
10237	1,2,4-Trimethylbenzene	95-63-6	22	2	10		1.2
10237	1,3,5-Trimethylbenzene	108-67-8	7 J	2	10		1.2
10237	Vinyl Chloride	75-01-4	N.D.	2	10		1.2
10237	Xylene (Total)	1330-20-7	98	2	10		1.2

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	86	170		1
10727	Butylbenzylphthalate	85-68-7	N.D.	340	860		1
10727	Di-n-butylphthalate	84-74-2	N.D.	340	860		1
10727	Carbazole	86-74-8	N.D.	86	170		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	86	170		1
10727	4-Chloroaniline	106-47-8	N.D.	86	170		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	86	170		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	86	170		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	86	170		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	36	170		1
10727	2-Chlorophenol	95-57-8	N.D.	86	170		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	86	170		1
10727	Dibenzofuran	132-64-9	N.D.	86	170		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	510	1,700		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	86	170		1
10727	Diethylphthalate	84-66-2	N.D.	340	860		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	86	170		1
10727	Dimethylphthalate	131-11-3	N.D.	340	860		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	860	2,600		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,500	5,100		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	340	860		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	86	170		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	86	170		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	340	870		1
10727	Hexachlorobenzene	118-74-1	N.D.	17	87		1
10727	Hexachlorobutadiene	87-68-3	N.D.	86	170		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: SIMT071912SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728886
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 12:21 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE102 SDG#: ESM30-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		170	860		1
10727	Isophorone	78-59-1	N.D.		86	170		1
10727	2-Methylphenol	95-48-7	N.D.		86	170		1
10727	4-Methylphenol	106-44-5	N.D.		86	170		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		86	170		1
10727	3-Nitroaniline	99-09-2	N.D.		340	860		1
10727	4-Nitroaniline	100-01-6	N.D.		340	860		1
10727	Nitrobenzene	98-95-3	N.D.		86	170		1
10727	2-Nitrophenol	88-75-5	N.D.		86	170		1
10727	4-Nitrophenol	100-02-7	N.D.		860	2,600		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		340	860		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		86	170		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		86	170		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		340	860		1
10727	Pentachlorophenol	87-86-5	N.D.		170	870		1
10727	Phenol	108-95-2	N.D.		86	170		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		86	170		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		86	170		1
Reporting limits were raised due to interference from the sample matrix.								
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	3.6	J	3.4	8.6		1
10722	Acenaphthylene	208-96-8	N.D.		1.7	8.6		1
10722	Anthracene	120-12-7	3.0	J	1.7	8.6		1
10722	Benzo(a)anthracene	56-55-3	3.5	J	3.4	8.6		1
10722	Benzo(a)pyrene	50-32-8	3.8	J	3.4	8.6		1
10722	Benzo(b)fluoranthene	205-99-2	11		3.4	8.6		1
10722	Benzo(g,h,i)perylene	191-24-2	5.1	J	3.4	8.6		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		3.4	8.6		1
10722	Chrysene	218-01-9	7.2	J	1.7	8.6		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.4	8.6		1
10722	Fluoranthene	206-44-0	13		3.4	8.6		1
10722	Fluorene	86-73-7	7.0	J	3.4	8.6		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	3.9	J	3.4	8.6		1
10722	1-Methylnaphthalene	90-12-0	6.3	J	3.4	8.6		1
10722	2-Methylnaphthalene	91-57-6	8.4	J	3.4	8.6		1
10722	Naphthalene	91-20-3	15		3.4	8.6		1
10722	Phenanthrene	85-01-8	24		3.4	8.6		1
10722	Pyrene	129-00-0	12		3.4	8.6		1
Reporting limits were raised due to interference from the sample matrix.								
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	7.20	J -	5.50	11.0		64.27

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Analysis Report

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REVISED

Sample Description: SIMT071912SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728886
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 12:21 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE102 SDG#: ESM30-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D. UJ-	5.50	11.0		64.27
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D. UJ-	5.50	11.0		64.27
05988	Total Purgeable Hydrocarbons	n.a.	7.20 J-	5.50	11.0		64.27
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	260	260	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	10,100	491	1,470		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	41.6	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	19:28	Andrea E Lando	1.2
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	R122151AA	08/02/2012	15:32	Lauren C Temple	117.1
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220328261	07/21/2012	13:16	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220328261	07/21/2012	13:16	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220328261	07/21/2012	13:00	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012	01:48	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012	17:03	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012	14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012	14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	16:48	Nicholas R Rossi	64.27
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012	17:21	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220328261	07/21/2012	12:59	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012	03:00	Sherry L Morrow	1

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Analysis Report

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REVISED

Sample Description: SIMT071912SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728886
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 12:21 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE102 SDG#: ESM30-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/24/2012 22:16	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12208820005A	07/26/2012 19:24	Scott W Freisher	1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: GLMT071912SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728887
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 14:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W-102 SDG#: ESM30-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

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Analysis Report

Sample Description: GLMT071912SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728887
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 14:51 by BL

Submitted: 07/21/2012 09:25
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ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W-102 SDG#: ESM30-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D. UJ-	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	14		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: GLMT071912SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728887
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 14:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W-102 SDG#: ESM30-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0096	0.048		1
08357	Acenaphthylene	208-96-8	N.D.	0.0096	0.048		1
08357	Anthracene	120-12-7	N.D.	0.0096	0.048		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0096	0.048		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0096	0.048		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0096	0.048		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0096	0.048		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0096	0.048		1
08357	Chrysene	218-01-9	N.D.	0.0096	0.048		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0096	0.048		1
08357	Fluoranthene	206-44-0	N.D.	0.0096	0.048		1
08357	Fluorene	86-73-7	N.D.	0.0096	0.048		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0096	0.048		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0096	0.048		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0096	0.048		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.048		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.048		1
08357	Pyrene	129-00-0	N.D.	0.0096	0.048		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: GLMT071912SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728887
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 14:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

W-102 SDG#: ESM30-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	74.5	3.8	15.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122082AA	07/27/2012	04:00	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122082AA	07/27/2012	04:00	Kevin A Sposito	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12205WAD026	07/25/2012	22:45	Holly Berry	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12205WAE026	07/24/2012	09:22	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12205WAD026	07/23/2012	22:00	Elaine F Stoltzfus	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12205WAE026	07/23/2012	22:00	Elaine F Stoltzfus	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	18:17	Marie D John	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012	21:00	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012	16:15	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12207020601B	07/25/2012	09:58	Hannah M Royer	1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: GLMT071912SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728888
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 15:01 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE103 SDG#: ESM30-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	ug/kg	
10237	Acetone	67-64-1	N.D.	10	29		0.95
10237	Allyl Chloride	107-05-1	N.D.	1	7		0.95
10237	Benzene	71-43-2	N.D.	0.7	7		0.95
10237	Bromobenzene	108-86-1	N.D.	1	7		0.95
10237	Bromochloromethane	74-97-5	N.D.	1	7		0.95
10237	Bromodichloromethane	75-27-4	N.D.	1	7		0.95
10237	Bromoform	75-25-2	N.D.	1	7		0.95
10237	Bromomethane	74-83-9	N.D.	3	7		0.95
10237	2-Butanone	78-93-3	N.D.	6	15		0.95
10237	n-Butylbenzene	104-51-8	N.D.	1	7		0.95
10237	sec-Butylbenzene	135-98-8	N.D.	1	7		0.95
10237	tert-Butylbenzene	98-06-6	N.D.	1	7		0.95
10237	Carbon Tetrachloride	56-23-5	N.D.	1	7		0.95
10237	Chlorobenzene	108-90-7	N.D.	1	7		0.95
10237	Chloroethane	75-00-3	N.D.	3	7		0.95
10237	Chloroform	67-66-3	N.D.	1	7		0.95
10237	Chloromethane	74-87-3	N.D.	3	7		0.95
10237	2-Chlorotoluene	95-49-8	N.D.	1	7		0.95
10237	4-Chlorotoluene	106-43-4	N.D.	1	7		0.95
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	7		0.95
10237	Dibromochloromethane	124-48-1	N.D.	1	7		0.95
10237	1,2-Dibromoethane	106-93-4	N.D.	1	7		0.95
10237	Dibromomethane	74-95-3	N.D.	1	7		0.95
10237	1,2-Dichlorobenzene	95-50-1	N.D.	1	7		0.95
10237	1,3-Dichlorobenzene	541-73-1	N.D.	1	7		0.95
10237	1,4-Dichlorobenzene	106-46-7	N.D.	1	7		0.95
10237	Dichlorodifluoromethane	75-71-8	N.D. UJ-	3	7		0.95
10237	1,1-Dichloroethane	75-34-3	N.D.	1	7		0.95
10237	1,2-Dichloroethane	107-06-2	N.D.	1	7		0.95
10237	1,1-Dichloroethene	75-35-4	N.D.	1	7		0.95
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	1	7		0.95
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	1	7		0.95
10237	Dichlorofluoromethane	75-43-4	N.D. UJ-	3	7		0.95
10237	1,2-Dichloropropane	78-87-5	N.D.	1	7		0.95
10237	1,3-Dichloropropane	142-28-9	N.D.	1	7		0.95
10237	2,2-Dichloropropane	594-20-7	N.D.	1	7		0.95
10237	1,1-Dichloropropene	563-58-6	N.D.	1	7		0.95
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	1	7		0.95
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	1	7		0.95
10237	Ethyl Ether	60-29-7	N.D.	1	7		0.95
10237	Ethylbenzene	100-41-4	N.D.	1	7		0.95
10237	Freon 113	76-13-1	N.D.	3	15		0.95
10237	Hexachlorobutadiene	87-68-3	N.D.	3	7		0.95
10237	Isopropylbenzene	98-82-8	N.D.	1	7		0.95
10237	p-Isopropyltoluene	99-87-6	N.D.	1	7		0.95
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.7	7		0.95
10237	4-Methyl-2-pentanone	108-10-1	N.D.	4	15		0.95
10237	Methylene Chloride	75-09-2	N.D.	3	7		0.95
10237	n-Propylbenzene	103-65-1	N.D.	1	7		0.95
10237	Styrene	100-42-5	N.D.	1	7		0.95
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	1	7		0.95

