Johnston Leigh, Inc.
1820 S Palomar Ln
Kanab, Utah 84098
(801)726-6845

July 23, 2025

Jay Shearer
Environmental Science Specialist
Montana DEQ
Airport Industrial Park IP-9
1371 Rimtop Drive
Billings, MT 59105-1978

RE: **WP AC-07 #35009**
Former Flying J Truck Stop I-94 and Baker Exit, Miles City, Custer County, Montana; Facility 09-08661, (TID 19483), DEQ Release #4365, Work Plan 35009

Dear Mr. Shearer:

Standardized Generic Applications Corrective Action Work (CAP AC-07) 34928 and budget as requested in your email dated May 21, 2025. This work plan is for insitu treatment of the remaining petroleum impacted soil and groundwater at the former Flying J Truck Stop located at I-94 and Baker Exit Miles City, Montana. Please call me at (801) 726-6845 to discuss the work plan, budget, and schedule. Sincerely,

Leigh Beem, P.G.
Johnston Leigh, Inc.

CC: Ms. Marney DeVroom, FJ Management, Inc

Attachment: WP AC-07 #350090 Former Flying J Truck Stop I-94 and Baker Exit, Miles City, Custer County, Montana; Facility 09-08661, (TID 19483), DEQ Release #4365, Work Plan 35009

1.0 Date: July 23, 2025

1.1 Responsible Party:

Ms. Marney DeVroom.
FJ Management, Inc
185 South State Street, Suite 1300
Salt Lake City, UT 84111

1.2 Contact:

Mr. Leigh Beem, P.G.
Johnston Leigh, Inc.
1820 S. Palomar Ln
Kanab, UT 84741
(801) 726-6845
leigh@johnstonleighinc.com

Subject: Former Flying J Truck Stop I-94 and Baker Exit, Miles City, Custer County, Montana; Facility 09-08661, (TID 19483), DEQ Release #4365, Work Plan 35009

2.0 Executive Summary

On behalf of FJ Management (FJM), Johnston Leigh Inc. (JLI) has prepared this Standardized Generic Applications Corrective Action Work (CAP AC-07) 35009 and budget as requested in your email dated May 21, 2025. This work plan is for completing a Trap and Treat Bos 200® injection designed to treat petroleum hydrocarbons in soil and groundwater by first trapping the contaminants of concern in an adsorbent material and then treating them via sulfate reduction. Soil excavation of the remaining petroleum impacted soil is less tenable for this location. The impacted soil is at a depth of 20-23 feet below ground surface (BGS), and groundwater is at a depth of 18 feet BGS. Dewatering of the excavation area would be required before and during soil removal. Dewatering would require the installation of wells to a depth of at least 35 feet BGS. Assuming a hydraulic conductivity value of 1E-3 cm/sec, the volume of water removed would be approximately 50-100 gallons per minute (GMP) over 10 days to remove the contaminated soil. Total volume of water to be treated and disposed of was estimated at 720,000 to 1,440,000 gallons, far more than the Miles City POTW would accept. Potential undercutting of the excavation walls adjacent to Highway 12 would require excessive bonding far outside the scope of this project. A less expensive and less risky remediation approach is proposed below.

3.0 Facility Summary and Current Conditions

The site is a former Flying J Truck Stop located at intersection of I-94 and Baker Exit just north of Miles City, Montana (**Figure 1**). The gasoline island soil excavation completed in 2015 was limited to a depth of 20 feet BGS because of constraints from OSHA regulations and engineering design. A scaled site map is overlain on top of the LIF model, and includes the surface extent of the 2015 gasoline island excavation. Based on the Laser Induced Fluorescence (LIF) investigation completed in 2013 in the former gasoline island area, approximately 350 cubic yards (yd^3) of petroleum impacted soil remains at depths of 20-23 feet BGS which is below the shallow groundwater (**Figure 2**). High Vacuum Dual Phase Extraction (HVDPE) was approved and used twice operating 24/7 for three continuous months in fall of 2020 and 2022. The HVDPE events removed an estimated 570 and 330 gallons (total 900 gallons) TPH equivalent petroleum hydrocarbons from soil submerged

below the water table. Soil vapor concentrations measured during the most recent HVDPE event were relatively low, suggesting limited confidence in the continued effectiveness of the HVDPE system. A total of 11 wells were sampled in September 2024 as approved in WP AC-07 #34928 (JLI, 2024). The wells sampled include MW29, MW30, MW31, MW32, MW36, MW37, MW44, MW45, MW48, MW51 and MW52 (**Figure 3**). The September 2024 analytical results are presented on **Table 1**. The groundwater sampling results indicate a residual source of petroleum hydrocarbons is present and leaching to the groundwater. The purpose of this work plan is to present the approach to effectively remediate both soil and groundwater at depths below the groundwater surface using in-situ soil injection technologies.

4.0 Request for Proposal

JLI prepared a Request for Bid document that outlined the insitu injection scope of work (**Attachment A**). JLI contacted companies that perform insitu injections and three requested the bid document. Bids were received from Alpine Remediation (Alpine) of Golden, Colorado, and Olympus Technical Services (Olympus) of Billings, Montana. Cascade Environmental Services of Salt Lake City, Utah did not return the bid document. The bids for Alpine and Cascade are included in **Attachment B**. The winning bid was Alpine based on cost and their approach. Alpine proposed remediation design characterization (RDC) to confirm soil concentration levels and depths to allow Alpine to better tailor the product loadings to the site. Cascade was slightly more expensive and did not propose any testing of soil and groundwater to aid in their design of the injectate.

5.0 Alpine Technical Approach

Alpine intends to inject Bos 200®, which is a blend of activated carbon, sulfate reduction media, micronutrients, and facultative microbes, has been designed to treat petroleum hydrocarbons by first trapping petroleum in an absorbent material and then treating them via sulfate reduction. Additional compounds are added to the Bos 200® like starch, yeast magnesium sulfate and starch to address the hydrocarbon load.

Alpine plans to perform an RDC first by collecting soil samples every two feet from 8-10 soil borings to approximately 25 feet BGS. Soils will be jarred a minimum of every 2 feet and more often for changes in lithology, odors, and staining. If possible, groundwater samples will be taken in the same locations as the soils. Alpine will have all non-compliance samples analyzed for MBTEX and TVPH by EPA Method 8260B at RPI Groups' laboratory in Golden, Colorado. Analysis will be free of charge.

A 7.5-foot triangular grid will be used to lay out the injection boreholes in all areas. Injections are planned between 18 and 23 feet in all areas and injection depths will be staggered in adjacent locations. The product designated for each depth will be mixed with approximately 20 gallons of water to form a slurry before installation. The injection area was divided into four separate areas from most to least contaminated by Alpine,. Each area will have a specific mixture of Bos 200®, gypsum, magnesium sulfate, starch and yeast. Estimated totals based on the preliminary plan are as follows:

Pounds of BOS-200®	**Pounds of Gypsum**	**Pounds of MgSO4**	**Pounds of Starch**	**Pounds of Yeast**
4.500	4,400	650	465	~44

6.0 Montana Department of Highway (MDOT) Easement

JLI will be responsible for obtaining the MDOT easement for soil borings that will occur in the MDOT property. MDOT has informed JLI that a Right of Way Traffic Control Plan will be required and traffic signage will be required while the work is in progress.

7.0 Cleanup Work Plan Tasks

JLI proposes the following scope of work for the Bos 200® injection:

1) Collect soil samples within the treatment area for characterization of petroleum mass loading specific for the Bos 200® injection (not intended for compliance sampling). Collect a continuous soil core from ground surface to 25 feet below ground surface (BGS) from a total of eight-ten soil borings. Alpine will have all non-compliance samples analyzed for MBTEX and TVPH by EPA Method 8260B at RPI Groups' laboratory in Golden at no charge.
2) Using a push probe rig, inject a combination of Bos 200®, gypsum, magnesium sulfate (MgSO4), starch and yeast at staggered depths and loadings to encapsulate the contaminates and then treating the contaminants via sulfate reduction. The injection borings will be on 7.5-foot centers.
3) Collect groundwater samples from MW-29 through MW-32, MW-34, MW-37 through MW-41, MW-43, MW-45, MW-48, MW-51 through MW-53 (17 wells) approximately six months and 12- months after the Bos 200® injection and analyze the groundwater samples for VPH and EPH using Massachusetts Method 1998.
4) Update the Release Closure Plan and discuss results with DEQ's project manager.
5) Prepare a Cleanup Operation and Maintenance Report semi-annually detailing the results of the groundwater sampling and outline additional tasks going forward to continue the site remediation.

8.0 Reoccurring Operation/Maintenance Reports

We anticipate that at least one additional injection of Bos 200® may be required to reduce the contaminant concentrations to RBSL cleanup levels. This, however, will not be known until the results are thoroughly analyzed.

9.0 Schedule and Reporting

Upon approval of the work plan by MT DEQ and recognition of upcoming funding by MT PTRCB, the BOS 200® injection pilot test as described in this work plan can commence. Tentative dates for the initial soil sampling RDS are the first week of September, followed by the injection in October. Post injection groundwater sampling would follow the injection by approximately 6 and 12 months.

10.0 Appendices for Cleanup Plan

Quality assurance/quality control (QA/QC) plan is included in **Attachment C**. JLI Standard Operating Procedures (SOP) for sampling protocols are in included in **Attachment D**. The itemized tasks and associated costs are included on **Table 2**. Alpine Remediation would use their own push probe rig for the injection of BOS 200®. No bidding was solicited for the injection of BOS 200® because of the proprietary trade practices and procedures incorporated by Alpine Remediation.

Please call me at (801) 726-6845 to discuss the work plan, budget, and schedule.

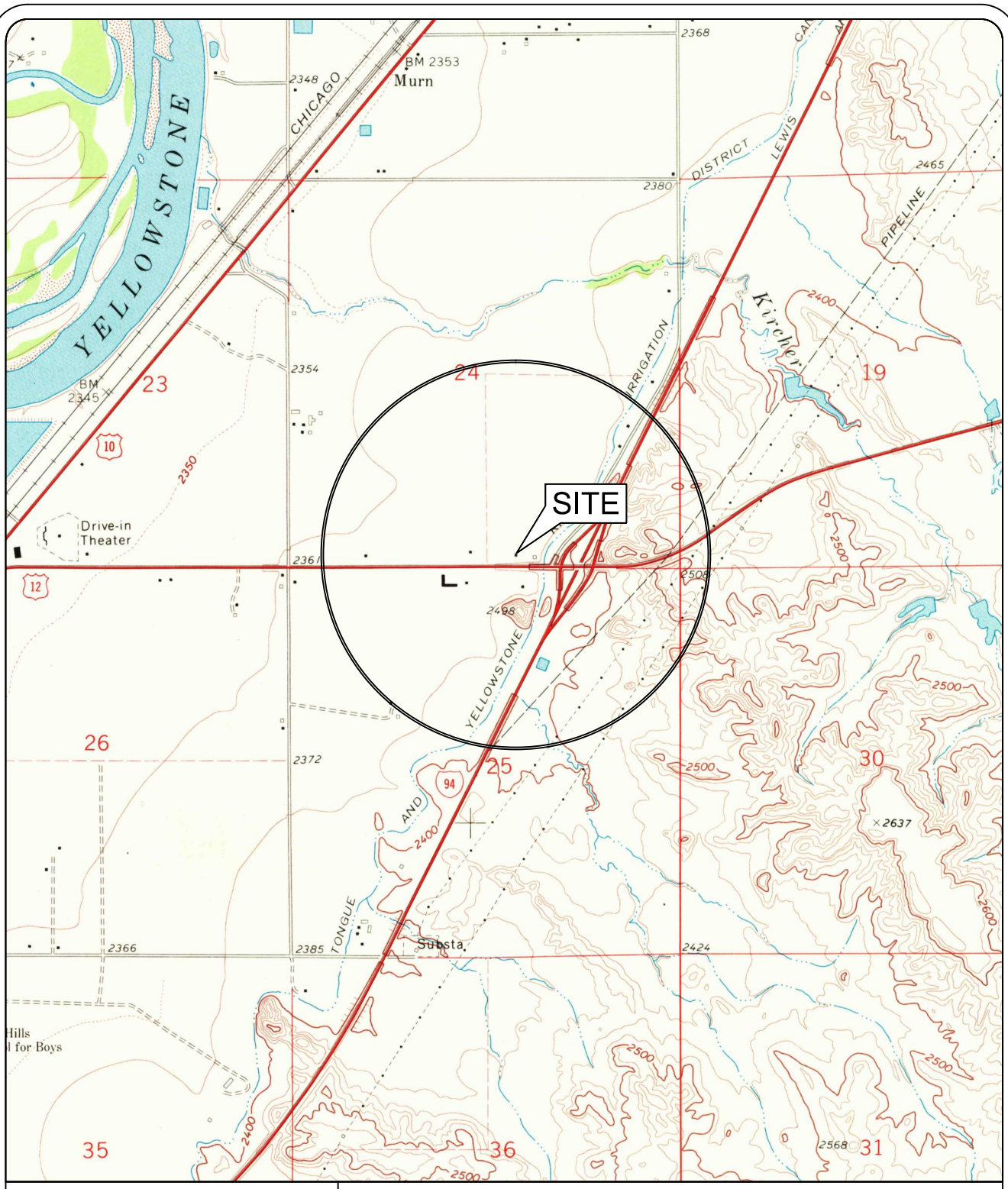
Sincerely,

Leigh Beem, P.G.
Johnston Leigh, Inc.

CC: Ms. Marney DeVroom, FJM

Attachment: Figure 1 Site Location Map
Figure 2 Contaminated Soil Treatment Area
Figure 3 Monitor Well Locations
Table 1 Groundwater Analytical Results
Attachment A Request for Bid
Attachment B Alpine and Olympus Bids
Attachment C QAQC Plan
Attachment D JLI SOPs

FIGURES



LEGEND

0 2,000 4,000

SCALE IN FEET

N

Johnston Leigh Inc.
(801) 726-6845

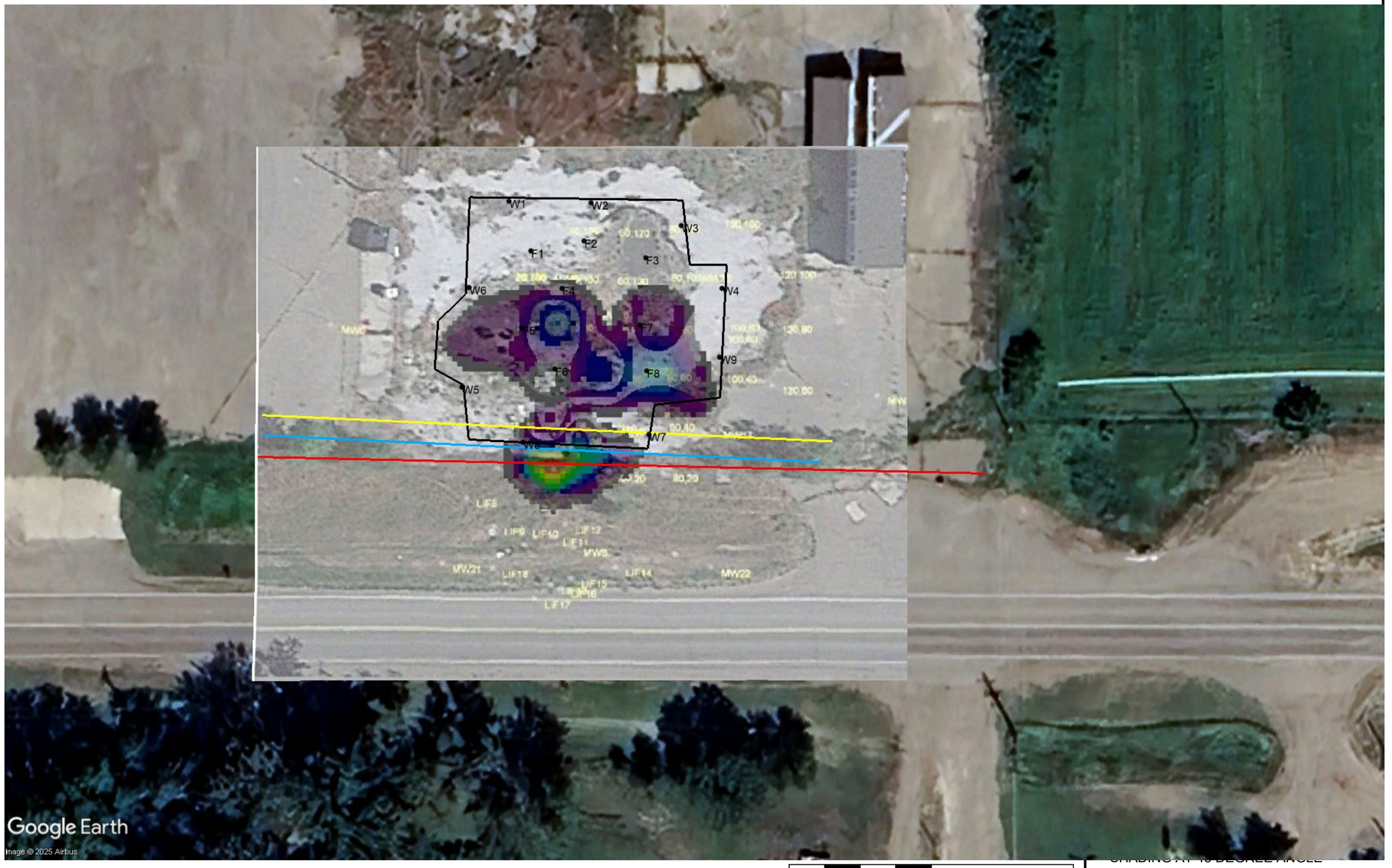
USGS 7.5 MINUTE TOPO QUAD
MILES CITY, MONTANA (1968)

PREPARED BY:	DATE:	REVISION:	FILE NAME:
PJS	05/21/14	0	

FIGURE 1

SITE LOCATION MAP

FORMER FLYING J TRAVEL PLAZA
MILES CITY, MT



SCALE IN FEET

- CONTAMINATED SOIL SHOWN IN COLOR SHADING
- EXCAVATION SURFACE IS BARE GROUND

Job No:
Drawn By: pjs
Date: 03/17/2025
QC: PE:
File:

Johnston Leigh Inc.
(801) 726-6845

TREATMENT LOCATION, CONTAMINATED SOIL SHOWN IN COLOR SHADING

FORMER FLYING J STATION
MILES CITY, MT

FIGURE
2

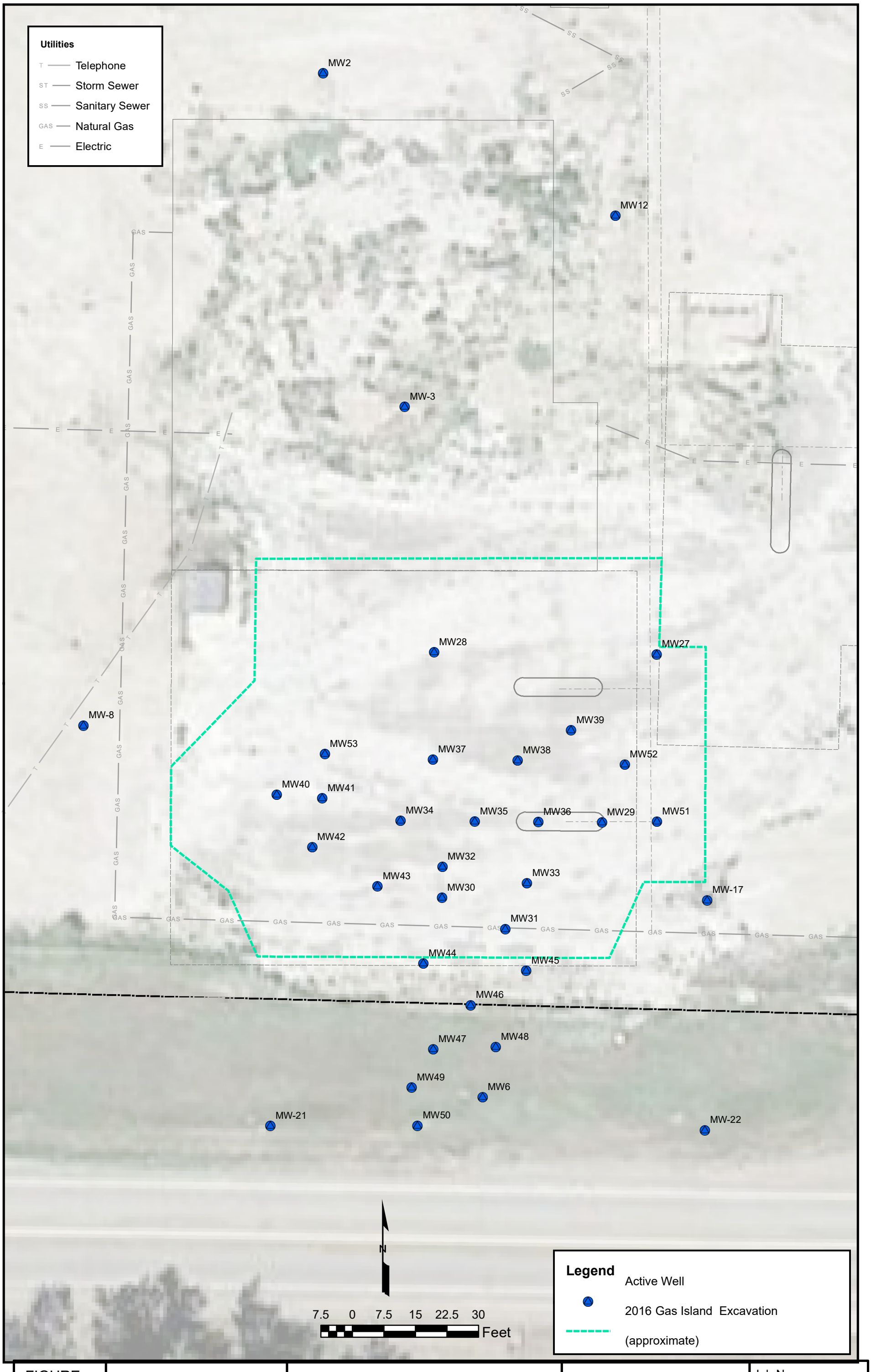


FIGURE 3	FORMER FLYING J STATION MILES CITY, MT	MONITOR WELL LOCATIONS	*Joshnston Leigh Inc.* (801) 726-6845	Job No.: Date: 08/07/2023 Drawn By: pjs File:

TABLES

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well (Boring)	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
			(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(mg/L)	(mv)	(ms/cm)	(deg C)
Push Probe Borings Gasoline Island																							
A-1	GW-A1-050905	05/11/05	**4600**	100	510	8,700	**1,800**	**1,100**	250	830	<20	<50											
A-4	GW-A4-050905	05/11/05	<100	<100	<20	<200	**38**	<1	2	<3	<2	<5											
B-5	GW-B5-051005	05/10/05	**1400**	140	910	3,300	**33**	62	47	330	<20	25											
Piezometers																							
TW-1	GW-TW1-051205	05/12/05	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<230							
TW-2	GW-TW2-051205	05/12/05	**10000**	**3200**	**6000**	29000	**1800**	**1500**	270	6800	<40	**430**											
Groundwater Monitoring Wells																							
MW-1	Not Sampled	11/24/07				Active Product Recovery System in Place																	
	Not Sampled	03/20/08				Active Product Recovery System in Place																	
	Not Sampled	04/29/09				Active Product Recovery System in Place																	
	Not Sampled	11/12/09				NAPL on water surface at 0.10 foot thick.																	
	Not Sampled	11/10/10				NAPL on water surface at 0.02 foot thick.																	
	Not Sampled	12//7/11				Well could not be found																	
	MW1	07/12/12	<40	623	896	1520	<1.0	<1.0	38	8.4	<5.0	56	ND	<5.0	<0.010	**8310**	**2100**	391	**4650**	0.5	-374	2.05	17.2
		11/01/12	<40	**1090**	1090	2100	1.4	<1.0	34	0.82	<2.0	70				**38600**				0.1	-363		12.2
	Not Sampled	06/11/13				NAPL on water surface at 0.25 foot thick.																	
	Not Sampled	12/11/13				NAPL on water surface at 0.02 foot thick.																	
	Not Sampled	07/29/14				NAPL on water surface at 0.02 foot thick.																	
	Not Sampled	01/28/15				NAPL on water surface at 0.03 foot thick.																	
			Well removed during excavation April 2015																				
MW-2	GW-MIL2-051205	05/12/05	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<230							
	GW-MW2-1107	11/16/07	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<210				0.6	156	1.6	14.5
	GW-MW2-0908	09/30/08	<40	<40	<40	<40	<1	<1	<1	<3	<4	<10								1.2	153	1.28	14.3
	GW-MW2-0908	04/29/09	Not sampled, well under land farm soil																				
	GW-MW2-1109	11/12/09	<100	<100	<100		<1	<1	<1	<3	<1	<10					<75	94	<50	2.8	138	0.7	9
	MW2	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<234							
	MW2	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				752				3.0			10.3
	MW2	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1.0	<1	ND	<0.50	<0.010	<337				0.7	263	2.85	18.8
	MW2	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1.0	<1				<308				0.8	123		14
	MW2	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				215				1.3	91.1	3.1	13
	MW2	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.5	76.5	2.23	14
	MW-2	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300							

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW-3	GW-MW3-1107	11/15/07	<100	<100	<20	<200	<1	<1	2	6	<2	<5								7.0	68	2.23	13.0
	GW-MW3-0908	09/30/08	<40	<40	<40	<51	<1	5.3	<1	<3	<4	<10								7.9	87	2.58	14.5
	GW-MW3-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW3-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.0	128	1.2	8.8
	MW3	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0											
	MW3	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1								2.7			9.9
	MW3	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	ND	<0.50	<0.010					0.3	50	3.38	14.6
	MW3	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1	<1								0.3	50		14.1
	MW3	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.2	-140	3	14.9
	MW3	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					-98	2.6	11.5
	MW3	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.1	91.5	2.51	13
	MW3	01/28/15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA							
	MW-3	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.7	80	3.8	12.9
	MW-3	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.7	43.2	3.99	13.5
	MW-3	11/19/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<948							
	MW-3	06/19/23	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1	<1	<333				0.1		1855	12.4
MW-4	GW-MW4-1107	11/15/07	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<220				3.2	91	1.4	14.4
	GW-MW4-0908	09/30/08	<20	<20	<20	<20	<0.5	<0.5	<0.5	<1.5	<2	<5								2.9	38	1.3	12.7
	GW-MW4-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW4-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.5	152	2	9.7
	MW4	11/10/10	<20	<20	<20	<20	0.56	<0.50	<0.50	<1.5	<0.50	<5.0				<218							
	MW4	12/07/11	<20	<20	<20	<20	0.56	<0.50	<0.50	<1.5	<1	<1				<303				2.2			9.6
	MW4	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.2		1.2	12.6
	MW4	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300					58.1	1.76	13.1
	MW4	07/30/14	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.2	46	1.35	12.8
	MW4	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				0.6	49	1.85	12.4
	MW4	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				2.1	76.6	2.2	13.4
	MW4	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.7	71.9	2.04	14.1
	MW-4	06/27/17	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.5	34.8	1.89	12.8
	MW-4	11/22/17												<1	<0.01						39.8	1.27	12.5
MW-5	GW-MW5-1107	11/15/07	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5								8.7	119	0.9	13.3
	GW-MW5-0908	09/30/08	<20	<20	<20	<20	<0.5	<0.5	<0.5	<1.5	<2	<5								7.6	73	1.3	14.5
	GW-MW5-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW5-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.8	-19	0.9	10.3
	MW5	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0											
	MW5	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1								1.8			8.9
	MW5	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	#1	<0.50	<0.010					0.4	32	1.2	14.3
	MW5	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1								0.7	19		14.3
	MW5	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1								0.7	19		14.3
	MW5	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.8	61	2.1	13.4
	MW5	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.3	36.8	1.79	14.6

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW-6	GW-MW6-1107	11/15/07	620	<100	**1600**	**2900**	**110**	36	110	210	<2	55								4.0	-68	1.2	13.0
	GW-MW6-0908	09/30/08	140	<40	228	656	1.7	<1	<1	13	<4	**<5**								7.5	92	1	17.5
	GW-MW6-0409	04/29/09	Not sampled, NAPL on groundwater in well																				
	GW-MW6-1109	11/12/09	**920**	670	980		**270**	33	230	157.7	<5.0	<50								2.7	-109	0.7	9.5
	MW6	11/10/10	**<1000**	1400	<1000	**2950**	**65.2**	<25	212	143	<25	<250											
	MW6	12/07/11	**764**	**2190**	**1720**	**4570**	**103**	6.1	195	83	<10	**104**											
	MW6	07/12/12	290	234	401	864	4.2	1.4	3.8	2.5	*<5	9.4	ND	**0.74**	<0.010	**2170**	**1320**	<326	555				
	MW6	11/01/12	206	178	299	677	**32**	<2.5	39	<2.5	<5.0	9.2								0.2	-244		12.2
	MW6	06/11/13	200	170	<100		**14**	<5	8.4	<15	<5	<5				**3200**	<600	<600	<600				
	MW6	12/11/13	<1000	<1000	<1000	<2000	**<50**	<5	74	<15	<5	<5		<1	<0.01	**2100**					104	1.1	11.4
	MW6	07/29/14	160	320	120	550	<5.0	<5.0	6.6	<15	<5.0	<5.0		<1.0	<0.01	**1700**	<600	<600	<600	0.1	-124	0.72	12
	MW6	01/28/15	<100	510	170	770	<5.0	<5.0	13	<15	<5.0	16		<1.0	<0.010	**2400**	<600	<600	<600	1.4	-125	0.87	9.2
	MW-6	11/15/16	<100	161	<100	344	<5	<5	<5	<15	<5	<5				**1440**				2.2	-134	0.8	12
	MW-6	06/27/17	<100	210	104	1260	<5	<5	<5	<15	<5	<5				**3390**	847	<600	408	0.5	-132	1.63	11.9
	MW-6	11/22/17	126	132	261	394										**2660**	806	<636	463		-122	1.01	11.4
	MW-6	05/29/18	81	68.1	76	228	1.68	<5	1.95	<15	<5	2.48				**1930**	480	<600	210				
	MW-6	09/23/18	131	68.4	141	345	<5	5	<5	<15	<5	4.35		<1	<0.01	**1560**	<737	<737	<737				
	MW-6	11/20/20	156	102	152	429	1.6	<1	14.8	<3	<1	<5		1.3	<1	**2680**							
	MW-6	06/19/23	150	127	201	496	<5.0	<5.0	14	<15	<5.0	6.78		<1	<1	**4700**				0.1	-137	570	12.5
MW-7	GW-MW7-1107	11/16/07	<100	<100	<20	<200	<1	<1	2	5	<2	<5				<220				5.4	145	1.3	21.1
	GW-MW7-0908	09/30/08	<20	<20	<20	<20	<0.5	<0.5	<0.5	<1.5	<2	<5								6.5	74	1.36	16.2
	GW-MW7-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW7-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								3.0	130	1	9.8
	MW7	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<248							
	MW7	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				<334				1.5			6.8
	MW7	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1	ND	<0.50	<0.010	<343				1.9	113	2.15	12.4
	MW7	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				1.6	78.6	2.3	13.7
	MW7	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.0	78.7	2.43	14.3
	MW-7	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.5	39.7	2.7	12.8
MW-8	GW-MW8-1107	11/15/07	<100	<100	39	<200	<1	<1	2	8	<2	<5								7.5	69	2.2	13.6
	GW-MW8-0908	09/30/08	<40	<40	<40	<40	<1	<1	<1	<3	<4	<10								7.6	80	1.6	16.7
	GW-MW8-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW8-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.9	143	1.2	11
	MW8	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0											
	MW8	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1								5.1			9
	MW8	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1	<1	ND	**0.29**	<0.010					0.38	-8	2.07	13.8
	MW8	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1	<1								0.7	133		13.7
	MW8	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.28	-121	2.3	14.7
	MW8	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					-81	2.3	11.6
	MW8	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.28	101	1.99	12.9
	MW8	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	<300				0.5	53.6	2.96	10.9
	MW-8	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.43	68	3.02	13.1
	MW-8	06/27/17	<100	<100	<100	<600	<5	<5	<5	<15	<5	<5				<300	<600	<600	<600	0.5	28.6	3.74	13.5
	MW-8	11/19/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<333				0.4		2010	12.5

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW-9	GW-MW9-1107	11/16/07	162	112	144	448	**75**	11	4	14	<2	4				580				5.5	136	1.3	12.1
	GW-MW9-0908	09/30/08	<20	<20	<20	<20	**6.3**	<0.5	<0.5	<1.5	<2	<5								7.9	65	1.4	17.3
	Well removed during excavation October 2008																						
MW9 (new)	GW-MW9-1109	11/12/09	100	140	210		**12**	1.4	9.9	17	<1	<10					110	86	120	4.4	137	1.2	11
	MW9	11/10/10	<20	331	176	356	**12.9**	2.3	6.2	6.8	6.9	5.7				**30400**	<239	<239	<239				
	MW9	12/07/11	299	340	362	907	**81**	2.2	21	9	12	13				**15700**	<316	<316	<316	1.7			8.8
	MW9	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	ND	<0.50	<0.010	648				0.4	-8	2.07	13.8
	MW9	11/01/12	620	343	326	1200	**94**	5.7	29	11	<10	12				**24800**				0.2	-244		13.9
	MW9	06/11/13	<100	<100	<100		**81**	<5	<5	<5	<5	<5				320				0.1	-240	1.8	13.6
	MW9	12/11/13	<1000	<1000	<1000	<2000	**<50**	<50	<50	<150	<50	<50				**6600**					-40	1.33	11.7
	MW9	07/30/14	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				**2200**	<600	<600	<600	0.2	-38	1.52	12.5
	MW9	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				990				0.3	-90	2.29	12
	Well removed during excavation April 2015																						
MW10	GW-MW10-1109	11/12/09	<100	<100	<100		<1	<1	<1	<3	<1	<10					<75	79	<50	3.0	171	0.9	10
	MW10	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<244							
	MW10	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				537				2.0			6.2
	MW10	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	ND	<0.50	<0.010	<337				1.0	196	1.59	14
	MW10	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.05	<1	<1				<300				0.9	113		13.5
	MW10	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				57				3.2	95.9	2.3	12.4
	MW10	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.3	55.3	2.1	13.3
	MW-10	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.8	36.2	2.21	12.6
MW11	GW-MW11-1109	11/12/09	<100	<100	<100		<1	<1	<1	<3	<1	<10					<75	<75	67	6.0	100	1.6	10
	MW11	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<240	<75	<75	67				
	MW11	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				747				2.0			8.9
	MW11	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1	ND	<0.50	<0.010	<337				1.9	113	2.15	12.4
	MW11	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1				374				0.7	196		13.2
	MW11	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				302				1.1	73.9	2.6	13.3
	MW11	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				8440				1.7	90.7	2.37	13.6
	MW-11	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				2.0	38	2.63	11.9
MW12	GW-MW12-1109	11/12/09	<100	<100	<100		<1	<1	2.3	<3	<1	<10								4.5	121	102	9.8
	MW12	11/10/10	39.6	93.7	75.3	247	1.3	0.68	27.8	<1.5	11.2	13				753							
	MW12	12/07/11	141	41	30	171	<0.5	0.45	6.6	1.8	16	3.6								1.8			10.6
	MW12	12/07/11	41	<20	<20	39	<0.5	<0.5	<0.5	0.51	8.8	<1	#2	1.5	<0.010	351				0.4	-45	2.42	16.5
	MW12	11/01/12	291	39	32	281	<0.5	<0.5	2	0.86	16	0.93				696				0.2	-146		13.5
	MW12	06/11/13	<100	<100	<100		**8**	<5	<5	<5	<5	<5				370				0.2	-45	1.8	15.6
	MW12	12/11/13	<100	<100	<100	240	<5	<5	<5	<15	13	<5				<300					-12	1.38	11.1
	MW12	07/30/14	110	<100	<100	<200	<5	<5	<5	<15	12	<5				500				0.2	-3.1	1.86	12.9
	MW12	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				0.4	12.6	2.47	11.6
	MW12	11/15/16	163	<100	<100	207	<5	<5	<5	<15	10.3	<5				446				0.7	-51	2.45	13.6
	MW-12	06/27/17	<100	<100	<100		<5	<5	<5	<5	<5	<5				<300				0.6	26.7	2.58	13.2