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: GLMT071912SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728888
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 15:01 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE103 SDG#: ESM30-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	1	7		0.95
10237	Tetrachloroethene	127-18-4	N.D.	1	7		0.95
10237	Tetrahydrofuran	109-99-9	N.D.	6	7		0.95
10237	Toluene	108-88-3	N.D.	1	7		0.95
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	1	7		0.95
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	1	7		0.95
10237	1,1,1-Trichloroethane	71-55-6	N.D.	1	7		0.95
10237	1,1,2-Trichloroethane	79-00-5	N.D.	1	7		0.95
10237	Trichloroethene	79-01-6	N.D.	1	7		0.95
10237	Trichlorofluoromethane	75-69-4	N.D.	3	7		0.95
10237	1,2,3-Trichloropropane	96-18-4	N.D.	1	7		0.95
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	7		0.95
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	7		0.95
10237	Vinyl Chloride	75-01-4	N.D.	1	7		0.95
10237	Xylene (Total)	1330-20-7	N.D.	1	7		0.95
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	78	160		1
10727	Butylbenzylphthalate	85-68-7	N.D.	310	780		1
10727	Di-n-butylphthalate	84-74-2	N.D.	310	780		1
10727	Carbazole	86-74-8	N.D.	78	160		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	78	160		1
10727	4-Chloroaniline	106-47-8	N.D.	78	160		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	78	160		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	78	160		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	78	160		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	33	150		1
10727	2-Chlorophenol	95-57-8	N.D.	78	160		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	78	160		1
10727	Dibenzofuran	132-64-9	N.D.	78	160		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	470	1,600		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	78	160		1
10727	Diethylphthalate	84-66-2	N.D.	310	780		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	78	160		1
10727	Dimethylphthalate	131-11-3	N.D.	310	780		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	780	2,300		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,400	4,700		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	310	780		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	78	160		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	78	160		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	310	790		1
10727	Hexachlorobenzene	118-74-1	N.D.	16	79		1
10727	Hexachlorobutadiene	87-68-3	N.D.	78	160		1
10727	Hexachloroethane	67-72-1	N.D.	160	780		1
10727	Isophorone	78-59-1	N.D.	78	160		1
10727	2-Methylphenol	95-48-7	N.D.	78	160		1
10727	4-Methylphenol	106-44-5	N.D.	78	160		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: GLMT071912SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728888
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 15:01 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE103 SDG#: ESM30-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		78	160		1
10727	3-Nitroaniline	99-09-2	N.D.		310	780		1
10727	4-Nitroaniline	100-01-6	N.D.		310	780		1
10727	Nitrobenzene	98-95-3	N.D.		78	160		1
10727	2-Nitrophenol	88-75-5	N.D.		78	160		1
10727	4-Nitrophenol	100-02-7	N.D.		780	2,300		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		310	780		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		78	160		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		78	160		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		310	780		1
10727	Pentachlorophenol	87-86-5	N.D.		160	790		1
10727	Phenol	108-95-2	N.D.		78	160		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		78	160		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		78	160		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		3.1	7.8		1
10722	Acenaphthylene	208-96-8	N.D.		1.6	7.8		1
10722	Anthracene	120-12-7	N.D.		1.6	7.8		1
10722	Benzo(a)anthracene	56-55-3	N.D.		3.1	7.8		1
10722	Benzo(a)pyrene	50-32-8	N.D.		3.1	7.8		1
10722	Benzo(b)fluoranthene	205-99-2	9.3		3.1	7.8		1
10722	Benzo(g,h,i)perylene	191-24-2	4.6	J	3.1	7.8		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		3.1	7.8		1
10722	Chrysene	218-01-9	5.2	J	1.6	7.8		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.1	7.8		1
10722	Fluoranthene	206-44-0	4.3	J	3.1	7.8		1
10722	Fluorene	86-73-7	N.D.		3.1	7.8		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	3.4	J	3.1	7.8		1
10722	1-Methylnaphthalene	90-12-0	3.6	J	3.1	7.8		1
10722	2-Methylnaphthalene	91-57-6	4.2	J	3.1	7.8		1
10722	Naphthalene	91-20-3	3.2	J	3.1	7.8		1
10722	Phenanthrene	85-01-8	3.7	J	3.1	7.8		1
10722	Pyrene	129-00-0	5.0	J	3.1	7.8		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		4.12	8.24		52.93
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.		4.12	8.24		52.93
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.		4.12	8.24		52.93
05988	Total Purgeable Hydrocarbons	n.a.	N.D.		4.12	8.24		52.93

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: GLMT071912SE0103 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728888
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 15:01 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

SE103 SDG#: ESM30-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	230	230	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	4,280	470	1,410		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	35.8	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012 19:50	Andrea E Lando	0.95
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220328261	07/21/2012 13:16	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220328261	07/21/2012 13:16	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220328261	07/21/2012 13:05	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012 02:10	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012 17:34	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012 14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012 14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012 17:29	Nicholas R Rossi	52.93
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012 17:42	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220328261	07/21/2012 13:04	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012 03:00	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/24/2012 22:37	James S Mathiot	1
00111	Moisture	SM20 2540 G	1	12208820005A	07/26/2012 19:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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REVISED

Sample Description: EBSW(071912) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728889
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:00 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBW19 SDG#: ESM30-06EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

REVISED

Sample Description: EBSW(071912) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728889
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:00 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBW19 SDG#: ESM30-06EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122082AA	07/27/2012	04:23	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122082AA	07/27/2012	04:23	Kevin A Sposito	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	18:58	Marie D John	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: EBSE(071912) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728890
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:15 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS19 SDG#: ESM30-07EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.2	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: EBSE(071912) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728890
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:15 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS19 SDG#: ESM30-07EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.UJ-	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	30		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: EBSE(071912) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728890
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:15 by BL

Submitted: 07/21/2012 09:25
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ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS19 SDG#: ESM30-07EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	30		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0099	0.050		1
08357	Acenaphthylene	208-96-8	N.D.	0.0099	0.050		1
08357	Anthracene	120-12-7	N.D.	0.0099	0.050		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0099	0.050		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0099	0.050		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0099	0.050		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0099	0.050		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0099	0.050		1
08357	Chrysene	218-01-9	N.D.	0.0099	0.050		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0099	0.050		1
08357	Fluoranthene	206-44-0	N.D.	0.0099	0.050		1
08357	Fluorene	86-73-7	N.D.	0.0099	0.050		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0099	0.050		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0099	0.050		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0099	0.050		1
08357	Naphthalene	91-20-3	N.D.	0.030	0.050		1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.050		1
08357	Pyrene	129-00-0	N.D.	0.0099	0.050		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

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Analysis Report

Sample Description: EBSE(071912) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728890
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:15 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS19 SDG#: ESM30-07EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122082AA	07/27/2012 04:45	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122082AA	07/27/2012 04:45	Kevin A Sposito	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12205WAD026	07/25/2012 23:08	Holly Berry	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12205WAE026	07/24/2012 09:54	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12205WAD026	07/23/2012 22:00	Elaine F Stoltzfus	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12205WAE026	07/23/2012 22:00	Elaine F Stoltzfus	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012 19:40	Marie D John	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012 21:42	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012 16:15	JoElla L Rice	1

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Analysis Report

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REVISED

Sample Description: GLMT071912SE0104 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728891
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:40 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