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW13	GW-MW13-1109	11/12/09	<100	100	150		<1	1.3	2.3	<3	1.8	<10					240	150	320	3.5	158	0.9	11.7
	MW13	11/10/10	70.3	1200	608	**1040**	4.9	1.5	41.4	18.5	57.6	92.9				**23700**	**4370**	**1880**	838				
	MW13	12/07/11	NAPL on Groundwater, 1.2' thick																				
	MW13	07/12/12	25	108	139	299	0.41	<0.50	1.9	1.9	1.2	8.3	#5	<0.50	<0.010	**6320**	**1770**	**<333**	916				
	MW13	11/01/12	63	**1030**	920	**2140**	<0.5	<0.50	9.3	13	<2.0	78				**72600**							
	Not Sampled	06/11/13	NAPL on water surface at 0.01 foot thick.																				
	Not Sampled	12/11/13	NAPL on water surface at 0.19 foot thick.																				
	Not Sampled	07/29/14	NAPL on water surface at 0.07 foot thick.																				
	Not Sampled	01/28/15	NAPL on water surface at 0.02 foot thick.																				
			Well removed during excavation April 2015																				
MW14	GW-MW14-1110	11/10/10	**9880**	**5200**	**3100**	**25300**	**1550**	616	682	1310	<0.5	**305**		**9**									
	MW14	12/07/11	NAPL on Groundwater, 0.375' thick																				
	MW14	04/27/12	**Well removed during excavation April 2013**																				
MW15	GW-MW15-1110	11/10/10	**5770**	**3320**	**3230**	**30300**	**7580**	**1210**	581	4620	<10	**300**											
	MW15	12/07/11	NAPL on Groundwater, 3' thick																				
	MW15	04/27/12	**Well removed during excavation April 2013**																				
MW16	GW-MW16-1110	11/10/10	<200	**2380**	**2200**	**20700**	**5220**	587	433	1980	**5640**	**125**											
	MW16	12/07/11	NAPL on Groundwater, 1.2' thick																				
	MW16	04/27/12	**Well removed during excavation April 2013**																				
MW17	MW17	07/12/12	28	4.4	37	55	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	**0.34**	<0.010	<353				1.9	30	1.9	14.3
	MW17	11/01/12	182	47	92	253	<0.50	0.59	<0.50	<0.50	<1.0	<1.0								1.5	-66		14
	MW17	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				560				0.2	-312	1.7	14
	MW17	12/11/13	200	230	<100	540	<5	<5	<5	<15	23	<5		<1	<0.01	320					69.1	2.08	12.9
	MW17	07/29/14	570	200	<100	610	<5.0	<5.0	<5.0	<15	51	<5.0		<1.0	<0.01	840	<600	<600	<600	0.1	-98	2.07	13.1
	MW17	01/28/15	590	390	200	980	**37**	<5.0	<5.0	<15	**88**	5.1		<1.0	<0.010	**1300**	<600	<600	<600	0.1	-150	2.6	12.7
	MW-17	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.1	61.7	2.12	12.8
	MW-17	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.9	-7.8	2.7	13
	MW-17	11/19/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<333							
	MW-17	06/19/23	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<315				0.8	79	1394	12.4
MW18	MW18	07/12/12	**7620**	**1470**	**2020**	13000	**3600**	961	395	1400	29	**203**	ND	**36**	<0.010	**13200**	<309	<309	541	5.2	158	2.72	16.1
	MW18	11/01/12	162	19	25	217	**54**	13	1.8	14	<1.0	<1.0								0.2	-123		14.6
	MW18	06/11/13	**6300**	**1500**	<1000		**4200**	580	290	140	**98**	<50				**12000**	<600	<600	<600	0.1	-450	2.6	15.5
	MW18	12/11/13	**700**	<500	<500	2600	**910**	32	<25	<75	**71**	<25		<10	<0.01	**4500**					-134	1.8	12.6
	MW18	07/29/14	**1400**	660	<500	4500	**1600**	75	<25	269	**43**	25		<10	<0.01	**15000**	<600	<600	<600	0.1	-150	2.12	13.8
	MW18	01/28/15	**1800**	480	200	9300	**3900**	80	82	259	**150**	6		<10	<0.010	**5400**	<600	<600	<600	0.1	-170	2.14	12
			Well removed during excavation November 2015																				

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW19	MW19	07/12/12	**3030**	**323**	**413**	3620	**735**	43	70	243	**1030**	26	#3	**<5.0**	<0.010	**4270**	<353	<353	<353	4.5	167	2.41	15.8
	MW19	11/01/12	**1440**	59	177	1630	**390**	13	20	42	**434**	<10								1.8	-76		14
	MW19	06/11/13	**1100**	<1000	<1000		**1800**	<50	<50	<50	<150	<50				**7200**	<600	<600	680				
	MW19	12/11/13	690	<500	<500	4700	**2600**	78	58	<75	**320**	<25		<10	<0.01	**5000**					-144	2.31	13.8
	MW19	07/29/14	**710**	<500	<500	4900	**2200**	74	120	289	**32**	31		<50	<0.01	**3900**	<600	<600	<600	0.1	-105	0.94	13.4
	MW19	01/28/15	**3200**	960	530	9400	**3400**	22	22	730	**30**	38		<25	<0.010	**9500**	<600	<600	<600	0.1	-218	2.97	12.5
			Well removed during excavation November 2015																				
MW20	MW20	07/12/12	**15400**	**5000**	**4840**	29800	**10800**	495	**1310**	4670	**1670**	393	#4	**<30**	<0.010	**14300**	<343	<343	722	4.7	171	3.08	16.5
	MW20	11/01/12	**3950**	326	**1090**	5820	**1870**	78	57	295	**763**	<50								4.5	-155		14.2
	MW20	06/11/13	**5200**	**1600**	<1000		**5400**	220	370	590	**1000**	**100**				**11000**	<600	<600	<600				
	MW20	12/11/13	**1200**	**1200**	<1000	12000	**6000**	220	<50	1056	**1400**	<50		<25	<0.01	**8400**					-137	2.66	12.7
	MW20	07/29/14	**1900**	990	<500	8700	**3000**	140	85	854	**690**	54		<50	<0.01	**10000**	<600	<600	<600	0.1	-162	2.61	13.6
	MW20	01/28/15	**2000**	680	310	11000	**4200**	110	41	687	**1000**	<5.0		<10	<0.010	**8900**	<600	<600	<600	0.2	-180	3.15	10.9
			Well removed during excavation November 2015																				
MW21	MW21	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	<0.50	<0.010	<316				1.2	124	0.88	14
	MW21	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0								0.1	6		12
	MW21	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				1.0		3.8	13.3
	MW21	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					31	1.19	10.3
	MW21	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.1	24.5	0.93	11.9
	MW21	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	<300				1.2	38	1.85	10.3
	MW21	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.9	72.3	3.9	11.8
	MW21	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.4	44.5	4.87	11.9
	MW21	11/20/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<315							
	MW21	06/19/23	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1	<1	<315				0.3	67	2280	12.7
MW22	MW22	07/12/12	<20	21	<20	22	<0.50	1.7	<0.50	<0.50	<1.0	<1.0	ND	<0.50	<0.010	488				1.2	124	0.88	14
	MW22	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0								0.2	186		12.4
	MW22	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.9		3.8	13.6
	MW22	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					57.4	3.68	10.8
	MW22	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				1.0	66.1	3.83	13
	MW22	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	<300				2.0	30.9	5.11	10.6
	MW22	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.3	46.1	4.85	12.4
	MW22	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.8	52.5	5.48	11.4
	MW22	11/20/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<315							
	MW22	06/19/23	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1	<1	<315				1.3	67	1054	12.5

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW23	MW23	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				7.7	-24	1.1	10.9
	MW23	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					32	1	10.4
	MW23	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.2	36.9	1.03	10.9
	MW23	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	**1300**	<600	<600	<600	1.8	19.7	0.82	8.1
	MW23	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.4	-19	1.24	11.8
	MW23	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.5	7.3	1.58	11.2
MW24	MW24	11/13/15	<100	<100	<100		<5	<5	<5	<15	<5	<5				238				3.0	91.7	2.2	14.2
	MW24	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.9	62.5	1.9	14
	MW-24	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.7	39	1.83	12.5
	MW-24	11/22/17	<100	38.2	38.2	<200	<1	<1	<1	<3	<1	<5		<1	<0.01	155					60.4	1.32	11
MW25	MW25	11/13/15	<1660	**3780**	<1660	6610	**85.4**	<83.5	163	519	<83.5	84.3				**4460**	<200	<200	227	2.6	-28	2	13.3
	MW25	11/15/16	<500	<500	<500	<1000	<25	<25	<25	<75	<25	<25				**8440**				1.3	-138	1.94	14.9
	MW-25	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				898				0.6	-87	2.27	14.2
	MW-25	11/22/17	38	57.2	123	164	3.13	<1	2.44	<3	<1	<5		<1	<0.01	**5370**	<618	<618	<618		-8.5	1.35	13.2
MW26	MW26	11/13/15	<100	74.9	<100	126	<5.0	<5.0	<5.0	<5.0	4.1	2.01				**6200**	<200	<200	227	2.6	-28	2	13.3
	MW26	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				**1260**				1.5	-105	2.61	14.1
	MW-26	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				**1180**	<600	<600	<600	NA	NA	NA	NA
	MW-26	11/22/17	<100	55.1	56.5	<200	0.566	<1	1.36	<3	0.884	<5		<1	<0.01	**1400**	<600	<600	<600		-87	1.92	12.4
MW27	MW27	06/27/17	190	216	<100	<600	**7.28**	<5	11.2	10.7	<5	<5				**1060**	<600	<600	<600	0.5	-88	2.29	14
	MW27	11/22/17	295	358	**1270**	1800	**232**	<1	490	190	0.971	136		**34.8**	<0.01	**5300**	<636	<636	251		-11	1.48	12.1
	MW27	05/29/18	656	1390	886	3230	**202**	4.64	436	48.1	<5	138				**5310**	<200	<200	250				
	MW27	09/23/18	403	459	840	2250	**134**	2.01	314	97.04	<5	119		**8.84**	<0.01	**3750**	<750	<750	<750				
	MW27	07/23/19	644	1070	898	3700	**202**	1.69	645	166.05	<5	73.3		**32.6**	<0.01	**6940**							
	MW27	11/20/20	390	548	585	2250	**171**	<1	528	18.9	<1	25.6		**31.2**	<1	**2620**							
	MW27	01/18/21	281	768	276	1130	**78.5**	<1	175	<20	<10	<10				**744**				0.3	-62	1.78	11.6
MW28	MW28	06/27/17	**673**	362	187		**96**	8.38	14.2	<15	**65.7**	13.8				752				0.4	-91	2.27	13.6
	MW28	11/27/17	**1380**	463	**1180**	4340	**1660**	4.55	189	94.7	**115**	43.6		**177**	<0.01	**3030**	<636	<636	<636		-116	1.38	11.6
	MW28	05/29/18	**3390**	450	450	6340	**1660**	38.5	156	82.6	**73.8**	40.7				**2890**	<600	<600	<600				
	MW28	09/23/18	**743**	135	252	1850	**582**	3.46	110	7	**21.2**	11.3		**9.49**	<0.01	**2000**	<750	<750	<750				
	MW28	07/23/19	151	90.3	119	430	**26.2**	<10	34.9	<20	<10	3.67		**0.74**	<0.01	**429**							
MW29	MW29	06/27/17	<100	<100	<100		**19.8**	<5	<5	<15	**1200**	<5				370				0.8	32.6	3.59	13.3
	MW29	11/27/17	<100	55	107	897	**71.5**	<1	3.45	1.33	**1280**	3.67		**24.7**	<0.01	455					-25	2.15	12.3
	MW29	05/29/18	<100	33.8	43.6	632	**11.5**	<5	2.96	<15	**730**	2.02				960							
	MW29	09/23/18	<100	<100	66.5	562	**10.2**	<5	3.08	<15	**845**	<5		**14.9**	<0.01	481							
	MW29	07/23/19	<33.3	43.9	<33.3	389	2.25	<5	<5	<15	**503**	<5		**12.2**	<0.01	278							
	MW29	11/19/20	<100	<100	<100	301	<10	<1	<10	<3	**622**	<5		**12.4**	<0.01	<948							
	MW29	01/18/21	<100	62.4	<100	339	<5	<5	<5	<15	**373**	<5				<300				0.5	153	1.72	10.9
	MW29	06/19/23	<100	<100	<100	224	<5	<5	<5	<15	**386**	<5		**6.64**	<5,0	<300				0.3	24	2.35	14.4
	MW29	09/29/24	<100	<100	<100	<200	**9.31**	<5.0	22.2	<10.0	<5.0	<5.0				403				0.6		2.04	18.9

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW30	MW30	06/27/17	**878**	647	274	<600	**287**	5.12	82	46.2	<5	26.5				**1400**	<600	<600	<600	0.6	-101	2.02	13.2
	MW30	11/27/17	**953**	488	**1780**	4000	**1260**	7.34	257	322	<20	110		**8.25**	<0.01	**3920**	<636	<636	376		-110	2.01	12.4
	MW30	05/29/18	**1980**	974	693	4740	**1270**	7.22	324	88.7	5.5	95.1				**4160**	<600	<600	244				
	MW30	09/23/18	**1410**	291	601	3830	**1380**	6.3	32.9	105	4.21	90.6		3.82	<0.01	**2840**	<720	<720	<720				
	MW30	07/23/19	**1360**	501	418	3480	**952**	3.58	309	43.62	<5	38.7		3.45	<0.01	**2790**	<750	<750	<750				
	MW30	11/19/20	**3090**	<1000	<1000	10200	**5532**	65.5	54	312	5.46	40.8		<1.0	<1.0	**1530**							
	MW30	01/18/21	**1590**	1240	<1000	4230	**1400**	<50	314	<150	<50	<50				**1250**	<600	<600	<600	0.2	-60	1.87	17.7
	MW30	06/20/23	<100	<100	<100	<200	<5	<5	<5	<15	<5.0	<5		<1.0	<1.0	<333				1.5	37	1.7	14
	MW30	09/29/24	<100	<100	<100	<200	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0				315				0.5		1.26	13.8
MW31	MW31	11/19/20	<200	<200	<200	544	**389**	<2	32	23.4	<2	<10		2.54	<2	639	<636	<636	251				
	MW31	01/18/21	**18900**	**1490**	374	20800	**9130**	123	126	385.8	230	58.2				**4990**	<600	<600	<600	0.2	-149	1.79	9
	MW31	08/02/22	<1000	<1000	<1000	5170	**3020**	<50	73.8	<150	<50	<50				**3910**	<600	<600	<600	0.2	-106	1.71	13.5
	MW31	06/20/23	256	<100	<100	820	**465**	<5.0	10.9	<15	<5.0	<5.0		<1.0	<1.0	**6020**							
	MW31	09/29/24	<100	<100	<100	<200	**29**	<5.0	<5.0	<10.0	<5.0	<5.0				354				0.3		1.3	14.7
MW32	MW32	11/19/20	321	166	166	96	**278**	2.58	42.7	54.3	2.08	12.1		2.35	<1.0	878							
	MW32	01/18/21	**1350**	571	205	2930	**1000**	7.54	109	25.3	<5.0	1.83				**1010**	<600	<600	<600	0.3	-2	1.59	12.2
	MW32	08/03/22	<100	<100	<100	1210	**579**	<5.0	7.97	<1.0	<5.0	<5.0				**10000**	<600	<600	<600				
	MW32	09/29/24	159	<100	<100	402	**78.9**	<5.0	13.3	<10.0	<5.0	<5.0				**1670**	<600	<600	<600	0.3		1.3	14.7
MW33	MW33	11/19/20	<100	<100	<100	365	<20	<1.0	4.83	<3	**644**	<5		<1.0	<1.0	**1450**							
	MW33	01/18/21	<100	80.4	<100	428	<5.0	<5.0	<5.0	<15	**474**	<5.0				974				0.8	96.9	2.6	12.8
MW34	MW34	11/19/20	604	460	399	2180	**506**	7.34	139	201	<20	38.4		<1.0	<1.0	921							
	MW34	01/18/21	**1460**	**2030**	700	3950	**447**	7.78	258	259	<5.0	66.5				**1880**	<600	<600	<600	0.5	18.4	1.66	12.4
	MW34	06/20/23	**706**	103	360	1990		10.1	40.4	1015	28	48.5		<1.0	<1.0	**6470**				2.2	-112	1.9	14.8
MW35	MW35	11/19/20	219	537	706	1760	**79.1**	2.56	22.1	175	19	17.9		**5.06**	<1.0	**6770**							
	MW35	01/18/21	317	**1520**	612	2000	**137**	6.25	42.7	223	16.3	26.3				**3800**	<600	<600	<600	0.2	-71	1.99	12.4
	MW35	06/20/23	<1.0	<1.0	<1.0	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<1.0	<354				3.5	-42	0.943	14.3
MW36	MW36	11/19/20	<100	203	237	1.57	**45.4**	<1.0	<1.0	26.9	**1180**	8.15		1.76	<1.0	**1300**							
	MW36	01/18/21	**1220**	690	285	2760	**96.3**	<5.0	82.1	26.5	**751**	14.5				**1210**	<600	<600	<600	0.7	59	2.62	11.6
	MW36	09/29/24	213	<100	<100	286	<5.0	<5.0	<5.0	<10.0	**240**	<5.0				704				0.2		2.34	14.9
MW37	MW37	11/19/20	**815**	397	262	2630	**1070**	2.38	72.6	65.9	13	25.4		**7.75**	<1.0	**4820**							
	MW37	01/18/21	**1930**	1060	354	3740	**743**	<5.0	224	29.8	<5.0	50.4				**2320**	<600	<600	<600	0.2	20	2.03	12.9
	MW37	06/20/23	140	<1.0	101	676	**232**	<5.0	59.9	<15	**121**	8.46		1.5	<1.0	**1370**				2.5	-119	2.19	15.2
	MW37	09/29/24	**1020**	353	229	2830	**679**	8.93	146	32.6	**30**	26				**4760**	<1900	<1900	<1900	0.3		2.25	13.6
MW38	MW38	11/19/20	106	<100	<100	533	**124**	1.28	19	28.2	3.63	6.14		<1.0	<1.0	<354							
	MW38	01/18/21	**1290**	1110	328	3170	**746**	6.8	112	177	12.2	31.2				864	<600	<600	<600	0.5	34	1.33	12.1
MW39	MW39	11/19/20	**3280**	174	522	8390	**3600**	42.5	302	292	181	63		**44.4**	<1.0	**3480**							
	MW39	01/18/21	**6170**	**3350**	927	12500	**2830**	23.8	506	518	145	118				**3550**	<600	<600	<600	0.3	15.3	1.65	11.7
	MW39	08/02/22	<100	<100	<100	<200	**10.8**	<1.0	26	<3.0	1.09	<5.0				491							

TABLE 1
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW40	MW41	08/04/22	**2180**	<100	<100	513	**112**	<5.0	<5.0	<15	19	<5.0				**1320**							
MW41	MW41	08/04/22	**2180**	<100	<100	513	**112**	<5.0	<5.0	<15	19	<5.0				**1320**							
	MW41	06/19/23	**2180**	309	463	4960	**1830**	11	97.1	27.7	100	52.4		<1.0	<1.0	**2710**				0.3	-91	1.417	13.6
MW42	MW42	08/03/22	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				427							
MW43	MW43	08/03/22	116	<100	<100	291	**125**	<5.0	<5.0	<15	<5.0	<5.0				603							
	MW43	06/20/23	117	114	208	708	**126**	<5.0	119	<15	<5.0	24		<1.0	<1.0	1640				0.2	-54	1.238	12.8
MW44	MW44	08/03/22	296	<100	<100	488	**72.8**	<5.0	<5.0	24.9	8.06	<5.0				543							
	MW44	06/20/23	**1100**	219	487	3010	**623**	<5.0	242	155	13.6	106		<1.0	<1.0	543				0.3	-58	1.401	13.7
	MW44	09/29/24	347	271	212	1040	**53.1**	<5.0	44.9	<10.0	<5.0	16				**1700**	<600	<600	<600	0.1		2.84	12.5
MW45	MW45	08/04/22	384	<100	<100	827	**205**	<5.0	24.5	<15.9	28.1	17.7				**1170**							
	MW45	06/20/23	**3940**	177	562	7350	**3860**	22.3	9.29	160	126	40.9		<1.0	<1.0	4300				2.4	-109	1.84	15.7
	MW45	09/29/24	**670**	223	162	1360	**151**	<5.0	<5.0	25.1	<5.0	<5.0				**1110**	<600	<600	<600	0.2		2.79	12.5
MW48	MW48	08/04/22	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				399							
	MW48	09/29/24	427	555	475	1780	**14.5**	<5.0	67.8	<10.0	<5.0	<5.0				**3470**	610	<606	691	0.2		2.43	13.3
MW51	MW51	08/02/22	**821**	571	<500	5060	**2970**	13.6	120	86.3	475	24				**2120**	<600	<600	<600				
	MW51	06/19/23	<100	<100	<100	<200	**14.9**	<5.0	<5.0	16.8	8.13	<5.0				<324				0.2	48	0.526	14.3
	MW51	09/29/24	<100	<100	<100	<200	<5.0	<5.0	<5.0	<10.0	5	<5.0				318				0.3		7.48	15.6
MW52	MW52	08/02/22	<100	104	116	1170	**194**	<1.0	1.24	11.2	**949**	17.3				**2220**	<600	<600	<600				
	MW52	06/19/23	**1100**	725	825	4140	**735**	<1.0	347	19.7	**361**	69.6		5.27	<1.0	**13600**				0.4	-95	1.967	13.9
	MW52	09/29/24	145	112	<100	467	**38.8**	<5.0	30.6	<10.0	20	<5.0				522				4.2		1.05	14.5
MW53	MW53	08/04/22	<100	104	116	1170	**88.6**	<5.0	<5.0	<15	<5.0	<5.0				922	<600	<600	<600				
	MW53	08/04/22	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<1.0	<399				1.1	10.9	0.6	13.9
MDEQ RBSL			**650**	**1400**	**1100**		**5**	**1000**	**700**	**10,000**	**30**	**100**		**4**	**0.004**	**1000**	**1400**	**1000**	**1100**				

MW2	Well sampled for gasoline and diesel range organics, well used for monitoring of Release #1986.
MDEQ	Montana Department of Environmental Quality
RBSL	Risk Based Screening Level, Tier 1 Risk Based Corrective Action, September 2016
Blank	Not analyzed or measured
<	Less than the detection limit indicated.
BOLD	Concentration exceeds MDEQ RBSL
ug/L	micrograms per liter
TPH	Total Purgeable Hydrocarbons, MDEP-VPH-98
TEH	Total Extractable Hydrocarbons, MDEP-EPH-98
DCA	1,2-Dibromo-3-chloropropane
EDB	Ethylene Dibromide

Oxygenates Include:
tert-Amyl methyl ether (TAME)
tert-Butyl alcohol (TBA)
Ethyl-tert-butyl-ether (ETBE)
Isopropyl ether (IPE)
Methyl tert-butyl ether (MTBE)

#1	Detected MTBE @0.37 ug/L J Qualifier
#2	TBA @ 4.4 ug/L, and MTBE @ 8.4 ug/L
#3	TBA @ 192 ug/L
#4	TBA @ 306 ug/L
#5	TBA @ 10 ug/L

Gasoline Island Area Mass in GW

Compound	2022-2023	2024	% Change
C5-C8	8577	2981	-65
C9-C12	1761	1514	-14
C9-C10	2260	1078	-52
Benzene	9560	1054	-89

Average Detected Benzene Gas Island 128 ug/l

ATTACHMENT A

Johnston Leigh, Inc.
1820 S Palomar Ln
Kanab, UT 84741
(801) 726-6845

April 29, 2025

RE: Request for Bid
Insitu Treatment of Petroleum Contaminated Soil and Groundwater
Former Flying J Travel Plaza, US Highway 12 & I-94, Miles City, Montana

Johnston Leigh Inc (JLI) is preparing a Corrective Action Plan addendum for the Montana Department of Environmental Quality (MT DEQ) for the remediation of gasoline and diesel impacted soil at the former Flying J Travel Plaza located near the intersection of U.S. Highway 12 and I-94 in Miles City, Montana (**Figure 1**). As part of the Corrective Action Plan (CAP) addendum, FJM is accepting bids for the insitu treatment of soil and groundwater.

MDOT Easement
FJM has applied for an easement on MDOT property to conduct the insitu remediation. The insitu treatment on MDOT property will require a Traffic Control Plan on Highway 12. JLI will obtain the MDOT easement, and the contractor will be required to adhere to the Traffic Control Plan.

Insitu Treatment
Diesel and gasoline leaked at dispensers and comingled in the subsurface soils. The former fuel islands were excavated to a depth of 20 feet below ground surface (BGS). Contaminated soil remains at a depth of 20 to 23 feet BGS and its 2-D location is shown on **Figure 2** in color shading. The volume of contaminated soil is approximately 2,000 cubic yards and its 3-D configuration based on laser induced fluorescence modeling is shown on **Figure 3**. Groundwater is typically encountered at a depth of 18 feet BGS. Hydraulic conductivity of the saturated clayey and silty sands is approximately 1E-3 to 1E-4 cm/sec. The groundwater potentiometric surface in November 2024 is shown on **Figure 4**. The contractor is encouraged to obtain soil samples from the residual contamination for preparation of injectate composition. Current groundwater analytical results are provided on **Table 1**. There are numerous wells onsite if additional groundwater analytical data is needed.

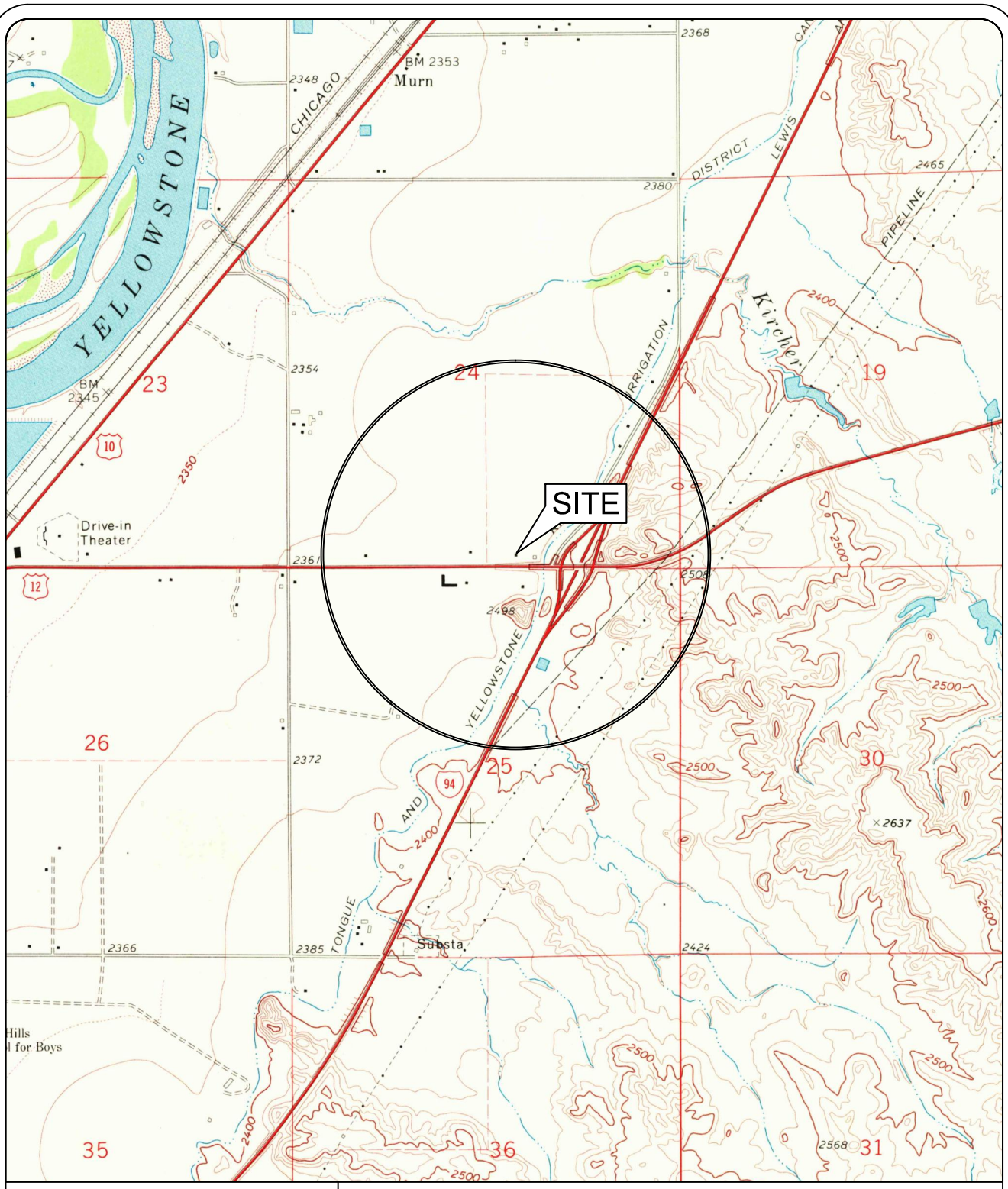
Bid Document
The bidding document should include costs for the following.

- Additional soil profiling including field work and analytical testing
- Groundwater sampling and analytical testing
- Insitu treatment including technical approach, injectate volume and composition, injectate delivery method, etc.
- Insitu injection Report

Include your company's full name, address, contact name and phone number, and your company's tax ID number. Bids are to be submitted via email by May 15, 20125 to leigh@johnstonleighinc.com. Please call the undersigned at (801) 726-6845 with any questions.

Sincerely,

Leigh Beem, P.G.
Johnston Leigh, Inc.



LEGEND

0 2,000 4,000

SCALE IN FEET

N

Johnston Leigh Inc.
(801) 726-6845

USGS 7.5 MINUTE TOPO QUAD
MILES CITY, MONTANA (1968)

PREPARED BY:	DATE:	REVISION:	FILE NAME:
PJS	05/21/14	0	

FIGURE 1

SITE LOCATION MAP

FORMER FLYING J TRAVEL PLAZA
MILES CITY, MT

SCALE IN FEET

SHADING AT 45 DEGREE ANGLE

- CONTAMINATED SOIL SHOWN IN COLOR SHADING
- EXCAVATION SURFACE IS BARE GROUND

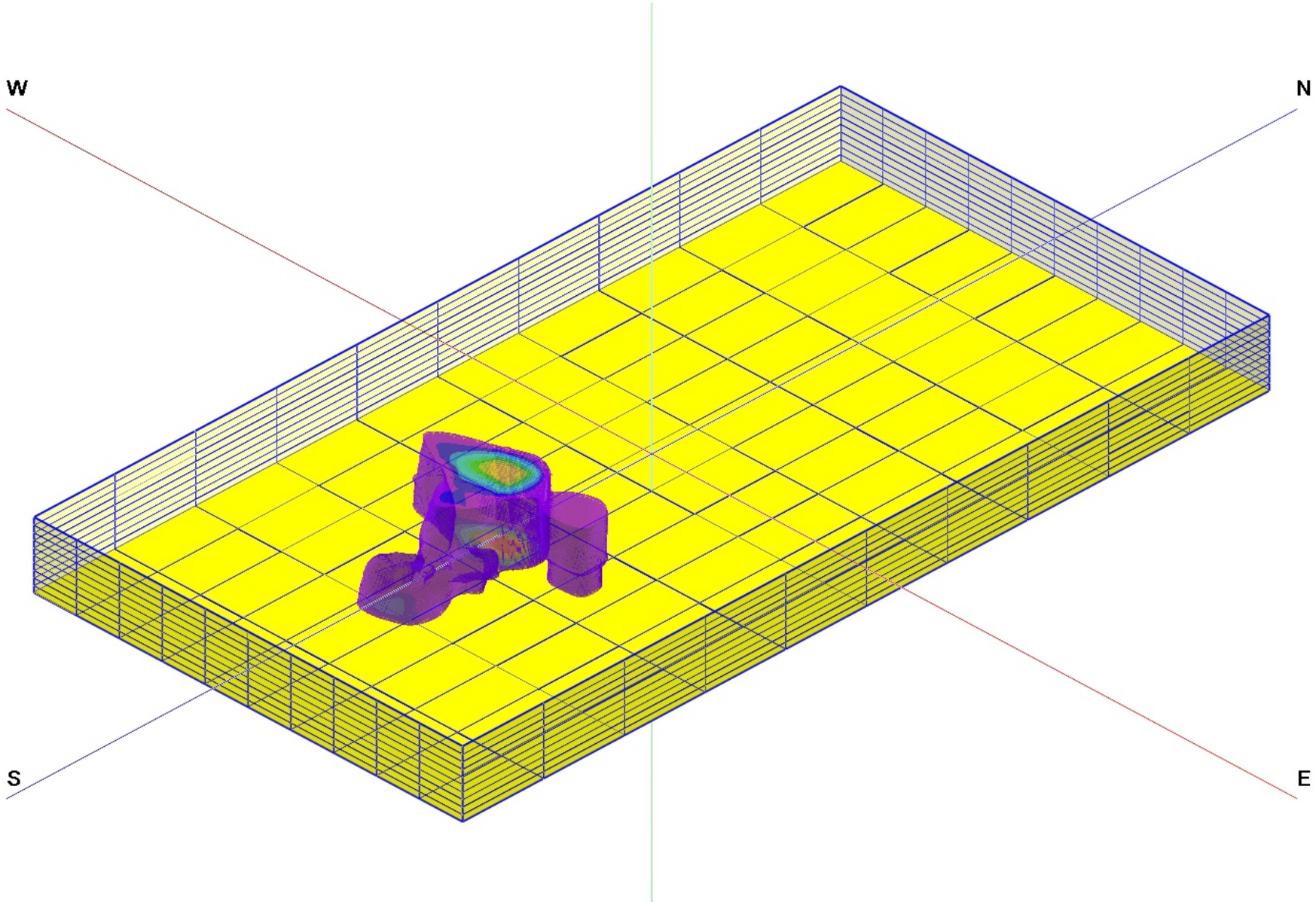
Job No:
Drawn By: pjs
Date: 03/17/2025
QC: PE:
File:

Johnston Leigh Inc.
(801) 726-6845

TREATMENT LOCATION, CONTAMINATED SOIL SHOWN IN COLOR SHADING

FORMER FLYING J STATION
MILES CITY, MT

FIGURE
2



0 30 60

SCALE IN FEET

- EXCAVATION WALLS SHOWN IN GRAY SHADING AT 45 DEGREE ANGLE
- CONTAMINATED SOIL SHOWN IN COLOR SHADING
- EXCAVATION SURFACE IS BARE GROUND

Job No:
Drawn By: pjs
Date: 03/17/2025
QC: PE:
File:

Johnston Leigh Inc.
(801) 726-6845

3D MODEL OF SOIL CONTAMINATION

FORMER FLYING J STATION
MILES CITY, MT

FIGURE
3

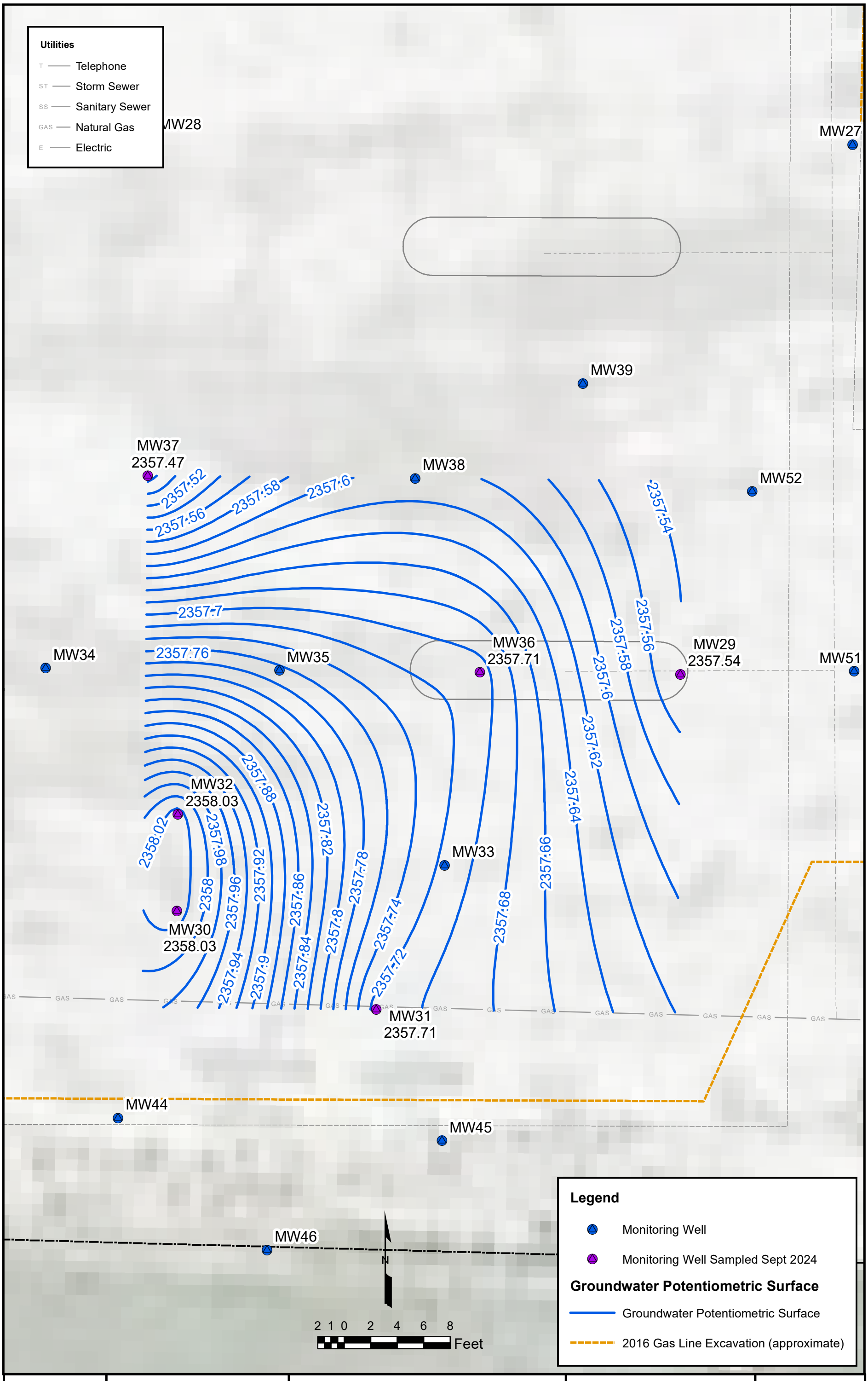


FIGURE 4	FORMER FLYING J STATION MILES CITY, MT	GROUNDWATER POTENTIOMETRIC SURFACE SEPTEMBER 2024	*Joshnston Leigh Inc.* (801) 726-6845	Job No.: Date: 01/18/2025 Drawn By: pjs File:

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well (Boring)	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
			(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(mg/L)	(mv)	(ms/cm)	(deg C)
Push Probe Borings Gasoline Island																							
A-1	GW-A1-050905	05/11/05	**4600**	100	510	8,700	**1,800**	**1,100**	250	830	<20	<50											
A-4	GW-A4-050905	05/11/05	<100	<100	<20	<200	**38**	<1	2	<3	<2	<5											
B-5	GW-B5-051005	05/10/05	**1400**	140	910	3,300	**33**	62	47	330	<20	25											
Piezometers																							
TW-1	GW-TW1-051205	05/12/05	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<230							
TW-2	GW-TW2-051205	05/12/05	**10000**	**3200**	**6000**	29000	**1800**	**1500**	270	6800	<40	**430**											
Groundwater Monitoring Wells																							
MW-1	Not Sampled	11/24/07				Active Product Recovery System in Place																	
	Not Sampled	03/20/08				Active Product Recovery System in Place																	
	Not Sampled	04/29/09				Active Product Recovery System in Place																	
	Not Sampled	11/12/09				NAPL on water surface at 0.10 foot thick.																	
	Not Sampled	11/10/10				NAPL on water surface at 0.02 foot thick.																	
	Not Sampled	12//7/11				Well could not be found																	
	MW1	07/12/12	<40	623	896	1520	<1.0	<1.0	38	8.4	<5.0	56	ND	<5.0	<0.010	**8310**	**2100**	391	**4650**	0.5	-374	2.05	17.2
		11/01/12	<40	**1090**	1090	2100	1.4	<1.0	34	0.82	<2.0	70				**38600**				0.1	-363		12.2
	Not Sampled	06/11/13				NAPL on water surface at 0.25 foot thick.																	
	Not Sampled	12/11/13				NAPL on water surface at 0.02 foot thick.																	
	Not Sampled	07/29/14				NAPL on water surface at 0.02 foot thick.																	
	Not Sampled	01/28/15				NAPL on water surface at 0.03 foot thick.																	
			Well removed during excavation April 2015																				
MW-2	GW-MIL2-051205	05/12/05	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<230							
	GW-MW2-1107	11/16/07	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<210				0.6	156	1.6	14.5
	GW-MW2-0908	09/30/08	<40	<40	<40	<40	<1	<1	<1	<3	<4	<10								1.2	153	1.28	14.3
	GW-MW2-0908	04/29/09	Not sampled, well under land farm soil																				
	GW-MW2-1109	11/12/09	<100	<100	<100		<1	<1	<1	<3	<1	<10					<75	94	<50	2.8	138	0.7	9
	MW2	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<234							
	MW2	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				752				3.0			10.3
	MW2	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1.0	<1	ND	<0.50	<0.010	<337				0.7	263	2.85	18.8
	MW2	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1.0	<1				<308				0.8	123		14
	MW2	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				215				1.3	91.1	3.1	13
	MW2	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.5	76.5	2.23	14
	MW-2	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300							

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW-3	GW-MW3-1107	11/15/07	<100	<100	<20	<200	<1	<1	2	6	<2	<5								7.0	68	2.23	13.0
	GW-MW3-0908	09/30/08	<40	<40	<40	<51	<1	5.3	<1	<3	<4	<10								7.9	87	2.58	14.5
	GW-MW3-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW3-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.0	128	1.2	8.8
	MW3	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0											
	MW3	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1								2.7			9.9
	MW3	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	ND	<0.50	<0.010					0.3	50	3.38	14.6
	MW3	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1	<1								0.3	50		14.1
	MW3	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.2	-140	3	14.9
	MW3	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					-98	2.6	11.5
	MW3	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.1	91.5	2.51	13
	MW3	01/28/15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA							
	MW-3	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.7	80	3.8	12.9
	MW-3	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.7	43.2	3.99	13.5
	MW-3	11/19/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<948							
	MW-3	06/19/23	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1	<1	<333				0.1		1855	12.4
MW-4	GW-MW4-1107	11/15/07	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5				<220				3.2	91	1.4	14.4
	GW-MW4-0908	09/30/08	<20	<20	<20	<20	<0.5	<0.5	<0.5	<1.5	<2	<5								2.9	38	1.3	12.7
	GW-MW4-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW4-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.5	152	2	9.7
	MW4	11/10/10	<20	<20	<20	<20	0.56	<0.50	<0.50	<1.5	<0.50	<5.0				<218							
	MW4	12/07/11	<20	<20	<20	<20	0.56	<0.50	<0.50	<1.5	<1	<1				<303				2.2			9.6
	MW4	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.2		1.2	12.6
	MW4	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300					58.1	1.76	13.1
	MW4	07/30/14	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.2	46	1.35	12.8
	MW4	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				0.6	49	1.85	12.4
	MW4	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				2.1	76.6	2.2	13.4
	MW4	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.7	71.9	2.04	14.1
	MW-4	06/27/17	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.5	34.8	1.89	12.8
	MW-4	11/22/17												<1	<0.01						39.8	1.27	12.5
MW-5	GW-MW5-1107	11/15/07	<100	<100	<20	<200	<1	<1	<1	<3	<2	<5								8.7	119	0.9	13.3
	GW-MW5-0908	09/30/08	<20	<20	<20	<20	<0.5	<0.5	<0.5	<1.5	<2	<5								7.6	73	1.3	14.5
	GW-MW5-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW5-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.8	-19	0.9	10.3
	MW5	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0											
	MW5	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1								1.8			8.9
	MW5	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	#1	<0.50	<0.010					0.4	32	1.2	14.3
	MW5	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1								0.7	19		14.3
	MW5	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1								0.7	19		14.3
	MW5	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.8	61	2.1	13.4
	MW5	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.3	36.8	1.79	14.6

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW-6	GW-MW6-1107	11/15/07	620	<100	**1600**	**2900**	**110**	36	110	210	<2	55								4.0	-68	1.2	13.0
	GW-MW6-0908	09/30/08	140	<40	228	656	1.7	<1	<1	13	<4	**<5**								7.5	92	1	17.5
	GW-MW6-0409	04/29/09	Not sampled, NAPL on groundwater in well																				
	GW-MW6-1109	11/12/09	**920**	670	980		**270**	33	230	157.7	<5.0	<50								2.7	-109	0.7	9.5
	MW6	11/10/10	**<1000**	1400	<1000	**2950**	**65.2**	<25	212	143	<25	<250											
	MW6	12/07/11	**764**	**2190**	**1720**	**4570**	**103**	6.1	195	83	<10	**104**											
	MW6	07/12/12	290	234	401	864	4.2	1.4	3.8	2.5	*<5	9.4	ND	**0.74**	<0.010	**2170**	**1320**	<326	555				
	MW6	11/01/12	206	178	299	677	**32**	<2.5	39	<2.5	<5.0	9.2								0.2	-244		12.2
	MW6	06/11/13	200	170	<100		**14**	<5	8.4	<15	<5	<5				**3200**	<600	<600	<600				
	MW6	12/11/13	<1000	<1000	<1000	<2000	**<50**	<5	74	<15	<5	<5		<1	<0.01	**2100**					104	1.1	11.4
	MW6	07/29/14	160	320	120	550	<5.0	<5.0	6.6	<15	<5.0	<5.0		<1.0	<0.01	**1700**	<600	<600	<600	0.1	-124	0.72	12
	MW6	01/28/15	<100	510	170	770	<5.0	<5.0	13	<15	<5.0	16		<1.0	<0.010	**2400**	<600	<600	<600	1.4	-125	0.87	9.2
	MW-6	11/15/16	<100	161	<100	344	<5	<5	<5	<15	<5	<5				**1440**				2.2	-134	0.8	12
	MW-6	06/27/17	<100	210	104	1260	<5	<5	<5	<15	<5	<5				**3390**	847	<600	408	0.5	-132	1.63	11.9
	MW-6	11/22/17	126	132	261	394										**2660**	806	<636	463		-122	1.01	11.4
	MW-6	05/29/18	81	68.1	76	228	1.68	<5	1.95	<15	<5	2.48				**1930**	480	<600	210				
	MW-6	09/23/18	131	68.4	141	345	<5	5	<5	<15	<5	4.35		<1	<0.01	**1560**	<737	<737	<737				
	MW-6	11/20/20	156	102	152	429	1.6	<1	14.8	<3	<1	<5		1.3	<1	**2680**							
	MW-6	06/19/23	150	127	201	496	<5.0	<5.0	14	<15	<5.0	6.78		<1	<1	**4700**				0.1	-137	570	12.5
MW-7	GW-MW7-1107	11/16/07	<100	<100	<20	<200	<1	<1	2	5	<2	<5				<220				5.4	145	1.3	21.1
	GW-MW7-0908	09/30/08	<20	<20	<20	<20	<0.5	<0.5	<0.5	<1.5	<2	<5								6.5	74	1.36	16.2
	GW-MW7-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW7-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								3.0	130	1	9.8
	MW7	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<248							
	MW7	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				<334				1.5			6.8
	MW7	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1	ND	<0.50	<0.010	<343				1.9	113	2.15	12.4
	MW7	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				1.6	78.6	2.3	13.7
	MW7	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.0	78.7	2.43	14.3
	MW-7	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.5	39.7	2.7	12.8
MW-8	GW-MW8-1107	11/15/07	<100	<100	39	<200	<1	<1	2	8	<2	<5								7.5	69	2.2	13.6
	GW-MW8-0908	09/30/08	<40	<40	<40	<40	<1	<1	<1	<3	<4	<10								7.6	80	1.6	16.7
	GW-MW8-0409	04/29/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10											
	GW-MW8-1109	11/12/09	<100	<100	<100		<1.0	<1.0	<1.0	<3.0	<1.0	<10								2.9	143	1.2	11
	MW8	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0											
	MW8	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1								5.1			9
	MW8	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1	<1	ND	**0.29**	<0.010					0.38	-8	2.07	13.8
	MW8	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.5	<1	<1								0.7	133		13.7
	MW8	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.28	-121	2.3	14.7
	MW8	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					-81	2.3	11.6
	MW8	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.28	101	1.99	12.9
	MW8	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	<300				0.5	53.6	2.96	10.9
	MW-8	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.43	68	3.02	13.1
	MW-8	06/27/17	<100	<100	<100	<600	<5	<5	<5	<15	<5	<5				<300	<600	<600	<600	0.5	28.6	3.74	13.5
	MW-8	11/19/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<333				0.4		2010	12.5

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW-9	GW-MW9-1107	11/16/07	162	112	144	448	**75**	11	4	14	<2	4				580				5.5	136	1.3	12.1
	GW-MW9-0908	09/30/08	<20	<20	<20	<20	**6.3**	<0.5	<0.5	<1.5	<2	<5								7.9	65	1.4	17.3
	Well removed during excavation October 2008																						
MW9 (new)	GW-MW9-1109	11/12/09	100	140	210		**12**	1.4	9.9	17	<1	<10					110	86	120	4.4	137	1.2	11
	MW9	11/10/10	<20	331	176	356	**12.9**	2.3	6.2	6.8	6.9	5.7				**30400**	<239	<239	<239				
	MW9	12/07/11	299	340	362	907	**81**	2.2	21	9	12	13				**15700**	<316	<316	<316	1.7			8.8
	MW9	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	ND	<0.50	<0.010	648				0.4	-8	2.07	13.8
	MW9	11/01/12	620	343	326	1200	**94**	5.7	29	11	<10	12				**24800**				0.2	-244		13.9
	MW9	06/11/13	<100	<100	<100		**81**	<5	<5	<5	<5	<5				320				0.1	-240	1.8	13.6
	MW9	12/11/13	<1000	<1000	<1000	<2000	**<50**	<50	<50	<150	<50	<50				**6600**					-40	1.33	11.7
	MW9	07/30/14	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				**2200**	<600	<600	<600	0.2	-38	1.52	12.5
	MW9	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				990				0.3	-90	2.29	12
	Well removed during excavation April 2015																						
MW10	GW-MW10-1109	11/12/09	<100	<100	<100		<1	<1	<1	<3	<1	<10					<75	79	<50	3.0	171	0.9	10
	MW10	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<244							
	MW10	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				537				2.0			6.2
	MW10	07/11/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1	ND	<0.50	<0.010	<337				1.0	196	1.59	14
	MW10	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.05	<1	<1				<300				0.9	113		13.5
	MW10	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				57				3.2	95.9	2.3	12.4
	MW10	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.3	55.3	2.1	13.3
	MW-10	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.8	36.2	2.21	12.6
MW11	GW-MW11-1109	11/12/09	<100	<100	<100		<1	<1	<1	<3	<1	<10					<75	<75	67	6.0	100	1.6	10
	MW11	11/10/10	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<0.50	<5.0				<240	<75	<75	67				
	MW11	12/07/11	<20	<20	<20	<20	<0.50	<0.50	<0.50	<1.5	<1	<1				747				2.0			8.9
	MW11	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1	ND	<0.50	<0.010	<337				1.9	113	2.15	12.4
	MW11	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1	<1				374				0.7	196		13.2
	MW11	11/13/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				302				1.1	73.9	2.6	13.3
	MW11	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				8440				1.7	90.7	2.37	13.6
	MW-11	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				2.0	38	2.63	11.9
MW12	GW-MW12-1109	11/12/09	<100	<100	<100		<1	<1	2.3	<3	<1	<10								4.5	121	102	9.8
	MW12	11/10/10	39.6	93.7	75.3	247	1.3	0.68	27.8	<1.5	11.2	13				753							
	MW12	12/07/11	141	41	30	171	<0.5	0.45	6.6	1.8	16	3.6								1.8			10.6
	MW12	12/07/11	41	<20	<20	39	<0.5	<0.5	<0.5	0.51	8.8	<1	#2	1.5	<0.010	351				0.4	-45	2.42	16.5
	MW12	11/01/12	291	39	32	281	<0.5	<0.5	2	0.86	16	0.93				696				0.2	-146		13.5
	MW12	06/11/13	<100	<100	<100		**8**	<5	<5	<5	<5	<5				370				0.2	-45	1.8	15.6
	MW12	12/11/13	<100	<100	<100	240	<5	<5	<5	<15	13	<5				<300					-12	1.38	11.1
	MW12	07/30/14	110	<100	<100	<200	<5	<5	<5	<15	12	<5				500				0.2	-3.1	1.86	12.9
	MW12	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				<300				0.4	12.6	2.47	11.6
	MW12	11/15/16	163	<100	<100	207	<5	<5	<5	<15	10.3	<5				446				0.7	-51	2.45	13.6
	MW-12	06/27/17	<100	<100	<100		<5	<5	<5	<5	<5	<5				<300				0.6	26.7	2.58	13.2