G0104 SDG#: ESM30-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	32 J+	21	59		1.37
10237	Allyl Chloride	107-05-1	N.D.	3	15		1.37
10237	Benzene	71-43-2	N.D.	1	15		1.37
10237	Bromobenzene	108-86-1	N.D.	3	15		1.37
10237	Bromochloromethane	74-97-5	N.D.	3	15		1.37
10237	Bromodichloromethane	75-27-4	N.D.	3	15		1.37
10237	Bromoform	75-25-2	N.D.	3	15		1.37
10237	Bromomethane	74-83-9	N.D.	6	15		1.37
10237	2-Butanone	78-93-3	N.D.	12	29		1.37
10237	n-Butylbenzene	104-51-8	N.D.	3	15		1.37
10237	sec-Butylbenzene	135-98-8	N.D.	3	15		1.37
10237	tert-Butylbenzene	98-06-6	N.D.	3	15		1.37
10237	Carbon Tetrachloride	56-23-5	N.D.	3	15		1.37
10237	Chlorobenzene	108-90-7	N.D.	3	15		1.37
10237	Chloroethane	75-00-3	N.D.	6	15		1.37
10237	Chloroform	67-66-3	N.D.	3	15		1.37
10237	Chloromethane	74-87-3	N.D.	6	15		1.37
10237	2-Chlorotoluene	95-49-8	N.D.	3	15		1.37
10237	4-Chlorotoluene	106-43-4	N.D.	3	15		1.37
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	6	15		1.37
10237	Dibromochloromethane	124-48-1	N.D.	3	15		1.37
10237	1,2-Dibromoethane	106-93-4	N.D.	3	15		1.37
10237	Dibromomethane	74-95-3	N.D.	3	15		1.37
10237	1,2-Dichlorobenzene	95-50-1	N.D.	3	15		1.37
10237	1,3-Dichlorobenzene	541-73-1	N.D.	3	15		1.37
10237	1,4-Dichlorobenzene	106-46-7	N.D.	3	15		1.37
10237	Dichlorodifluoromethane	75-71-8	N.D. UJ-	6	15		1.37
10237	1,1-Dichloroethane	75-34-3	N.D.	3	15		1.37
10237	1,2-Dichloroethane	107-06-2	N.D.	3	15		1.37
10237	1,1-Dichloroethene	75-35-4	N.D.	3	15		1.37
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	3	15		1.37
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	3	15		1.37
10237	Dichlorofluoromethane	75-43-4	N.D. UJ-	6	15		1.37
10237	1,2-Dichloropropane	78-87-5	N.D.	3	15		1.37
10237	1,3-Dichloropropane	142-28-9	N.D.	3	15		1.37
10237	2,2-Dichloropropane	594-20-7	N.D.	3	15		1.37
10237	1,1-Dichloropropene	563-58-6	N.D.	3	15		1.37
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	3	15		1.37
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	3	15		1.37
10237	Ethyl Ether	60-29-7	N.D.	3	15		1.37
10237	Ethylbenzene	100-41-4	N.D.	3	15		1.37
10237	Freon 113	76-13-1	N.D.	6	29		1.37
10237	Hexachlorobutadiene	87-68-3	N.D.	6	15		1.37
10237	Isopropylbenzene	98-82-8	N.D.	3	15		1.37
10237	p-Isopropyltoluene	99-87-6	N.D.	3	15		1.37
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	15		1.37
10237	4-Methyl-2-pentanone	108-10-1	N.D.	9	29		1.37
10237	Methylene Chloride	75-09-2	N.D.	6	15		1.37
10237	n-Propylbenzene	103-65-1	N.D.	3	15		1.37
10237	Styrene	100-42-5	N.D.	3	15		1.37
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	3	15		1.37

*=This limit was used in the evaluation of the final result
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Analysis Report

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Sample Description: GLMT071912SE0104 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728891
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:40 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

G0104 SDG#: ESM30-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	3	15		1.37
10237	Tetrachloroethene	127-18-4	N.D.	3	15		1.37
10237	Tetrahydrofuran	109-99-9	N.D.	12	15		1.37
10237	Toluene	108-88-3	N.D.	3	15		1.37
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	3	15		1.37
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	3	15		1.37
10237	1,1,1-Trichloroethane	71-55-6	N.D.	3	15		1.37
10237	1,1,2-Trichloroethane	79-00-5	N.D.	3	15		1.37
10237	Trichloroethene	79-01-6	N.D.	3	15		1.37
10237	Trichlorofluoromethane	75-69-4	N.D.	6	15		1.37
10237	1,2,3-Trichloropropane	96-18-4	N.D.	3	15		1.37
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	3	15		1.37
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	3	15		1.37
10237	Vinyl Chloride	75-01-4	N.D.	3	15		1.37
10237	Xylene (Total)	1330-20-7	N.D.	3	15		1.37
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	110	210		1
10727	Butylbenzylphthalate	85-68-7	N.D.	430	1,100		1
10727	Di-n-butylphthalate	84-74-2	N.D.	430	1,100		1
10727	Carbazole	86-74-8	N.D.	110	210		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	110	210		1
10727	4-Chloroaniline	106-47-8	N.D.	110	210		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	110	210		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	110	210		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	110	210		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	45	210		1
10727	2-Chlorophenol	95-57-8	N.D.	110	210		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	110	210		1
10727	Dibenzofuran	132-64-9	N.D.	110	210		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	640	2,100		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	110	210		1
10727	Diethylphthalate	84-66-2	N.D.	430	1,100		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	110	210		1
10727	Dimethylphthalate	131-11-3	N.D.	430	1,100		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	1,100	3,200		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,900	6,400		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	430	1,100		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	110	210		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	110	210		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	430	1,100		1
10727	Hexachlorobenzene	118-74-1	N.D.	21	110		1
10727	Hexachlorobutadiene	87-68-3	N.D.	110	210		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: GLMT071912SE0104 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728891
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:40 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

G0104 SDG#: ESM30-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		210	1,100		1
10727	Isophorone	78-59-1	N.D.		110	210		1
10727	2-Methylphenol	95-48-7	N.D.		110	210		1
10727	4-Methylphenol	106-44-5	N.D.		110	210		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		110	210		1
10727	3-Nitroaniline	99-09-2	N.D.		430	1,100		1
10727	4-Nitroaniline	100-01-6	N.D.		430	1,100		1
10727	Nitrobenzene	98-95-3	N.D.		110	210		1
10727	2-Nitrophenol	88-75-5	N.D.		110	210		1
10727	4-Nitrophenol	100-02-7	N.D.		1,100	3,200		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		430	1,100		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		110	210		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		110	210		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		430	1,100		1
10727	Pentachlorophenol	87-86-5	N.D.		210	1,100		1
10727	Phenol	108-95-2	N.D.		110	210		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		110	210		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		110	210		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		4.3	11		1
10722	Acenaphthylene	208-96-8	N.D.		2.1	11		1
10722	Anthracene	120-12-7	N.D.		2.1	11		1
10722	Benzo(a)anthracene	56-55-3	N.D.		4.3	11		1
10722	Benzo(a)pyrene	50-32-8	N.D.		4.3	11		1
10722	Benzo(b)fluoranthene	205-99-2	11	J	4.3	11		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		4.3	11		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		4.3	11		1
10722	Chrysene	218-01-9	4.3	J	2.1	11		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		4.3	11		1
10722	Fluoranthene	206-44-0	4.6	J	4.3	11		1
10722	Fluorene	86-73-7	N.D.		4.3	11		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		4.3	11		1
10722	1-Methylnaphthalene	90-12-0	4.6	J	4.3	11		1
10722	2-Methylnaphthalene	91-57-6	4.9	J	4.3	11		1
10722	Naphthalene	91-20-3	4.4	J	4.3	11		1
10722	Phenanthrene	85-01-8	N.D.		4.3	11		1
10722	Pyrene	129-00-0	4.4	J	4.3	11		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	UJ-	6.38	12.8		59.43

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: GLMT071912SE0104 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728891
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:40 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

G0104 SDG#: ESM30-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D. UJ-	6.38	12.8		59.43
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D. UJ-	6.38	12.8		59.43
05988	Total Purgeable Hydrocarbons	n.a.	N.D. UJ-	6.38	12.8		59.43
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	320	320	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	9,100	521	1,560		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	53.4	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	20:13	Andrea E Lando	1.37
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220328261	07/21/2012	13:16	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220328261	07/21/2012	13:16	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220328261	07/21/2012	12:56	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012	02:33	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012	21:48	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012	14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012	14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	18:11	Nicholas R Rossi	59.43
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012	18:03	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220328261	07/21/2012	12:54	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012	03:00	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/24/2012	22:49	James S Mathiot	1

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Analysis Report

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Sample Description: GLMT071912SE0104 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728891
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/19/2012 16:40 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