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW13	GW-MW13-1109	11/12/09	<100	100	150		<1	1.3	2.3	<3	1.8	<10					240	150	320	3.5	158	0.9	11.7
	MW13	11/10/10	70.3	1200	608	**1040**	4.9	1.5	41.4	18.5	57.6	92.9				**23700**	**4370**	**1880**	838				
	MW13	12/07/11	NAPL on Groundwater, 1.2' thick																				
	MW13	07/12/12	25	108	139	299	0.41	<0.50	1.9	1.9	1.2	8.3	#5	<0.50	<0.010	**6320**	**1770**	**<333**	916				
	MW13	11/01/12	63	**1030**	920	**2140**	<0.5	<0.50	9.3	13	<2.0	78				**72600**							
	Not Sampled	06/11/13	NAPL on water surface at 0.01 foot thick.																				
	Not Sampled	12/11/13	NAPL on water surface at 0.19 foot thick.																				
	Not Sampled	07/29/14	NAPL on water surface at 0.07 foot thick.																				
	Not Sampled	01/28/15	NAPL on water surface at 0.02 foot thick.																				
			Well removed during excavation April 2015																				
MW14	GW-MW14-1110	11/10/10	**9880**	**5200**	**3100**	**25300**	**1550**	616	682	1310	<0.5	**305**		**9**									
	MW14	12/07/11	NAPL on Groundwater, 0.375' thick																				
	MW14	04/27/12	**Well removed during excavation April 2013**																				
MW15	GW-MW15-1110	11/10/10	**5770**	**3320**	**3230**	**30300**	**7580**	**1210**	581	4620	<10	**300**											
	MW15	12/07/11	NAPL on Groundwater, 3' thick																				
	MW15	04/27/12	**Well removed during excavation April 2013**																				
MW16	GW-MW16-1110	11/10/10	<200	**2380**	**2200**	**20700**	**5220**	587	433	1980	**5640**	**125**											
	MW16	12/07/11	NAPL on Groundwater, 1.2' thick																				
	MW16	04/27/12	**Well removed during excavation April 2013**																				
MW17	MW17	07/12/12	28	4.4	37	55	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	**0.34**	<0.010	<353				1.9	30	1.9	14.3
	MW17	11/01/12	182	47	92	253	<0.50	0.59	<0.50	<0.50	<1.0	<1.0								1.5	-66		14
	MW17	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				560				0.2	-312	1.7	14
	MW17	12/11/13	200	230	<100	540	<5	<5	<5	<15	23	<5		<1	<0.01	320					69.1	2.08	12.9
	MW17	07/29/14	570	200	<100	610	<5.0	<5.0	<5.0	<15	51	<5.0		<1.0	<0.01	840	<600	<600	<600	0.1	-98	2.07	13.1
	MW17	01/28/15	590	390	200	980	**37**	<5.0	<5.0	<15	**88**	5.1		<1.0	<0.010	**1300**	<600	<600	<600	0.1	-150	2.6	12.7
	MW-17	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.1	61.7	2.12	12.8
	MW-17	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.9	-7.8	2.7	13
	MW-17	11/19/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<333							
	MW-17	06/19/23	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<315				0.8	79	1394	12.4
MW18	MW18	07/12/12	**7620**	**1470**	**2020**	13000	**3600**	961	395	1400	29	**203**	ND	**36**	<0.010	**13200**	<309	<309	541	5.2	158	2.72	16.1
	MW18	11/01/12	162	19	25	217	**54**	13	1.8	14	<1.0	<1.0								0.2	-123		14.6
	MW18	06/11/13	**6300**	**1500**	<1000		**4200**	580	290	140	**98**	<50				**12000**	<600	<600	<600	0.1	-450	2.6	15.5
	MW18	12/11/13	**700**	<500	<500	2600	**910**	32	<25	<75	**71**	<25		<10	<0.01	**4500**					-134	1.8	12.6
	MW18	07/29/14	**1400**	660	<500	4500	**1600**	75	<25	269	**43**	25		<10	<0.01	**15000**	<600	<600	<600	0.1	-150	2.12	13.8
	MW18	01/28/15	**1800**	480	200	9300	**3900**	80	82	259	**150**	6		<10	<0.010	**5400**	<600	<600	<600	0.1	-170	2.14	12
			Well removed during excavation November 2015																				

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW19	MW19	07/12/12	**3030**	**323**	**413**	3620	**735**	43	70	243	**1030**	26	#3	**<5.0**	<0.010	**4270**	<353	<353	<353	4.5	167	2.41	15.8
	MW19	11/01/12	**1440**	59	177	1630	**390**	13	20	42	**434**	<10								1.8	-76		14
	MW19	06/11/13	**1100**	<1000	<1000		**1800**	<50	<50	<50	<150	<50				**7200**	<600	<600	680				
	MW19	12/11/13	690	<500	<500	4700	**2600**	78	58	<75	**320**	<25		<10	<0.01	**5000**					-144	2.31	13.8
	MW19	07/29/14	**710**	<500	<500	4900	**2200**	74	120	289	**32**	31		<50	<0.01	**3900**	<600	<600	<600	0.1	-105	0.94	13.4
	MW19	01/28/15	**3200**	960	530	9400	**3400**	22	22	730	**30**	38		<25	<0.010	**9500**	<600	<600	<600	0.1	-218	2.97	12.5
			Well removed during excavation November 2015																				
MW20	MW20	07/12/12	**15400**	**5000**	**4840**	29800	**10800**	495	**1310**	4670	**1670**	393	#4	**<30**	<0.010	**14300**	<343	<343	722	4.7	171	3.08	16.5
	MW20	11/01/12	**3950**	326	**1090**	5820	**1870**	78	57	295	**763**	<50								4.5	-155		14.2
	MW20	06/11/13	**5200**	**1600**	<1000		**5400**	220	370	590	**1000**	**100**				**11000**	<600	<600	<600				
	MW20	12/11/13	**1200**	**1200**	<1000	12000	**6000**	220	<50	1056	**1400**	<50		<25	<0.01	**8400**					-137	2.66	12.7
	MW20	07/29/14	**1900**	990	<500	8700	**3000**	140	85	854	**690**	54		<50	<0.01	**10000**	<600	<600	<600	0.1	-162	2.61	13.6
	MW20	01/28/15	**2000**	680	310	11000	**4200**	110	41	687	**1000**	<5.0		<10	<0.010	**8900**	<600	<600	<600	0.2	-180	3.15	10.9
			Well removed during excavation November 2015																				
MW21	MW21	07/12/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	ND	<0.50	<0.010	<316				1.2	124	0.88	14
	MW21	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0								0.1	6		12
	MW21	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				1.0		3.8	13.3
	MW21	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					31	1.19	10.3
	MW21	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.1	24.5	0.93	11.9
	MW21	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	<300				1.2	38	1.85	10.3
	MW21	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.9	72.3	3.9	11.8
	MW21	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.4	44.5	4.87	11.9
	MW21	11/20/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<315							
	MW21	06/19/23	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1	<1	<315				0.3	67	2280	12.7
MW22	MW22	07/12/12	<20	21	<20	22	<0.50	1.7	<0.50	<0.50	<1.0	<1.0	ND	<0.50	<0.010	488				1.2	124	0.88	14
	MW22	11/01/12	<20	<20	<20	<20	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0								0.2	186		12.4
	MW22	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.9		3.8	13.6
	MW22	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					57.4	3.68	10.8
	MW22	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				1.0	66.1	3.83	13
	MW22	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	<300				2.0	30.9	5.11	10.6
	MW22	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.3	46.1	4.85	12.4
	MW22	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.8	52.5	5.48	11.4
	MW22	11/20/20	<100	<100	<100	<200	<1	<1	<1	<3	<1	<5		<1	<1	<315							
	MW22	06/19/23	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1	<1	<315				1.3	67	1054	12.5

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW23	MW23	06/11/13	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				7.7	-24	1.1	10.9
	MW23	12/11/13	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5		<1	<0.01	<300					32	1	10.4
	MW23	07/29/14	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.01	<300				0.2	36.9	1.03	10.9
	MW23	01/28/15	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<0.010	**1300**	<600	<600	<600	1.8	19.7	0.82	8.1
	MW23	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				1.4	-19	1.24	11.8
	MW23	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.5	7.3	1.58	11.2
MW24	MW24	11/13/15	<100	<100	<100		<5	<5	<5	<15	<5	<5				238				3.0	91.7	2.2	14.2
	MW24	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				<300				0.9	62.5	1.9	14
	MW-24	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				<300				0.7	39	1.83	12.5
	MW-24	11/22/17	<100	38.2	38.2	<200	<1	<1	<1	<3	<1	<5		<1	<0.01	155					60.4	1.32	11
MW25	MW25	11/13/15	<1660	**3780**	<1660	6610	**85.4**	<83.5	163	519	<83.5	84.3				**4460**	<200	<200	227	2.6	-28	2	13.3
	MW25	11/15/16	<500	<500	<500	<1000	<25	<25	<25	<75	<25	<25				**8440**				1.3	-138	1.94	14.9
	MW-25	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				898				0.6	-87	2.27	14.2
	MW-25	11/22/17	38	57.2	123	164	3.13	<1	2.44	<3	<1	<5		<1	<0.01	**5370**	<618	<618	<618		-8.5	1.35	13.2
MW26	MW26	11/13/15	<100	74.9	<100	126	<5.0	<5.0	<5.0	<5.0	4.1	2.01				**6200**	<200	<200	227	2.6	-28	2	13.3
	MW26	11/15/16	<100	<100	<100	<200	<5	<5	<5	<15	<5	<5				**1260**				1.5	-105	2.61	14.1
	MW-26	06/27/17	<100	<100	<100		<5	<5	<5	<15	<5	<5				**1180**	<600	<600	<600	NA	NA	NA	NA
	MW-26	11/22/17	<100	55.1	56.5	<200	0.566	<1	1.36	<3	0.884	<5		<1	<0.01	**1400**	<600	<600	<600		-87	1.92	12.4
MW27	MW27	06/27/17	190	216	<100	<600	**7.28**	<5	11.2	10.7	<5	<5				**1060**	<600	<600	<600	0.5	-88	2.29	14
	MW27	11/22/17	295	358	**1270**	1800	**232**	<1	490	190	0.971	136		**34.8**	<0.01	**5300**	<636	<636	251		-11	1.48	12.1
	MW27	05/29/18	656	1390	886	3230	**202**	4.64	436	48.1	<5	138				**5310**	<200	<200	250				
	MW27	09/23/18	403	459	840	2250	**134**	2.01	314	97.04	<5	119		**8.84**	<0.01	**3750**	<750	<750	<750				
	MW27	07/23/19	644	1070	898	3700	**202**	1.69	645	166.05	<5	73.3		**32.6**	<0.01	**6940**							
	MW27	11/20/20	390	548	585	2250	**171**	<1	528	18.9	<1	25.6		**31.2**	<1	**2620**							
	MW27	01/18/21	281	768	276	1130	**78.5**	<1	175	<20	<10	<10				**744**				0.3	-62	1.78	11.6
MW28	MW28	06/27/17	**673**	362	187		**96**	8.38	14.2	<15	**65.7**	13.8				752				0.4	-91	2.27	13.6
	MW28	11/27/17	**1380**	463	**1180**	4340	**1660**	4.55	189	94.7	**115**	43.6		**177**	<0.01	**3030**	<636	<636	<636		-116	1.38	11.6
	MW28	05/29/18	**3390**	450	450	6340	**1660**	38.5	156	82.6	**73.8**	40.7				**2890**	<600	<600	<600				
	MW28	09/23/18	**743**	135	252	1850	**582**	3.46	110	7	**21.2**	11.3		**9.49**	<0.01	**2000**	<750	<750	<750				
	MW28	07/23/19	151	90.3	119	430	**26.2**	<10	34.9	<20	<10	3.67		**0.74**	<0.01	**429**							
MW29	MW29	06/27/17	<100	<100	<100		**19.8**	<5	<5	<15	**1200**	<5				370				0.8	32.6	3.59	13.3
	MW29	11/27/17	<100	55	107	897	**71.5**	<1	3.45	1.33	**1280**	3.67		**24.7**	<0.01	455					-25	2.15	12.3
	MW29	05/29/18	<100	33.8	43.6	632	**11.5**	<5	2.96	<15	**730**	2.02				960							
	MW29	09/23/18	<100	<100	66.5	562	**10.2**	<5	3.08	<15	**845**	<5		**14.9**	<0.01	481							
	MW29	07/23/19	<33.3	43.9	<33.3	389	2.25	<5	<5	<15	**503**	<5		**12.2**	<0.01	278							
	MW29	11/19/20	<100	<100	<100	301	<10	<1	<10	<3	**622**	<5		**12.4**	<0.01	<948							
	MW29	01/18/21	<100	62.4	<100	339	<5	<5	<5	<15	**373**	<5				<300				0.5	153	1.72	10.9
	MW29	06/19/23	<100	<100	<100	224	<5	<5	<5	<15	**386**	<5		**6.64**	<5,0	<300				0.3	24	2.35	14.4
	MW29	09/29/24	<100	<100	<100	<200	**9.31**	<5.0	22.2	<10.0	<5.0	<5.0				403				0.6		2.04	18.9

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW30	MW30	06/27/17	**878**	647	274	<600	**287**	5.12	82	46.2	<5	26.5				**1400**	<600	<600	<600	0.6	-101	2.02	13.2
	MW30	11/27/17	**953**	488	**1780**	4000	**1260**	7.34	257	322	<20	110		**8.25**	<0.01	**3920**	<636	<636	376		-110	2.01	12.4
	MW30	05/29/18	**1980**	974	693	4740	**1270**	7.22	324	88.7	5.5	95.1				**4160**	<600	<600	244				
	MW30	09/23/18	**1410**	291	601	3830	**1380**	6.3	32.9	105	4.21	90.6		3.82	<0.01	**2840**	<720	<720	<720				
	MW30	07/23/19	**1360**	501	418	3480	**952**	3.58	309	43.62	<5	38.7		3.45	<0.01	**2790**	<750	<750	<750				
	MW30	11/19/20	**3090**	<1000	<1000	10200	**5532**	65.5	54	312	5.46	40.8		<1.0	<1.0	**1530**							
	MW30	01/18/21	**1590**	1240	<1000	4230	**1400**	<50	314	<150	<50	<50				**1250**	<600	<600	<600	0.2	-60	1.87	17.7
	MW30	06/20/23	<100	<100	<100	<200	<5	<5	<5	<15	<5.0	<5		<1.0	<1.0	<333				1.5	37	1.7	14
	MW30	09/29/24	<100	<100	<100	<200	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0				315				0.5		1.26	13.8
MW31	MW31	11/19/20	<200	<200	<200	544	**389**	<2	32	23.4	<2	<10		2.54	<2	639	<636	<636	251				
	MW31	01/18/21	**18900**	**1490**	374	20800	**9130**	123	126	385.8	230	58.2				**4990**	<600	<600	<600	0.2	-149	1.79	9
	MW31	08/02/22	<1000	<1000	<1000	5170	**3020**	<50	73.8	<150	<50	<50				**3910**	<600	<600	<600	0.2	-106	1.71	13.5
	MW31	06/20/23	256	<100	<100	820	**465**	<5.0	10.9	<15	<5.0	<5.0		<1.0	<1.0	**6020**							
	MW31	09/29/24	<100	<100	<100	<200	**29**	<5.0	<5.0	<10.0	<5.0	<5.0				354				0.3		1.3	14.7
MW32	MW32	11/19/20	321	166	166	96	**278**	2.58	42.7	54.3	2.08	12.1		2.35	<1.0	878							
	MW32	01/18/21	**1350**	571	205	2930	**1000**	7.54	109	25.3	<5.0	1.83				**1010**	<600	<600	<600	0.3	-2	1.59	12.2
	MW32	08/03/22	<100	<100	<100	1210	**579**	<5.0	7.97	<1.0	<5.0	<5.0				**10000**	<600	<600	<600				
	MW32	09/29/24	159	<100	<100	402	**78.9**	<5.0	13.3	<10.0	<5.0	<5.0				**1670**	<600	<600	<600	0.3		1.3	14.7
MW33	MW33	11/19/20	<100	<100	<100	365	<20	<1.0	4.83	<3	**644**	<5		<1.0	<1.0	**1450**							
	MW33	01/18/21	<100	80.4	<100	428	<5.0	<5.0	<5.0	<15	**474**	<5.0				974				0.8	96.9	2.6	12.8
MW34	MW34	11/19/20	604	460	399	2180	**506**	7.34	139	201	<20	38.4		<1.0	<1.0	921							
	MW34	01/18/21	**1460**	**2030**	700	3950	**447**	7.78	258	259	<5.0	66.5				**1880**	<600	<600	<600	0.5	18.4	1.66	12.4
	MW34	06/20/23	**706**	103	360	1990		10.1	40.4	1015	28	48.5		<1.0	<1.0	**6470**				2.2	-112	1.9	14.8
MW35	MW35	11/19/20	219	537	706	1760	**79.1**	2.56	22.1	175	19	17.9		**5.06**	<1.0	**6770**							
	MW35	01/18/21	317	**1520**	612	2000	**137**	6.25	42.7	223	16.3	26.3				**3800**	<600	<600	<600	0.2	-71	1.99	12.4
	MW35	06/20/23	<1.0	<1.0	<1.0	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<1.0	<354				3.5	-42	0.943	14.3
MW36	MW36	11/19/20	<100	203	237	1.57	**45.4**	<1.0	<1.0	26.9	**1180**	8.15		1.76	<1.0	**1300**							
	MW36	01/18/21	**1220**	690	285	2760	**96.3**	<5.0	82.1	26.5	**751**	14.5				**1210**	<600	<600	<600	0.7	59	2.62	11.6
	MW36	09/29/24	213	<100	<100	286	<5.0	<5.0	<5.0	<10.0	**240**	<5.0				704				0.2		2.34	14.9
MW37	MW37	11/19/20	**815**	397	262	2630	**1070**	2.38	72.6	65.9	13	25.4		**7.75**	<1.0	**4820**							
	MW37	01/18/21	**1930**	1060	354	3740	**743**	<5.0	224	29.8	<5.0	50.4				**2320**	<600	<600	<600	0.2	20	2.03	12.9
	MW37	06/20/23	140	<1.0	101	676	**232**	<5.0	59.9	<15	**121**	8.46		1.5	<1.0	**1370**				2.5	-119	2.19	15.2
	MW37	09/29/24	**1020**	353	229	2830	**679**	8.93	146	32.6	**30**	26				**4760**	<1900	<1900	<1900	0.3		2.25	13.6
MW38	MW38	11/19/20	106	<100	<100	533	**124**	1.28	19	28.2	3.63	6.14		<1.0	<1.0	<354							
	MW38	01/18/21	**1290**	1110	328	3170	**746**	6.8	112	177	12.2	31.2				864	<600	<600	<600	0.5	34	1.33	12.1
MW39	MW39	11/19/20	**3280**	174	522	8390	**3600**	42.5	302	292	181	63		**44.4**	<1.0	**3480**							
	MW39	01/18/21	**6170**	**3350**	927	12500	**2830**	23.8	506	518	145	118				**3550**	<600	<600	<600	0.3	15.3	1.65	11.7
	MW39	08/02/22	<100	<100	<100	<200	**10.8**	<1.0	26	<3.0	1.09	<5.0				491							