G0104 SDG#: ESM30-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12208820005A	07/26/2012 19:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: FOMT072012SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728892
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:41 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FW101 SDG#: ESM30-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: FOMT072012SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728892
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:41 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FW101 SDG#: ESM30-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D. UJ-	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	30		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: FOMT072012SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728892
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:41 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FW101 SDG#: ESM30-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	30		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050		1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050		1
08357	Anthracene	120-12-7	N.D.	0.010	0.050		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050		1
08357	Chrysene	218-01-9	N.D.	0.010	0.050		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050		1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050		1
08357	Fluorene	86-73-7	N.D.	0.010	0.050		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050		1
08357	Naphthalene	91-20-3	N.D.	0.030	0.050		1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.050		1
08357	Pyrene	129-00-0	N.D.	0.010	0.050		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

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Sample Description: FOMT072012SW0101 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728892
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:41 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FW101 SDG#: ESM30-09

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	61.2	3.0	12.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122082AA	07/27/2012	05:07	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122082AA	07/27/2012	05:07	Kevin A Sposito	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12205WAD026	07/25/2012	23:30	Holly Berry	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12205WAE026	07/24/2012	10:25	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12205WAD026	07/23/2012	22:00	Elaine F Stoltzfus	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12205WAE026	07/23/2012	22:00	Elaine F Stoltzfus	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	20:21	Marie D John	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012	22:04	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012	16:15	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12207020601B	07/25/2012	09:58	Hannah M Royer	1

*=This limit was used in the evaluation of the final result
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Analysis Report

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REVISED

Sample Description: FOMT072012SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728893
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FE101 SDG#: ESM30-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	16 J+	11	33		1.05
10237	Allyl Chloride	107-05-1	N.D.	2	8		1.05
10237	Benzene	71-43-2	N.D.	0.8	8		1.05
10237	Bromobenzene	108-86-1	N.D.	2	8		1.05
10237	Bromochloromethane	74-97-5	N.D.	2	8		1.05
10237	Bromodichloromethane	75-27-4	N.D.	2	8		1.05
10237	Bromoform	75-25-2	N.D.	2	8		1.05
10237	Bromomethane	74-83-9	N.D.	3	8		1.05
10237	2-Butanone	78-93-3	N.D.	7	16		1.05
10237	n-Butylbenzene	104-51-8	N.D.	2	8		1.05
10237	sec-Butylbenzene	135-98-8	N.D.	2	8		1.05
10237	tert-Butylbenzene	98-06-6	N.D.	2	8		1.05
10237	Carbon Tetrachloride	56-23-5	N.D.	2	8		1.05
10237	Chlorobenzene	108-90-7	N.D.	2	8		1.05
10237	Chloroethane	75-00-3	N.D.	3	8		1.05
10237	Chloroform	67-66-3	N.D.	2	8		1.05
10237	Chloromethane	74-87-3	N.D.	3	8		1.05
10237	2-Chlorotoluene	95-49-8	N.D.	2	8		1.05
10237	4-Chlorotoluene	106-43-4	N.D.	2	8		1.05
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	3	8		1.05
10237	Dibromochloromethane	124-48-1	N.D.	2	8		1.05
10237	1,2-Dibromoethane	106-93-4	N.D.	2	8		1.05
10237	Dibromomethane	74-95-3	N.D.	2	8		1.05
10237	1,2-Dichlorobenzene	95-50-1	N.D.	2	8		1.05
10237	1,3-Dichlorobenzene	541-73-1	N.D.	2	8		1.05
10237	1,4-Dichlorobenzene	106-46-7	N.D.	2	8		1.05
10237	Dichlorodifluoromethane	75-71-8	N.D. UJ-	3	8		1.05
10237	1,1-Dichloroethane	75-34-3	N.D.	2	8		1.05
10237	1,2-Dichloroethane	107-06-2	N.D.	2	8		1.05
10237	1,1-Dichloroethene	75-35-4	N.D.	2	8		1.05
10237	cis-1,2-Dichloroethene	156-59-2	N.D.	2	8		1.05
10237	trans-1,2-Dichloroethene	156-60-5	N.D.	2	8		1.05
10237	Dichlorofluoromethane	75-43-4	N.D. UJ-	3	8		1.05
10237	1,2-Dichloropropane	78-87-5	N.D.	2	8		1.05
10237	1,3-Dichloropropane	142-28-9	N.D.	2	8		1.05
10237	2,2-Dichloropropane	594-20-7	N.D.	2	8		1.05
10237	1,1-Dichloropropene	563-58-6	N.D.	2	8		1.05
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.	2	8		1.05
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.	2	8		1.05
10237	Ethyl Ether	60-29-7	N.D.	2	8		1.05
10237	Ethylbenzene	100-41-4	N.D.	2	8		1.05
10237	Freon 113	76-13-1	N.D.	3	16		1.05
10237	Hexachlorobutadiene	87-68-3	N.D.	3	8		1.05
10237	Isopropylbenzene	98-82-8	N.D.	2	8		1.05
10237	p-Isopropyltoluene	99-87-6	N.D.	2	8		1.05
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.8	8		1.05
10237	4-Methyl-2-pentanone	108-10-1	N.D.	5	16		1.05
10237	Methylene Chloride	75-09-2	N.D.	3	8		1.05
10237	n-Propylbenzene	103-65-1	N.D.	2	8		1.05
10237	Styrene	100-42-5	N.D.	2	8		1.05
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	2	8		1.05

*=This limit was used in the evaluation of the final result
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Analysis Report

Sample Description: FOMT072012SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728893
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FE101 SDG#: ESM30-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	2	8		1.05
10237	Tetrachloroethene	127-18-4	N.D.	2	8		1.05
10237	Tetrahydrofuran	109-99-9	N.D.	7	8		1.05
10237	Toluene	108-88-3	5 J	2	8		1.05
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	2	8		1.05
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	2	8		1.05
10237	1,1,1-Trichloroethane	71-55-6	N.D.	2	8		1.05
10237	1,1,2-Trichloroethane	79-00-5	N.D.	2	8		1.05
10237	Trichloroethene	79-01-6	N.D.	2	8		1.05
10237	Trichlorofluoromethane	75-69-4	N.D.	3	8		1.05
10237	1,2,3-Trichloropropane	96-18-4	N.D.	2	8		1.05
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	8		1.05
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	8		1.05
10237	Vinyl Chloride	75-01-4	N.D.	2	8		1.05
10237	Xylene (Total)	1330-20-7	N.D.	2	8		1.05
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	77	150		1
10727	Butylbenzylphthalate	85-68-7	N.D.	310	770		1
10727	Di-n-butylphthalate	84-74-2	N.D.	310	770		1
10727	Carbazole	86-74-8	N.D.	77	150		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	77	150		1
10727	4-Chloroaniline	106-47-8	N.D.	77	150		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	77	150		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	77	150		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	77	150		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	32	150		1
10727	2-Chlorophenol	95-57-8	N.D.	77	150		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	77	150		1
10727	Dibenzofuran	132-64-9	N.D.	77	150		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	460	1,500		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	77	150		1
10727	Diethylphthalate	84-66-2	N.D.	310	770		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	77	150		1
10727	Dimethylphthalate	131-11-3	N.D.	310	770		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	770	2,300		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	1,400	4,600		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	310	770		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	77	150		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	77	150		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	310	790		1
10727	Hexachlorobenzene	118-74-1	N.D.	15	79		1
10727	Hexachlorobutadiene	87-68-3	N.D.	77	150		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: FOMT072012SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728893
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FE101 SDG#: ESM30-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		150	770		1
10727	Isophorone	78-59-1	N.D.		77	150		1
10727	2-Methylphenol	95-48-7	N.D.		77	150		1
10727	4-Methylphenol	106-44-5	N.D.		77	150		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		77	150		1
10727	3-Nitroaniline	99-09-2	N.D.		310	770		1
10727	4-Nitroaniline	100-01-6	N.D.		310	770		1
10727	Nitrobenzene	98-95-3	N.D.		77	150		1
10727	2-Nitrophenol	88-75-5	N.D.		77	150		1
10727	4-Nitrophenol	100-02-7	N.D.		770	2,300		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		310	770		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		77	150		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		77	150		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		310	770		1
10727	Pentachlorophenol	87-86-5	N.D.		150	790		1
10727	Phenol	108-95-2	N.D.		77	150		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		77	150		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		77	150		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		3.1	7.7		1
10722	Acenaphthylene	208-96-8	N.D.		1.5	7.7		1
10722	Anthracene	120-12-7	N.D.		1.5	7.7		1
10722	Benzo(a)anthracene	56-55-3	N.D.		3.1	7.7		1
10722	Benzo(a)pyrene	50-32-8	N.D.		3.1	7.7		1
10722	Benzo(b)fluoranthene	205-99-2	N.D.		3.1	7.7		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		3.1	7.7		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		3.1	7.7		1
10722	Chrysene	218-01-9	3.2	J	1.5	7.7		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		3.1	7.7		1
10722	Fluoranthene	206-44-0	3.1	J	3.1	7.7		1
10722	Fluorene	86-73-7	N.D.		3.1	7.7		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		3.1	7.7		1
10722	1-Methylnaphthalene	90-12-0	6.8	J	3.1	7.7		1
10722	2-Methylnaphthalene	91-57-6	8.8		3.1	7.7		1
10722	Naphthalene	91-20-3	6.1	J	3.1	7.7		1
10722	Phenanthrene	85-01-8	5.8	J	3.1	7.7		1
10722	Pyrene	129-00-0	3.8	J	3.1	7.7		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	UJ-	3.95	7.90		51.09

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Analysis Report

Sample Description: FOMT072012SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728893
LLI Group # 1323649
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Project Name: Silvertip PWS

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Raleigh NC 27607

FE101 SDG#: ESM30-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D. UJ-	3.95	7.90		51.09
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D. UJ-	3.95	7.90		51.09
05988	Total Purgeable Hydrocarbons	n.a.	N.D. UJ-	3.95	7.90		51.09
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	230	230	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	4,960	321	964		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	35.3	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012	20:36	Andrea E Lando	1.05
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220328261	07/21/2012	13:16	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220328261	07/21/2012	13:16	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220328261	07/21/2012	12:46	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012	02:55	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012	18:06	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012	14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012	14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012	18:52	Nicholas R Rossi	51.09
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012	18:24	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220328261	07/21/2012	12:45	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012	03:00	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/24/2012	23:01	James S Mathiot	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: FOMT072012SE0101 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728893
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 08:51 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

FE101 SDG#: ESM30-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12208820005A	07/26/2012 19:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: COMT072012SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728894
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CW102 SDG#: ESM30-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.	3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.	0.1	0.5		1
02898	Benzene	71-43-2	N.D.	0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.	0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.	0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.	0.1	0.5		1
02898	Bromoform	75-25-2	N.D.	0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.	0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.	1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.	0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.	0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.	0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.	0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.	0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.	0.1	0.5		1
02898	Chloroform	67-66-3	N.D.	0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.	0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.	0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.	0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.	0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.	0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.	0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.	0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.	0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.	0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.	0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.	0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.	0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.	0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.	0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.	0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.	0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.	0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.	0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.	0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.	0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.	0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.	0.1	0.5		1
02898	Freon 113	76-13-1	N.D.	0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.	0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.	0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.	0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.	1.0	5.0		1
02898	Methylene Chloride	75-09-2	N.D.	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.	0.1	0.5		1
02898	Styrene	100-42-5	N.D.	0.1	0.5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: COMT072012SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728894
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CW102 SDG#: ESM30-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D. UJ-	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	30		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Shaded result = The results or reporting limit exceeded the client-provided action limit.

Sample Description: COMT072012SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728894
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CW102 SDG#: ESM30-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	30		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.010	0.050		1
08357	Acenaphthylene	208-96-8	N.D.	0.010	0.050		1
08357	Anthracene	120-12-7	N.D.	0.010	0.050		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.010	0.050		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.010	0.050		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.010	0.050		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.010	0.050		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.010	0.050		1
08357	Chrysene	218-01-9	N.D.	0.010	0.050		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.010	0.050		1
08357	Fluoranthene	206-44-0	N.D.	0.010	0.050		1
08357	Fluorene	86-73-7	N.D.	0.010	0.050		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.010	0.050		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.010	0.050		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.010	0.050		1
08357	Naphthalene	91-20-3	N.D.	0.030	0.050		1
08357	Phenanthrene	85-01-8	N.D.	0.030	0.050		1
08357	Pyrene	129-00-0	N.D.	0.010	0.050		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: COMT072012SW0102 Grab Surface Water
S20113949 Laurel, MT

LLI Sample # WW 6728894
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CW102 SDG#: ESM30-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1
Wet Chemistry	**SM20 2540 D**		**mg/l**	**mg/l**	**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	232	7.5	30.0		1

07356 Volatile Water Prescreen
7615 for MT-EPH pending screen > 1000 ug/L.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	13:38	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	13:38	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12205WAD026	07/25/2012	23:53	Holly Berry	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12205WAE026	07/24/2012	10:57	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12205WAD026	07/23/2012	22:00	Elaine F Stoltzfus	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12205WAE026	07/23/2012	22:00	Elaine F Stoltzfus	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	21:03	Marie D John	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012	22:25	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012	16:15	JoElla L Rice	1
00206	Total Suspended Solids	SM20 2540 D	1	12207020601B	07/25/2012	09:58	Hannah M Royer	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: COMT072012SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728895
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:56 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CE102 SDG#: ESM30-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	99	J+	41	120		1.71
10237	Allyl Chloride	107-05-1	N.D.		6	30		1.71
10237	Benzene	71-43-2	N.D.		3	30		1.71
10237	Bromobenzene	108-86-1	N.D.		6	30		1.71
10237	Bromochloromethane	74-97-5	N.D.		6	30		1.71
10237	Bromodichloromethane	75-27-4	N.D.		6	30		1.71
10237	Bromoform	75-25-2	N.D.		6	30		1.71
10237	Bromomethane	74-83-9	N.D.		12	30		1.71
10237	2-Butanone	78-93-3	N.D.		24	59		1.71
10237	n-Butylbenzene	104-51-8	N.D.		6	30		1.71
10237	sec-Butylbenzene	135-98-8	N.D.		6	30		1.71
10237	tert-Butylbenzene	98-06-6	N.D.		6	30		1.71
10237	Carbon Tetrachloride	56-23-5	N.D.		6	30		1.71
10237	Chlorobenzene	108-90-7	N.D.		6	30		1.71
10237	Chloroethane	75-00-3	N.D.		12	30		1.71
10237	Chloroform	67-66-3	N.D.		6	30		1.71
10237	Chloromethane	74-87-3	N.D.		12	30		1.71
10237	2-Chlorotoluene	95-49-8	N.D.		6	30		1.71
10237	4-Chlorotoluene	106-43-4	N.D.		6	30		1.71
10237	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		12	30		1.71
10237	Dibromochloromethane	124-48-1	N.D.		6	30		1.71
10237	1,2-Dibromoethane	106-93-4	N.D.		6	30		1.71
10237	Dibromomethane	74-95-3	N.D.		6	30		1.71
10237	1,2-Dichlorobenzene	95-50-1	N.D.		6	30		1.71
10237	1,3-Dichlorobenzene	541-73-1	N.D.		6	30		1.71
10237	1,4-Dichlorobenzene	106-46-7	N.D.		6	30		1.71
10237	Dichlorodifluoromethane	75-71-8	N.D.	UJ-	12	30		1.71
10237	1,1-Dichloroethane	75-34-3	N.D.		6	30		1.71
10237	1,2-Dichloroethane	107-06-2	N.D.		6	30		1.71
10237	1,1-Dichloroethene	75-35-4	N.D.		6	30		1.71
10237	cis-1,2-Dichloroethene	156-59-2	N.D.		6	30		1.71
10237	trans-1,2-Dichloroethene	156-60-5	N.D.		6	30		1.71
10237	Dichlorofluoromethane	75-43-4	N.D.	UJ-	12	30		1.71
10237	1,2-Dichloropropane	78-87-5	N.D.		6	30		1.71
10237	1,3-Dichloropropane	142-28-9	N.D.		6	30		1.71
10237	2,2-Dichloropropane	594-20-7	N.D.		6	30		1.71
10237	1,1-Dichloropropene	563-58-6	N.D.		6	30		1.71
10237	cis-1,3-Dichloropropene	10061-01-5	N.D.		6	30		1.71
10237	trans-1,3-Dichloropropene	10061-02-6	N.D.		6	30		1.71
10237	Ethyl Ether	60-29-7	N.D.		6	30		1.71
10237	Ethylbenzene	100-41-4	N.D.		6	30		1.71
10237	Freon 113	76-13-1	N.D.		12	59		1.71
10237	Hexachlorobutadiene	87-68-3	N.D.		12	30		1.71
10237	Isopropylbenzene	98-82-8	N.D.		6	30		1.71
10237	p-Isopropyltoluene	99-87-6	N.D.		6	30		1.71
10237	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		3	30		1.71
10237	4-Methyl-2-pentanone	108-10-1	N.D.		18	59		1.71
10237	Methylene Chloride	75-09-2	N.D.		12	30		1.71
10237	n-Propylbenzene	103-65-1	N.D.		6	30		1.71
10237	Styrene	100-42-5	N.D.		6	30		1.71
10237	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		6	30		1.71