TABLE 2
GROUNDWATER SAMPLE RESULTS
Former Flying J Travel Plaza, Miles City, MT
Facility ID #09-08661, Gasoline Release #4365, Diesel Release #1986

Well	Sample ID	Date	C5-C8	C9-C12	C9-C10	TPH	Benzene	Toluene	Ethyl	Total	MtBE	Naphthalene	Oxygenates	DCA	EDB	EPH Screen	C9-C18	C19-C36	C11-C22	DO	ORP	Cond	Temp
MW40	MW41	08/04/22	**2180**	<100	<100	513	**112**	<5.0	<5.0	<15	19	<5.0				**1320**							
MW41	MW41	08/04/22	**2180**	<100	<100	513	**112**	<5.0	<5.0	<15	19	<5.0				**1320**							
	MW41	06/19/23	**2180**	309	463	4960	**1830**	11	97.1	27.7	100	52.4		<1.0	<1.0	**2710**				0.3	-91	1.417	13.6
MW42	MW42	08/03/22	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				427							
MW43	MW43	08/03/22	116	<100	<100	291	**125**	<5.0	<5.0	<15	<5.0	<5.0				603							
	MW43	06/20/23	117	114	208	708	**126**	<5.0	119	<15	<5.0	24		<1.0	<1.0	1640				0.2	-54	1.238	12.8
MW44	MW44	08/03/22	296	<100	<100	488	**72.8**	<5.0	<5.0	24.9	8.06	<5.0				543							
	MW44	06/20/23	**1100**	219	487	3010	**623**	<5.0	242	155	13.6	106		<1.0	<1.0	543				0.3	-58	1.401	13.7
	MW44	09/29/24	347	271	212	1040	**53.1**	<5.0	44.9	<10.0	<5.0	16				**1700**	<600	<600	<600	0.1		2.84	12.5
MW45	MW45	08/04/22	384	<100	<100	827	**205**	<5.0	24.5	<15.9	28.1	17.7				**1170**							
	MW45	06/20/23	**3940**	177	562	7350	**3860**	22.3	9.29	160	126	40.9		<1.0	<1.0	4300				2.4	-109	1.84	15.7
	MW45	09/29/24	**670**	223	162	1360	**151**	<5.0	<5.0	25.1	<5.0	<5.0				**1110**	<600	<600	<600	0.2		2.79	12.5
MW48	MW48	08/04/22	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0				399							
	MW48	09/29/24	427	555	475	1780	**14.5**	<5.0	67.8	<10.0	<5.0	<5.0				**3470**	610	<606	691	0.2		2.43	13.3
MW51	MW51	08/02/22	**821**	571	<500	5060	**2970**	13.6	120	86.3	475	24				**2120**	<600	<600	<600				
	MW51	06/19/23	<100	<100	<100	<200	**14.9**	<5.0	<5.0	16.8	8.13	<5.0				<324				0.2	48	0.526	14.3
	MW51	09/29/24	<100	<100	<100	<200	<5.0	<5.0	<5.0	<10.0	5	<5.0				318				0.3		7.48	15.6
MW52	MW52	08/02/22	<100	104	116	1170	**194**	<1.0	1.24	11.2	**949**	17.3				**2220**	<600	<600	<600				
	MW52	06/19/23	**1100**	725	825	4140	**735**	<1.0	347	19.7	**361**	69.6		5.27	<1.0	**13600**				0.4	-95	1.967	13.9
	MW52	09/29/24	145	112	<100	467	**38.8**	<5.0	30.6	<10.0	20	<5.0				522				4.2		1.05	14.5
MW53	MW53	08/04/22	<100	104	116	1170	**88.6**	<5.0	<5.0	<15	<5.0	<5.0				922	<600	<600	<600				
	MW53	08/04/22	<100	<100	<100	<200	<5.0	<5.0	<5.0	<15	<5.0	<5.0		<1.0	<1.0	<399				1.1	10.9	0.6	13.9
MDEQ RBSL			**650**	**1400**	**1100**		**5**	**1000**	**700**	**10,000**	**30**	**100**		**4**	**0.004**	**1000**	**1400**	**1000**	**1100**				

MW2	Well sampled for gasoline and diesel range organics, well used for monitoring of Release #1986.
MDEQ	Montana Department of Environmental Quality
RBSL	Risk Based Screening Level, Tier 1 Risk Based Corrective Action, September 2016
Blank	Not analyzed or measured
<	Less than the detection limit indicated.
BOLD	Concentration exceeds MDEQ RBSL
ug/L	micrograms per liter
TPH	Total Purgeable Hydrocarbons, MDEP-VPH-98
TEH	Total Extractable Hydrocarbons, MDEP-EPH-98
DCA	1,2-Dibromo-3-chloropropane
EDB	Ethylene Dibromide

Oxygenates Include:
tert-Amyl methyl ether (TAME)
tert-Butyl alcohol (TBA)
Ethyl-tert-butyl-ether (ETBE)
Isopropyl ether (IPE)
Methyl tert-butyl ether (MTBE)

#1	Detected MTBE @0.37 ug/L J Qualifier
#2	TBA @ 4.4 ug/L, and MTBE @ 8.4 ug/L
#3	TBA @ 192 ug/L
#4	TBA @ 306 ug/L
#5	TBA @ 10 ug/L

Gasoline Island Area Mass in GW

Compound	2022-2023	2024	% Change
C5-C8	8577	2981	-65
C9-C12	1761	1514	-14
C9-C10	2260	1078	-52
Benzene	9560	1054	-89

Average Detected Benzene Gas Island 128 ug/l

ATTACHMENT B

ATTACHMENT C

2021

QUALITY ASSURANCE PROJECT PLAN

JOHNSTON LEIGH INC.

Contents

QUALITY ASSURANCE PROJECT PLAN

The Quality Assurance Project Plan (QAPP) outlines the specific procedures to follow after sample collection to ensure that environmental decisions are supported by data of known and documented quality. The procedures outlined in the QAPP will be implemented for all MTDEQ sites.

Detailed procedures for collection of samples, preparation of sampling equipment and containers, decontamination, and documentation are contained in JLI SOPs. The analytical laboratory will use methods and procedures approved by the U.S. EPA, the American Society of Testing and materials (ASTM), and the Association of Official Analytical Chemists (AOAC). The remainder of this section describes the procedures to follow to ensure that environmental decisions are supported by data of known and documented quality and including Sample Collection; Analytical Testing; and Data Quality Objectives (DQO).

1.0 Project Team Organization and Responsibility

The specific project responsibilities of key project personnel are presented below. The Project Manager may be responsible for both positions listed below, if needed.

1.1 Project Manager

The Project Manager (Leigh Beem, P.G.) will be responsible for the overall schedule, budget, and quality of the project. Mr. Beem has 27 years' experience in the environmental investigation and remediation at RCRA, CERCLA and UST sites.

Mr. Beem will also ensure adequate resources are made available to perform the field sampling and ensure QAPP procedures are followed. Mr. Beem will also perform the field work with one or two additional geologists. Mr. Beem is the primary contact for the Client concerning the status of the project

1.2 QAPP Manager

The QAPP Manager (Mr. Beem) is responsible for assuring that the QAPP program is implemented for all project activities. Periodic audits will be conducted by the QAPP Manager to see that all deliverables are properly reviewed and checked. The QAPP Manager will prepare appropriate documentation to ensure that all quality objectives are met.

2.0 Sample Collection

2.1 Sample Management

The analytical data from each SDP will be entered into an environmental data management system that tracks the sampling dates and locations, sample containers and laboratory analysis, analytical results, duplicate analysis, matrix spike/matrix spike duplicates, boring log data and monitor well construction information. The analytical results for each SDP are easily retrieved and can be graphically displayed on a site map. Multiple analytical results for one SDP can be queried and presented.

2.2 Sample Data Point

The Sample Data Point (SDP) is the unique ID for a location at a SWMU where samples were collected. An individual SDP may include surface soil samples, soil boring samples and groundwater sample(s). Having one SDP for multiple samples and media collected at an individual SDP allows management, retrieval and query of analytical results under one XYZ coordinate.

2.3 Sample Documentation

The sample documentation procedure is outlined in JLI SOP1. The field forms that will be used are included in JLI SOP 3. Pertinent information about each sample will be recorded using permanent ink pens and/or in sampling record forms. The procedures performed and problems encountered will be documented in the notebook or on the forms in such a manner that the events of the day could be reconstructed. Corrections in the notebooks and on forms will be made by a single line through the incorrect information.

The surface soil sample designation will consist of a string of letters and numbers. The letters "SS" is the designation for "surface soil". Following the "SS", the soil boring number will be listed. For instance, SS1-1 would designate surface soil sample #1 collected at SDP #1 at soil boring 1.

The subsurface soil sample designation will consist of a string of letters and numbers similar to the formatting for surface soil. The letters "SB" is the designation for soil boring. Following the "SB", the soil boring number will be listed. Following the soil boring number will be the SDP number at that location. Lastly the final number in the sample ID will be the depth of the sample. For instance, SB1-1-5 would designate a soil sample collected from soil boring at SDP #1 at soil boring 1 and at a depth of 5 feet below ground surface (BGS).

A groundwater sample collected from the well will be designated using the following letters and numbers. The letters "GW" is the designation for groundwater. Following the "GW", the well ID will be listed followed by the date. For instance, GW1-010121 would designate a groundwater sample collected from well 1 on 01/01/2021.

2.3.1 Sample Labeling

The laboratory will pre-print all the labels for the samples. The only information that will be added to the label in the field is the sample depth, time, and date in the case of soil samples, and date and time for groundwater samples. The following information shall be recorded on the label:

- Date and time of collection;
- Unique sample number.

2.3.2 Field Measurements

2.3.2.1 Laser Induced Fluorescence

Laser Induced Fluorescence (LIF) may be used to identify the greatest concentration of petroleum hydrocarbons in the soil borings and this methodology will determine the depth to collect the soil samples in each boring. The laser is calibrated to a LNAPL standard characteristic of the site or SWMU prior to each boring, and the Response Factor (%RE) is the relative waveform intensity of the subsurface petroleum impact compared to the standard. In each boring, the subsurface sample will be collected from the depth from which the highest %RE was recorded. The advantages of using LIF are as follows:

1. Each soil boring location would first be evaluated using the LIF and the depth of the greatest concentration of petroleum impacted soil is identified. Additionally, the waveform is used to evaluate the type of petroleum and/or mixtures of petroleum at the location (i.e., gasoline diesel, oil, crude oil, etc.); and the conductivity measurement gives an indication of the type of soil encountered at the location.
2. The subsurface soil sample depth is targeted using the LIF record. This maximizes the potential for collecting the soil sample with the greatest concentration of petroleum impacted soil; and

reduces the time the soil core is open for subjective analyses using PID screening techniques (see Section 5.2.4.2).

3. Using all the %RE values from each boring, the surveyed boring location, and a string-pot which measures the depth of the laser relative to a known datum on the ground surface, the %RE values (smear zone) can be mapped in three dimensions using geologic modeling software.

2.3.2.2 Photo Ionization (PID)

The PID field-screening method of analyzing organic vapors emitted from within the pore spaces of a soil sample is a technique to estimate relative levels of organic contamination in the soil. The detailed procedures for screening soil samples with the PID are found in SOP6.

The soil sample is collected using a split-spoon sampler, core barrel, hand auger or other apparatus which will yield a soil core or intact sample. Immediately after exposing the soil core from the sleeve, extract a small aliquot of the soil and place it in a sealable plastic bag (zip lock). The sample should be broken apart by squeezing the plastic bag gently so as not to break the bag. Let the baggie sit in exposed in sunlight or in a heated environment for approximately five minutes and then open one end of the baggie just enough to accept the PID probe, and take a reading. Record the PID reading on the boring log at the sample depth.

2.3.2.3 Slug Test

Slug testing of the shallow groundwater will be performed at select locations to calculate a range of hydraulic conductivity (K) values over the Refinery. The purpose of determining K values is instrumental in evaluating fate and transport rates in groundwater and risk assessment scenarios, and is valuable information for determining potential Phase II sampling locations. Slug test methodology is presented in SOP4.

A pneumatic slug test apparatus is connected to the well head. A hand pump and valve assembly allow for performing rising head or falling head slug tests. A slug test data logger enables use of sampling of 1, 2, 10 and 38 hertz to meet the requirements for low-K formations and high-K formations producing oscillatory response.

2.3.2.4 Measuring Groundwater Field Parameters

Groundwater sampling procedures are included as SOP 3. Part of the sampling procedure requires measurement of groundwater field parameters to determine when groundwater has stabilized using low flow procedures. Measurements of Dissolved Oxygen (DO), Specific Conductance (SC), temperature, pH, and Oxidation Reduction Potential (ORP) will occur by way of probes attached to a multi-meter that are installed in a clear flow through cell. The peristaltic pump flow rate will be set to an approximate flow rate of between 100-200 milliliters per minute (mL/min). The flow rate will be adjusted for long pulses of water, so one pump cycle will deliver a minimum of 40 mL of water as recommended by EPA Low-Stress Standard Operating Procedure (US EPA, 2010). The field parameters will be recorded at a frequency of five-minute intervals. Stabilization is considered to be achieved when three consecutive readings are within the following limits:

- **DO.** 10% for values greater than 0.5 mg/L; if three DO values are less than 0.5 mg/L, consider the values stable;
- **SC.** 3%;
- **Temperature.** 3%;
- **pH** +- 0.2 unit; and
- **ORP.** +- 100 millivolts (mV).

2.3.3 Equipment Calibration and Maintenance

Equipment calibration will be performed using SOP 7. The field equipment is calibrated each morning before sampling activities begins, and during the day if equipment drift is suspected. Field equipment that will not calibrate to the manufacture's guidelines will be taken out of service.

2.3.3.1 Calibration

Calibration of the PID, multi-meter and LIF are done each day prior to collecting samples or field parameters. In general, calibration and operation of all equipment used for collection of samples and field parameters from monitoring wells will conform to the respective manufacturer's specifications. Instrument calibrations and calibration checks shall be recorded on the daily field log.

The PID is calibrated to a standard of 100 parts per million (PPM) isobutylene following manufactures procedures. Isobutylene is an industry standard gas for representation of benzene in soil. Calibration of pH meters shall be performed to pH standards (4, 7, or 10 standard units) bracketing the actual field measured value. The specific conductivity meter shall be calibrated to one of three standards, 2,000, 6,000, or 10,000 micro-Siemens per centimeter (uS/cm), whichever is closer to the field measured value. Dissolved oxygen is calibrated using the barometric pressure method outlined by the manufacturer. ORP calibration standard is 220 mv at 25°C. The laser is calibrated to a LNAPL standard characteristic of the site or SWMU prior to each boring. This calibration is performed by the personnel operating the LIF equipment.

2.3.3.2 Maintenance

Equipment will be maintained according to the manufacture's specifications at a minimum, and all equipment will be housed in protective containers to prevent damage during transportation and normal field operations. The field equipment will be returned to the containers at the end of the day free of debris and completely dried before closing the container for storage.