*=This limit was used in the evaluation of the final result
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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: COMT072012SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728895
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:56 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CE102 SDG#: ESM30-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10237	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	6	30		1.71
10237	Tetrachloroethene	127-18-4	N.D.	6	30		1.71
10237	Tetrahydrofuran	109-99-9	N.D.	24	30		1.71
10237	Toluene	108-88-3	N.D.	6	30		1.71
10237	1,2,3-Trichlorobenzene	87-61-6	N.D.	6	30		1.71
10237	1,2,4-Trichlorobenzene	120-82-1	N.D.	6	30		1.71
10237	1,1,1-Trichloroethane	71-55-6	N.D.	6	30		1.71
10237	1,1,2-Trichloroethane	79-00-5	N.D.	6	30		1.71
10237	Trichloroethene	79-01-6	N.D.	6	30		1.71
10237	Trichlorofluoromethane	75-69-4	N.D.	12	30		1.71
10237	1,2,3-Trichloropropane	96-18-4	N.D.	6	30		1.71
10237	1,2,4-Trimethylbenzene	95-63-6	N.D.	6	30		1.71
10237	1,3,5-Trimethylbenzene	108-67-8	N.D.	6	30		1.71
10237	Vinyl Chloride	75-01-4	N.D.	6	30		1.71
10237	Xylene (Total)	1330-20-7	N.D.	6	30		1.71
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Acetone						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	N.D.	170	350		1
10727	Butylbenzylphthalate	85-68-7	N.D.	690	1,700		1
10727	Di-n-butylphthalate	84-74-2	N.D.	690	1,700		1
10727	Carbazole	86-74-8	N.D.	170	350		1
10727	4-Chloro-3-methylphenol	59-50-7	N.D.	170	350		1
10727	4-Chloroaniline	106-47-8	N.D.	170	350		1
10727	bis(2-Chloroethoxy)methane	111-91-1	N.D.	170	350		1
10727	bis(2-Chloroethyl)ether	111-44-4	N.D.	170	350		1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	N.D.	170	350		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	2-Chloronaphthalene	91-58-7	N.D.	73	340		1
10727	2-Chlorophenol	95-57-8	N.D.	170	350		1
10727	4-Chlorophenyl-phenylether	7005-72-3	N.D.	170	350		1
10727	Dibenzofuran	132-64-9	N.D.	170	350		1
10727	3,3'-Dichlorobenzidine	91-94-1	N.D.	1,000	3,500		1
10727	2,4-Dichlorophenol	120-83-2	N.D.	170	350		1
10727	Diethylphthalate	84-66-2	N.D.	690	1,700		1
10727	2,4-Dimethylphenol	105-67-9	N.D.	170	350		1
10727	Dimethylphthalate	131-11-3	N.D.	690	1,700		1
10727	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	1,700	5,200		1
10727	2,4-Dinitrophenol	51-28-5	N.D.	3,100	10,000		1
10727	2,4-Dinitrotoluene	121-14-2	N.D.	690	1,700		1
10727	2,6-Dinitrotoluene	606-20-2	N.D.	170	350		1
10727	1,2-Diphenylhydrazine	122-66-7	N.D.	170	350		1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	690	1,800		1
10727	Hexachlorobenzene	118-74-1	N.D.	35	180		1
10727	Hexachlorobutadiene	87-68-3	N.D.	170	350		1

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: COMT072012SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728895
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 09:56 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CE102 SDG#: ESM30-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Hexachloroethane	67-72-1	N.D.		350	1,700		1
10727	Isophorone	78-59-1	N.D.		170	350		1
10727	2-Methylphenol	95-48-7	N.D.		170	350		1
10727	4-Methylphenol	106-44-5	N.D.		170	350		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.							
10727	2-Nitroaniline	88-74-4	N.D.		170	350		1
10727	3-Nitroaniline	99-09-2	N.D.		690	1,700		1
10727	4-Nitroaniline	100-01-6	N.D.		690	1,700		1
10727	Nitrobenzene	98-95-3	N.D.		170	350		1
10727	2-Nitrophenol	88-75-5	N.D.		170	350		1
10727	4-Nitrophenol	100-02-7	N.D.		1,700	5,200		1
10727	N-Nitrosodimethylamine	62-75-9	N.D.		690	1,700		1
10727	N-Nitroso-di-n-propylamine	621-64-7	N.D.		170	350		1
10727	N-Nitrosodiphenylamine	86-30-6	N.D.		170	350		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.							
10727	Di-n-octylphthalate	117-84-0	N.D.		690	1,700		1
10727	Pentachlorophenol	87-86-5	N.D.		350	1,800		1
10727	Phenol	108-95-2	N.D.		170	350		1
10727	2,4,5-Trichlorophenol	95-95-4	N.D.		170	350		1
10727	2,4,6-Trichlorophenol	88-06-2	N.D.		170	350		1
	Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/kg**		**ug/kg**	**ug/kg**	**ug/kg**	
10722	Acenaphthene	83-32-9	N.D.		6.9	17		1
10722	Acenaphthylene	208-96-8	N.D.		3.5	17		1
10722	Anthracene	120-12-7	N.D.		3.5	17		1
10722	Benzo(a)anthracene	56-55-3	N.D.		6.9	17		1
10722	Benzo(a)pyrene	50-32-8	N.D.		6.9	17		1
10722	Benzo(b)fluoranthene	205-99-2	7.1	J	6.9	17		1
10722	Benzo(g,h,i)perylene	191-24-2	N.D.		6.9	17		1
10722	Benzo(k)fluoranthene	207-08-9	N.D.		6.9	17		1
10722	Chrysene	218-01-9	7.2	J	3.5	17		1
10722	Dibenz(a,h)anthracene	53-70-3	N.D.		6.9	17		1
10722	Fluoranthene	206-44-0	8.2	J	6.9	17		1
10722	Fluorene	86-73-7	N.D.		6.9	17		1
10722	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		6.9	17		1
10722	1-Methylnaphthalene	90-12-0	11	J	6.9	17		1
10722	2-Methylnaphthalene	91-57-6	14	J	6.9	17		1
10722	Naphthalene	91-20-3	16	J	6.9	17		1
10722	Phenanthrene	85-01-8	12	J	6.9	17		1
10722	Pyrene	129-00-0	9.0	J	6.9	17		1
	Reporting limits were raised due to interference from the sample matrix.							
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**		**mg/kg**	**mg/kg**	**mg/kg**	
05988	Unadjusted C5-C8 Aliphatics	n.a.	N.D.		10.9	21.9		63.29

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: COMT072012SE0102 Grab Sediment
S20113949 Laurel, MT

LLI Sample # SW 6728895
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

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Raleigh NC 27607

CE102 SDG#: ESM30-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05988	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	10.9	21.9		63.29
05988	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	10.9	21.9		63.29
05988	Total Purgeable Hydrocarbons	n.a.	N.D.	10.9	21.9		63.29
GC Petroleum Hydrocarbons	**MT DEQ**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
05969	MT EPH Screen Soil	n.a.	N.D.	520	520	200	1
Wet Chemistry	**SM20 5310 B modified**		**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	
02079	TOC Solids/Sludges Combustion	n.a.	9,370	813	2,440		1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	**%**	**%**	
00111	Moisture	n.a.	71.1	0.50	0.50		1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	Silvertip VOCs 8260 soil	SW-846 8260B	1	A122111AA	07/29/2012 20:59	Andrea E Lando	1.71
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201220328261	07/21/2012 13:16	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201220328261	07/21/2012 13:17	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201220328261	07/21/2012 13:14	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12212SLA026	07/31/2012 03:18	Holly Berry	1
10722	SIM PAH 8270 (microwave)	SW-846 8270C SIM	1	12212SLB026	08/01/2012 22:19	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	12212SLA026	07/30/2012 14:00	David S Schrum	1
10810	BNA Soil Microwave SIM PAH	SW-846 3546	1	12212SLB026	07/30/2012 14:00	David S Schrum	1
05988	MT - VPH Soils	MA DEP VPH 5/04	1	12209A54A	07/27/2012 19:33	Nicholas R Rossi	63.29
05969	MT EPH Screen Soil	MT DEQ	1	122060009A	07/25/2012 18:45	Heather E Williams	1
12136	VPH soils - Encore Prep	MA DEP VPH modified	1	201220328261	07/21/2012 13:12	Mitchell R Washel	n.a.
11212	MT EPH Soils Extraction	SW-846 3546	1	122060009A	07/25/2012 03:00	Sherry L Morrow	1
02079	TOC Solids/Sludges Combustion	SM20 5310 B modified	1	12206049531A	07/24/2012 23:58	James S Mathiot	1

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Analysis Report

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Sample Description: COMT072012SE0102 Grab Sediment
S20113949 Laurel, MT

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ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CE102 SDG#: ESM30-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00111	Moisture	SM20 2540 G	1	12208820005A	07/26/2012 19:24	Scott W Freisher	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: EBSW(072012) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728896
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 10:30 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBW20 SDG#: ESM30-13EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

REVISED

Sample Description: EBSW(072012) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728896
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 10:30 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBW20 SDG#: ESM30-13EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	11:25	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	11:25	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	21:44	Marie D John	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

REVISED

Sample Description: EBSE(072012) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728897
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 10:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS20 SDG#: ESM30-14EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
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Analysis Report

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Sample Description: EBSE(072012) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728897
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 10:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS20 SDG#: ESM30-14EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	4-Bromophenyl-phenylether	101-55-3	N.D.	0.5	1		1
04678	Butylbenzylphthalate	85-68-7	N.D.	2	5		1
04678	Di-n-butylphthalate	84-74-2	N.D.	2	5		1
04678	Carbazole	86-74-8	N.D.	0.5	1		1
04678	4-Chloro-3-methylphenol	59-50-7	N.D.	0.5	1		1
04678	4-Chloroaniline	106-47-8	N.D.	0.5	1		1
04678	bis(2-Chloroethoxy)methane	111-91-1	N.D.	0.5	1		1
04678	bis(2-Chloroethyl)ether	111-44-4	N.D.	0.5	1		1
04678	bis(2-Chloroisopropyl)ether	39638-32-9	N.D. UJ-	0.5	1		1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	2-Chloronaphthalene	91-58-7	N.D.	0.4	1		1
04678	2-Chlorophenol	95-57-8	N.D.	0.5	1		1
04678	4-Chlorophenyl-phenylether	7005-72-3	N.D.	0.5	1		1
04678	Dibenzofuran	132-64-9	N.D.	0.5	1		1
04678	1,2-Dichlorobenzene	95-50-1	N.D.	0.5	1		1
04678	1,3-Dichlorobenzene	541-73-1	N.D.	0.5	1		1
04678	1,4-Dichlorobenzene	106-46-7	N.D.	0.5	1		1
04678	3,3'-Dichlorobenzidine	91-94-1	N.D.	2	5		1
04678	2,4-Dichlorophenol	120-83-2	N.D.	0.5	1		1
04678	Diethylphthalate	84-66-2	N.D.	2	5		1
04678	2,4-Dimethylphenol	105-67-9	N.D.	0.5	1		1
04678	Dimethylphthalate	131-11-3	N.D.	2	5		1
04678	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	5	15		1
04678	2,4-Dinitrophenol	51-28-5	N.D.	10	29		1
04678	2,4-Dinitrotoluene	121-14-2	N.D.	1	5		1
04678	2,6-Dinitrotoluene	606-20-2	N.D.	0.5	1		1
04678	1,2-Diphenylhydrazine	122-66-7	N.D.	0.5	1		1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	2	5		1

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Analysis Report

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Sample Description: EBSE(072012) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728897
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 10:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS20 SDG#: ESM30-14EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
04678	Hexachlorobenzene	118-74-1	N.D.	0.1	0.5		1
04678	Hexachlorobutadiene	87-68-3	N.D.	0.5	1		1
04678	Hexachloroethane	67-72-1	N.D.	1	5		1
04678	Isophorone	78-59-1	N.D.	0.5	1		1
04678	2-Methylphenol	95-48-7	N.D.	0.5	1		1
04678	4-Methylphenol	106-44-5	N.D.	0.5	1		1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04678	2-Nitroaniline	88-74-4	N.D.	0.5	1		1
04678	3-Nitroaniline	99-09-2	N.D.	0.5	1		1
04678	4-Nitroaniline	100-01-6	N.D.	0.5	1		1
04678	Nitrobenzene	98-95-3	N.D.	0.5	1		1
04678	2-Nitrophenol	88-75-5	N.D.	0.5	1		1
04678	4-Nitrophenol	100-02-7	N.D.	10	29		1
04678	N-Nitrosodimethylamine	62-75-9	N.D.	2	5		1
04678	N-Nitroso-di-n-propylamine	621-64-7	N.D.	0.5	1		1
04678	N-Nitrosodiphenylamine	86-30-6	N.D.	0.5	1		1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
04678	Di-n-octylphthalate	117-84-0	N.D.	2	5		1
04678	Pentachlorophenol	87-86-5	N.D.	1	5		1
04678	Phenol	108-95-2	N.D.	0.5	1		1
04678	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.5	1		1
04678	2,4,5-Trichlorophenol	95-95-4	N.D.	0.5	1		1
04678	2,4,6-Trichlorophenol	88-06-2	N.D.	0.5	1		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
08357	Acenaphthene	83-32-9	N.D.	0.0097	0.049		1
08357	Acenaphthylene	208-96-8	N.D.	0.0097	0.049		1
08357	Anthracene	120-12-7	N.D.	0.0097	0.049		1
08357	Benzo(a)anthracene	56-55-3	N.D.	0.0097	0.049		1
08357	Benzo(a)pyrene	50-32-8	N.D.	0.0097	0.049		1
08357	Benzo(b)fluoranthene	205-99-2	N.D.	0.0097	0.049		1
08357	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0097	0.049		1
08357	Benzo(k)fluoranthene	207-08-9	N.D.	0.0097	0.049		1
08357	Chrysene	218-01-9	N.D.	0.0097	0.049		1
08357	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0097	0.049		1
08357	Fluoranthene	206-44-0	N.D.	0.0097	0.049		1
08357	Fluorene	86-73-7	N.D.	0.0097	0.049		1
08357	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0097	0.049		1
08357	1-Methylnaphthalene	90-12-0	N.D.	0.0097	0.049		1
08357	2-Methylnaphthalene	91-57-6	N.D.	0.0097	0.049		1
08357	Naphthalene	91-20-3	N.D.	0.029	0.049		1
08357	Phenanthrene	85-01-8	N.D.	0.029	0.049		1
08357	Pyrene	129-00-0	N.D.	0.0097	0.049		1
	The laboratory did not receive sufficient sample volume to perform the method QC requirement for MS/MSD or MS/DUP analysis.						

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

Sample Description: EBSE(072012) Grab Water
S20113949 Laurel, MT

LLI Sample # WW 6728897
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012 10:45 by BL

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

EBS20 SDG#: ESM30-14EB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1
GC Petroleum Hydrocarbons	**MT DEQ**		**ug/l**	**ug/l**	**ug/l**	**ug/l**	
05968	MTEPH Screen Water	n.a.	N.D.	500	500	1000	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	11:47	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	11:47	Jason M Long	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	12205WAD026	07/26/2012	00:15	Holly Berry	1
08357	PAHs in waters by SIM	SW-846 8270C SIM	1	12205WAE026	07/24/2012	11:28	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	12205WAD026	07/23/2012	22:00	Elaine F Stoltzfus	1
10470	BNA Water Extraction (SIM)	SW-846 3510C	1	12205WAE026	07/23/2012	22:00	Elaine F Stoltzfus	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	22:25	Marie D John	1
05968	MTEPH Screen Water	MT DEQ	1	122050006A	07/24/2012	23:07	Heather E Williams	1
11174	MT EPH Waters Extraction	MT DEQ MA EPH	1	122050006A	07/23/2012	16:15	JoElla L Rice	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

REVISED

Sample Description: TB(072012) Water
S20113949 Laurel, MT

LLI Sample # WW 6728898
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CETRB SDG#: ESM30-15TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	ug/l	
02898	Acetone	67-64-1	N.D.		3.0	5.0		1
02898	Allyl Chloride	107-05-1	N.D.		0.1	0.5		1
02898	Benzene	71-43-2	N.D.		0.1	0.5		1
02898	Bromobenzene	108-86-1	N.D.		0.1	0.5		1
02898	Bromochloromethane	74-97-5	N.D.		0.1	0.5		1
02898	Bromodichloromethane	75-27-4	N.D.		0.1	0.5		1
02898	Bromoform	75-25-2	N.D.		0.1	0.5		1
02898	Bromomethane	74-83-9	N.D.		0.1	0.5		1
02898	2-Butanone	78-93-3	N.D.		1.0	5.0		1
02898	n-Butylbenzene	104-51-8	N.D.		0.1	0.5		1
02898	sec-Butylbenzene	135-98-8	N.D.		0.1	0.5		1
02898	tert-Butylbenzene	98-06-6	N.D.		0.1	0.5		1
02898	Carbon Tetrachloride	56-23-5	N.D.		0.1	0.5		1
02898	Chlorobenzene	108-90-7	N.D.		0.1	0.5		1
02898	Chloroethane	75-00-3	N.D.		0.1	0.5		1
02898	Chloroform	67-66-3	N.D.		0.1	0.5		1
02898	Chloromethane	74-87-3	N.D.		0.2	0.5		1
02898	2-Chlorotoluene	95-49-8	N.D.		0.1	0.5		1
02898	4-Chlorotoluene	106-43-4	N.D.		0.1	0.5		1
02898	1,2-Dibromo-3-chloropropane	96-12-8	N.D.		0.2	0.5		1
02898	Dibromochloromethane	124-48-1	N.D.		0.1	0.5		1
02898	1,2-Dibromoethane	106-93-4	N.D.		0.1	0.5		1
02898	Dibromomethane	74-95-3	N.D.		0.1	0.5		1
02898	1,2-Dichlorobenzene	95-50-1	N.D.		0.1	0.5		1
02898	1,3-Dichlorobenzene	541-73-1	N.D.		0.1	0.5		1
02898	1,4-Dichlorobenzene	106-46-7	N.D.		0.1	0.5		1
02898	Dichlorodifluoromethane	75-71-8	N.D.		0.1	0.5		1
02898	1,1-Dichloroethane	75-34-3	N.D.		0.1	0.5		1
02898	1,2-Dichloroethane	107-06-2	N.D.		0.1	0.5		1
02898	1,1-Dichloroethene	75-35-4	N.D.		0.1	0.5		1
02898	cis-1,2-Dichloroethene	156-59-2	N.D.		0.1	0.5		1
02898	trans-1,2-Dichloroethene	156-60-5	N.D.		0.1	0.5		1
02898	Dichlorofluoromethane	75-43-4	N.D.		0.2	0.5		1
02898	1,2-Dichloropropane	78-87-5	N.D.		0.1	0.5		1
02898	1,3-Dichloropropane	142-28-9	N.D.		0.1	0.5		1
02898	2,2-Dichloropropane	594-20-7	N.D.		0.1	0.5		1
02898	1,1-Dichloropropene	563-58-6	N.D.		0.1	0.5		1
02898	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.1	0.5		1
02898	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.1	0.5		1
02898	Ethyl ether	60-29-7	N.D.		0.1	0.5		1
02898	Ethylbenzene	100-41-4	N.D.		0.1	0.5		1
02898	Freon 113	76-13-1	N.D.		0.2	0.5		1
02898	Hexachlorobutadiene	87-68-3	N.D.		0.1	0.5		1
02898	Isopropylbenzene	98-82-8	N.D.		0.1	0.5		1
02898	p-Isopropyltoluene	99-87-6	N.D.		0.1	0.5		1
02898	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.1	0.5		1
02898	4-Methyl-2-Pentanone	108-10-1	N.D.		1.0	5.0		1
02898	Methylene Chloride	75-09-2	0.3	J	0.2	0.5		1
02898	n-Propylbenzene	103-65-1	N.D.		0.1	0.5		1
02898	Styrene	100-42-5	N.D.		0.1	0.5		1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

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Analysis Report

REVISED

Sample Description: TB(072012) Water
S20113949 Laurel, MT

LLI Sample # WW 6728898
LLI Group # 1323649
Account # 13509

Project Name: Silvertip PWS

Collected: 07/20/2012

Submitted: 07/21/2012 09:25
Reported: 08/20/2012 08:52

ExxonMobil
c/o Scott Davies - ARCADIS
801 Corporate Center Dr # 300
Raleigh NC 27607

CETRB SDG#: ESM30-15TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Action Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	ug/l	
02898	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	0.1	0.5		1
02898	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.1	0.5		1
02898	Tetrachloroethene	127-18-4	N.D.	0.1	0.5		1
02898	Tetrahydrofuran	109-99-9	N.D.	2.0	5.0		1
02898	Toluene	108-88-3	N.D.	0.1	0.5		1
02898	1,2,3-Trichlorobenzene	87-61-6	N.D.	0.1	0.5		1
02898	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.1	0.5		1
02898	1,1,1-Trichloroethane	71-55-6	N.D.	0.1	0.5		1
02898	1,1,2-Trichloroethane	79-00-5	N.D.	0.1	0.5		1
02898	Trichloroethene	79-01-6	N.D.	0.1	0.5		1
02898	Trichlorofluoromethane	75-69-4	N.D.	0.1	0.5		1
02898	1,2,3-Trichloropropane	96-18-4	N.D.	0.3	1.0		1
02898	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.1	0.5		1
02898	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.1	0.5		1
02898	Vinyl Chloride	75-01-4	N.D.	0.1	0.5		1
02898	Xylene (Total)	1330-20-7	N.D.	0.1	0.5		1
GC Petroleum Hydrocarbons	**MA DEP VPH 5/04**		ug/l	ug/l	ug/l	ug/l	
05869	Unadjusted C5-C8 Aliphatics	n.a.	N.D.	50.0	100		1
05869	C9-C10 Aromatic Hydrocarbons	n.a.	N.D.	20.0	100		1
05869	Unadjusted C9-C12 Aliphatics	n.a.	N.D.	20.0	100		1
05869	Total Purgeable Hydrocarbons	n.a.	N.D.	50.0	100		1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	Silvertip VOCs 8260 water	SW-846 8260B 25mL purge	1	C122091AA	07/27/2012	13:16	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C122091AA	07/27/2012	13:16	Jason M Long	1
05869	MT-VPH Waters	MA DEP VPH 5/04	1	12205A54B	07/24/2012	23:07	Marie D John	1

*=This limit was used in the evaluation of the final result
Shaded result = The results or reporting limit exceeded the client-provided action limit.

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1323649 Sample # 6728884-98 (For Lancaster Laboratories use only)

Instructions on reverse side correspond with circled numbers.

SCR#:

1 Client Information

Facility #/SID: Silver Tip PWS

Site Address: Laurel, Montana

ExxonMobil PM: Tom Henson

Cost Center/AFE:

Consultant/Office: Arcadis - US 8001 Corporate Center Drive Raleigh, NC 27607

Consultant PM: Steve Barrick

Consultant Phone #: 919-415-2287

Sampler: Brian Lovgren

4 Matrix: Sediment ☒ Soil ☐ Ground ☐ Potable ☐ Surface ☒ NPDES ☐ Water ☐ Air ☐ Oil ☐

5 Analyses Requested / Preservation Code

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, O = Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Sediment	Ground	Surface	Potable	NPDES	Water	Air	Oil	Total # of Containers	SIM PAH's, TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOC's (8260)	VPH/GRO	MT EPH Screen	SIM PAH's/SVOC's TCL 8270	VOC's (8260) 25ml purge	VPH/GRO	TSS
																			H		H	H	
SIMT071912SW0101	7-19-12	1048	✓							✓			12						2	3	3	3	1
SIMT071912SE0101	7-19-12	1116	✓		✓								10	1	✓	1	4	4					
SIMT071912SE0102	7-19-12	1221	✓		✓								10	1	✓	1	4	4					
GLMT071912SW0102	7-19-12	1451	✓							✓			12						2	3	3	3	1
GLMT071912SE0103	7-19-12	1501	✓		✓								10	1	✓	1	4	4					
EBSW (071912)	7-19-12	1600	✓							✓			6								3	3	
EBSE (071912)	7-19-12	1615	✓							✓			11						2	3	3	3	
GLMT071912SE0104	7-19-12	1640	✓		✓								10	1	✓	1	4	4					

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)
Type I - Full
Type VI (Raw Data)
NJ Reduced
Other

EDD (circle if required)
Locus EIM (default)
Other

Relinquished by	Date	Time	Received by	Date	Time
Brian Lovgren	7-20-12	1600	FedEx	7-20-12	1600

9

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature Upon Receipt 1.5-2.2 °C

Custody Seals Intact? Yes No

ExxonMobil Analysis Request/Chain of Custody

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Acct. # 13509 Group # 1323649 Sample # 6728884-98 (For Lancaster Laboratories use only)

Instructions on reverse side correspond with circled numbers.

SCR#: _____

1 Client Information

Facility #/SID: Silver Tip PWS

Site Address: Laurel, Montana

ExxonMobil PM: Tom Henson

Cost Center/AFE:

Consultant/Office: Arcadis - US 801 Corporate Center Drive Raleigh, NC 27607

Consultant PM: Steve Barrick

Consultant Phone #: 919-415-2287

Sampler: Brian Lovgren

4 Matrix: Soil ☐ Sediment ☒ | Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☒ | Oil ☐ Air ☐

5 Analyses Requested — Preservation Code

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Soil	Sediment	Water	Oil	Air	Total # of Containers	SIM PAH's, TCL 8270	TOC Solid, % Moisture	MT EPH Screen	VOC's (8260)	VPH/GRO	MT EPH Screen (H)	SIM PAH's/SVOC's TCL 8270	VOC's (8260) 25ml purge (H)	VPH/GRO (H)	TSS	Remarks
FOMT072012SW0101	7-20-12	0841	✓				✓			12						2	3	3	3	1	
FOMT072012SE0101	7-20-12	0851	✓			✓				10	1	✓	1	4	4						
COMT072012SW0102	7-20-12	0945	✓				✓			12						2	3	3	3	1	
COMT072012SE0102	7-20-12	0956	✓			✓				10	1	✓	1	4	4						
EBSW (072012)	7-20-12	1030	✓				✓			6								3	3		
EBSE (072012)	7-20-12	1045	✓				✓			11						2	3	3	3		
TB (072012)	7-20-12	NIR	✓				✓			4								2	2		

Preservation Codes: H = HCl, T = Thiosulfate, N = HNO_3, B = NaOH, S = H_2SO_4, O = Other

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required): Type I - Full; Type VI (Raw Data); NJ Reduced; Other

EDD (circle if required): Locus EIM (default); Other _____

Relinquished by	Date	Time	Received by	Date	Time
Brian Lovgren	7-20-12	1600	FedEx	7-20-12	1600
Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____					

9

Temperature Upon Receipt 5-2.2 °C

Custody Seals Intact? Yes No