2.3.4 Field Duplicates/Matrix Spike

A duplicate sample collected in the field is a second sample of the same matrix collected at the same location and at the same time as the original. A laboratory duplicate is a laboratory split of a submitted field sample. A matrix spike/matrix spike duplicate is a split sample collected in the field and used by the laboratory to spike the sample with a known concentration of a compound, and then split the sample and analyze the second sample for the original compound.

Field duplicates will be collected in the field at the rate of 10 percent of total samples collected. Matrix spike and matrix spike duplicates will be collected in the field at a rate of 5 percent of total samples collected. The laboratory will analyze laboratory duplicates at a rate of 5 percent of total samples analyzed.

2.3.5 Waste Management

Soil generated during the advancement of soil borings and collecting soil samples will be minimal because push probe technology will be used. Soil is generated from core samples recovered from the push probe plastic sleeves. The unused soil will be managed following procedures in SOP 10.

3.0 Analytical Testing

The samples will be analyzed by Pace Analytical (Pace) laboratory (formerly ESC Laboratory), a Montana certified laboratory for analyses using 1998 Massachusetts Method. Pace is located in Mt Juliet, Tennessee. The laboratory's address, phone numbers and contact are:

Pace Analytical
12065 Lebanon Rd.
Mt. Juliet, TN 37122
Ph.: 800-767-5859
Fax: (615) 758-5859
Internet: www.pacelabs.com

Pace Contact Information for RFI Investigation:

John Hawkins
Pace Analytical
Technical Service Representative
JHawkins@pacenational.com
(615)-773-9669

3.1 Chain of Custody

A Pace chain-of-custody form will be used to record the sample ID's, matrix, number of containers, date and time of collection, requested analyses, and any remarks for the laboratory. The chain-of-custody will be filled out in the field as the samples are collected, and then reviewed at the end of each day comparing samples in the cooler with samples identified on the chain-of-custody. The samples are the responsibility of the sampler, and are never out of the sampler's custody until they are shipped. The sampler will sign the chain-of-custody and relinquish custody of the cooler with the samples only at the end of the day to the shipping company delivering the samples to the laboratory. The sampler will retain a carbon copy of the chain-of-custody when transferring custody to the shipping company. The shipping number receipt will be attached to the carbon copy chain of custody.

The laboratory logs the samples into receiving department and identifies the requested analyses for each sample. A laboratory log-in form is completed identifying every sample they received and the analyses requested, and this form is emailed to the sampler (JLI) as verification they have received the samples, and will be analyzed according to the chain-of-custody form.

3.2 Shipping

Each sample jar will be individually placed inside a protective bubble wrap container and placed inside an appropriately sized sealable plastic bag. The samples will be placed inside a large cooler-size interior plastic bag. Ice will be added to the inside of the large plastic bag, and the bag will be sealed with a zip-tie ring. The chain of custody will be placed inside a separate plastic baggie, sealed and taped to the inside lid of the cooler. The cooler will be sealed with packing tape. Security seals will be placed over the tape and signed. The cooler will be shipped to Pace by Federal Express on an overnight/next morning delivery schedule.

3.3 Analytical Procedures

Analyses to be performed on samples and the analytical methods to be used may include the following:

- Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons will be analyzed using 1998 Massachusetts Method, also termed Montana Method.
- Volatile Organic Compounds using EPA Method 8260B.
- Semi Volatile Organic Compounds (SVOC), using EPA Method 8270C and 8270C SIMRCRA metals using EPA Methods 7471 (mercury), 6010 and 6020
- Hexavalent chromium using EPA Method 3060A/7196.

3.3.1 Level II QAQC

The laboratory reduces the raw laboratory data and prepares the analytical reports and the laboratory QAQC results. The laboratory supplies calibration and internal standards information, raw data, and all instrumentation output in a Level II QAQC package, if required. The Project manager will verify the laboratory testing methods, detection limits, calibration data, holding times, and data qualifiers. Level II MOD QAQC will be performed on the Phase II samples. This includes the laboratory analyses and reporting of the following:

Level 2 "MOD" Data Package

1. Analytical Results
2. Wet – Chemical Data
    - 2.1. Quality Control Data
        - 2.1.1. Method Blanks
        - 2.1.2. Laboratory Control Samples
        - 2.1.3. Duplicates
        - 2.1.4. Matrix / Matrix Spike Duplicates
3. Inorganic Data
    - 3.1. Quality Control Data
        - 3.1.1. Method Blanks
        - 3.1.2. Laboratory Control Samples
        - 3.1.3. Duplicates
        - 3.1.4. Matrix Spike / Matrix Spike Duplicates
4. GC Volatiles Data
    - 4.1. Quality Control Data
        - 4.1.1. Blanks
        - 4.1.2. Laboratory Control Samples
        - 4.1.3. Surrogate Summaries
        - 4.1.4. Matrix Spike / Matrix Spike Duplicates
5. GC/MS Volatiles Data
    - 5.1. Quality Control Data
        - 5.1.1. Blanks
        - 5.1.2. Laboratory Control Samples
        - 5.1.3. Surrogate Summaries
        - 5.1.4. Matrix Spike / Matrix Spike Duplicates
        - 5.1.5. Internal Standard Response and Retention Time Summaries
6. GC Semi-volatiles Data
    - 6.1. Quality Control Data
        - 6.1.1. Blanks
        - 6.1.2. Laboratory Control Samples
        - 6.1.3. Surrogate Summaries
        - 6.1.4. Matrix Spike / Matrix Spike Duplicates
7. GC/MS Semi-volatiles Data

7.1. Quality Control Data
    7.1.1. Blanks
    7.1.2. Laboratory Control Samples
    7.1.3. Surrogate Summaries
    7.1.4. Matrix Spike / Matrix Spike Duplicates
    7.1.5. Internal Standard Response and Retention Time Summaries
8. Chain of Custody

4.0 Quality Assurance Data Quality Objectives

Data Quality Objectives (DQOs) are qualitative and quantitative statements that specify the quality of data required to meet the goals of the site characterization and risk assessment. The overall purpose of DQO is to ensure that data of known and acceptable quality are provided. The data developed during this investigation will have the objectives for accuracy, precision, sensitivity, comparability, completeness and representativeness as described in Table 5.4.

Table 5.1 Data Quality Indicators Measurement Performance Criteria

Parameter	Method Quality Indicator	Quality Control Sample and/or Activity
Accuracy/Bias	Laboratory Control Sample (LCS) spiked result is >80% and <120% of spiked amount. Laboratory Matrix Spike (LMS) result is >75% and <125% of spiked amount.	Paired limit line trend charts documenting LCS and LMS sample results included in Quality Control Summary (QCS) of each Pace Laboratory Report. QC data outside the paired line limits require consultation with laboratory. Summary report on data usability provided with each data validation summary.
Precision	Field duplicate Relative Percent Difference (RPD) of ± 35%. Laboratory RPD of 20% or less for Laboratory Control Sample Duplicates (LCSD) and RPD of 30% or less for Laboratory Matrix Spike Duplicates (LCSD) 20%.	Trend Charts documenting LCSD and LMSD sample results included in QCS of each Pace Laboratory Report. QC data outside the paired line limits require consultation with laboratory. Summary report on data usability provided with each data validation summary.
Sensitivity	1) Laboratory ability to detect a compound above zero with 99% confidence and provide Minimum Detection Limits (MDL) above the documented cleanup level, if applicable. 2) Continuing Calibration Verification Standards (CCVs) are analyzed at a frequency determined by the analytical method.	1) Determine the matrix specific MDL using EPA Revision 2, December 2016. 2) Evaluate Initial Calibration Value (ICV) and CCV % recovery values outside calibration actions based on Method applicable guidelines. Provide Trend Charts to document CCV, if applicable.
Comparability	Pace Laboratory NELAP certification # 6157585858 which requires them to routinely participate in performance tests to ensure the comparability of their data to results from other laboratories	Use only NELAP accredited analytical laboratories for sample analysis.
Completeness	95% or higher completeness	% Completeness = Valid Data Points/Expected Data Points)*100.
Representativeness	Sampling procedure is consistent between sampling event.	Sampling Analysis Plan (SAP) techniques and procedures are adhered to and performed using the same techniques and equipment and performed in the same sequence each sampling event.

4.1 Accuracy

Accuracy is the degree to which a measurement agrees with the actual value and is as the percent recovery of a known concentration of reference material. Accuracy will be evaluated by having the laboratory spike a known amount of a chemical compound to a field sample or standard matrix. After analysis for the spike is completed, the accuracy of the laboratory procedure is expressed as a percent recovery as shown by the following equation:

$$\text{PERCENT RECOVERY} = \frac{(C_2 - C_1)}{C_0} \times 100\%$$

Where:

C_0=amount of analyte added to the sample matrix,
C_1=amount of analyte present in the un-spiked sample matrix (equal to zero for the standard matrix), and
C_2 =amount of spiked material recovered in the analysis.

The amount of an analyte spiked into a field sample matrix is specified by the laboratory quality control program. Samples cannot be spiked for all compounds that could possibly exist in the field sample matrix; however, a set of surrogate compounds, each of whose physical and chemical properties is similar, is used as surrogate matrix spikes, or surrogates.

For data evaluation purposes, the goal of this project is to obtain percent recovery data that are:

- Greater than 80 percent and less than 120 percent recovery for laboratory control samples (LCS)
- Greater than 75% and less than 125% for laboratory matrix (LMS) spike samples.

4.2 Precision

Precision is a measure of the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform internally. This indicator is used to evaluate the variability related to sample collection and handling as well as laboratory sample handling and analysis procedures.

Precision will be determined by analyzing field, laboratory, and matrix spike/matrix spike duplicate ("MS/MSD") samples. A field (or "blind") duplicate is a sample collected in the field from the same location and matrix at the same time as the original using the same sample collection and handling procedures. A laboratory duplicate is a laboratory split of a submitted field sample. A MS/MSD is a field-designated sample used by the laboratory to spike with a known concentration of a compound and then split and analyzed for the original compound. The laboratory has been notified that the field MS/MSD samples collected at Montana UST sites will be used for laboratory MS/MSD batch QAQC analysis.

Field duplicates will be collected in the field at the rate of 10 percent of total samples collected. Matrix spike and matrix spike duplicates will be collected in the field at a rate of 5 percent of total samples collected and be analyzed by the laboratory.

Precision of the analytical method is determined by calculation of a relative percent difference (RPD) between the value reported for the sample and the value reported for the duplicate sample as follows:

$$RPD = \left| \frac{(C_2 - C_1)}{(C_2 + C_1)/2} \times 100\% \right|$$

Where:

C_1 = analyte concentration in the sample,
C_2 = analyte concentration in the sample duplicate,
and $|\ |$ = absolute value.

In instances where one or both of the reported values are less than five times the quantitation limit, precision will be measured by calculation of the absolute difference (AD), as follows:

$$AD = |C2 - C1|$$

Where:

C1 = analyte concentration in the sample,
C2 = analyte concentration in the sample duplicate,
and $|\ |$ = absolute value.

The goal for collection of field duplicates is the original and duplicate analytical result has a Field duplicate samples will have a Relative Percent Difference (RPD) of $\pm$ 35%. The laboratory has a goal of a

RPD of 20% or less for Laboratory Control Sample Duplicates (LCSD) and RPD of 30% or less for Laboratory Matrix Spike Duplicates (LCSD).

Trend Charts may be used for documenting LCSD and LMSD sample results included in QCS of each Pace Laboratory Report. QC data outside the paired line limits require consultation with laboratory. A summary report on data usability may be provided with each data validation summary, if needed.

4.3 Sensitivity

Sensitivity is the capability of a test method or instrument to discriminate between measurement responses representing different levels (e.g., concentrations) of a variable of interest. Sensitivity is initially calibrated using standards, prepared at specified concentrations, to define the quantitative response relationship of the instrument to the analytes of interest. Initial calibration is also performed whenever the results of a calibration verification standard do not conform to the requirements of the method in use or at a frequency specified in the method. Continued Calibration Verification (CCV) is a standard used to verify the initial calibration of compounds in an analytical method. CCVs are analyzed in the laboratory at a frequency determined by the analytical method.

Sensitivity method quality indicator is the laboratory ability to detect a compound above zero with 99% confidence and provide Minimum Detection Limits (MDL) above the documented cleanup level, if applicable. The laboratory will ensure that Continuing Calibration Verification Standards (CCVs) are analyzed at a frequency determined by the analytical method, and that the matrix specific MDL is calculated using EPA Revision 2, December 2016. The laboratory will evaluate Initial Calibration Value (ICV) and CCV % recovery values outside calibration actions based on Method applicable guidelines. Provide Trend Charts to document CCV, if applicable.

4.4 Comparability

Comparability is a qualitative measure of the confidence with which one data set can be compared to another. It is currently anticipated that samples for the same analytes will be analyzed by the same laboratory throughout implementation of this QAPP. The field methods to collect the samples during baseline evaluation will be same as those used for long-term operational monitoring. The field personnel will use and follow prescribed standard operating procedures. Each of these factors will minimize comparability issues.

Comparability is quantified by Pace laboratory being accredited through the National Environmental Laboratory Accreditation Program (NELAP). This program requires Pace laboratory to routinely participate in performance tests to ensure the comparability of their data to results from other laboratories. Pace NELAP certification number is 6157585858.

4.5 Completeness

Field completeness is the percent of valid analytical results obtained from each investigation compared to the amount of valid analytical results planned for each investigation.

Completeness (C) is determined by:

$$C = \frac{P_1}{P_0} \times 100\%$$

Where:

P_0 = total number of samples planned, and
P_1 = number of valid data points.

The completeness goal of Phase II is 95%.

4.6 Representativeness

Representativeness is the degree to which data accurately and precisely represent the population. Representativeness is usually considered a qualitative term that does not lend itself to direct measurement. However, including it in the MQO is a means to adhere to the procedures outlined in the work plan.

ATTACHMENT D

2021

Standard Operating Procedures

JOHNSTON LEIGH INC

SOP 1 Sample Documentation

1.0 Sample Data Point

The Sample Data Point (SDP) is the unique ID for a sample location. An individual SDP may include surface soil samples, soil boring samples and groundwater sample(s). Having one SDP allows management; retrieval and query of analytical results under one XYZ coordinate for multiple samples and media type collected at an individual SDP.

Each SDP will be designated as “S” for “soil”; and a sequential number indicating the location where the sample(s) were collected. For instance, S1-1 is SDP number 1 at soil boring 1. The individual sample ID for surface soil, subsurface soil and groundwater samples are described below.

2.0 Surface Soil

The surface soil sample designation will consist of a string of letters and numbers. The letters “SS” is the designation for “surface soil”. Following the “SS”, the soil boring number will be listed. For instance, SS1-1 would designate surface soil sample #1 collected at SDP #1 at soil boring 1.

3.0 Subsurface Soil Sample

The subsurface soil sample designation will consist of a string of letters and numbers similar to the formatting for surface soil. The letters “SB” is the designation for soil boring. Following the “SB”, the soil boring number will be listed. Following the soil boring number will be the SDP number at that location. Lastly the final number in the sample ID will be the depth of the sample. For instance, SB1-1-5 would designate a soil sample collected from soil boring at SDP #1 at soil boring 1 and at a depth of 5 feet below ground surface (BGS).

4.0 Groundwater Sample

A groundwater sample collected from the well will be designated using the following letters and numbers. The letters “GW” is the designation for groundwater. Following the “GW”, the well ID will be listed followed by the date. For instance, GW1-010121 would designate a groundwater sample collected from well 1 on 01/01/2021.

5.0 Slug Test

A slug test performed at a well will be referenced in the database management system in the same manner as the soil and groundwater samples. This will allow the selection of the calculated K value derived from the slug test from the same XYZ data management system and contouring the results. The letter “K” is the designation for hydraulic conductivity value, followed by the well number and date. For instance, K1-010121 would designate a slug test K at well 1 on 01/01/2021.

SOP 2 Surface and Subsurface Soil Sampling

1.0 Surface Soil

Surface soil samples are designated as those samples collected no more than 0.5 feet in depth. A one-foot square area will be located on the ground surface and any debris or vegetation will be removed from within the area. The surface soil sample will be collected with a decontaminated stainless steel or aluminum trowel and placed directly in the sample containers. No mixing of the soil will occur. If more than one sample container is filled, then the soil aliquot will be evenly distributed to all the containers from the sample depth within the one foot area.

A label with the subsurface soil sample ID will be attached to the glass jars and placed inside a labeled ziplock baggie. The sample will be retained inside a cooler containing ice enclosed in a plastic bag.

After the surface soil sample is collected, the sampling trowel will be decontaminated using the three-bucket wash system consisting of washing the trowel in low phosphate soap with tap water, followed by a triple rinse in tap water and one final triple rinse in deionized water. The trowel will be allowed to air dry before proceeding to the next soil sample location.

2.0 Subsurface Soil

The Geoprobe® Dual Tube 35 (DT35) soil sampling system will be used to collect soil samples. The DT35 system will collect continuous soil core samples from ground surface to total depth of each soil boring. A 3.5-inch outside diameter (OD) rod is driven into the ground as an outer casing. The outer rods receive the driving force of the hammer. The second smaller set of 3.25-inch OD rods is placed inside the outer casing through which the soil samples are recovered. A cutting show is treaded into the leading end of the outer rod string. When the outer rods are driven into the subsurface, the cutting shoes shears a 2.125-inch OD soil core inside a clear plastic liner that is attached to the smaller inner rods. Once filled, the liner with the soil sample is removed from the bottom of the outer casing by lifting the inner rods.

Sampling soil from a cased hole is advantageous in that there is no side wall slough into the open boring. Additionally, perched groundwater is isolated from the soil core eliminating potential cross contamination of soil with perched water. Each boring will be advanced to first encountered groundwater. The final depth most likely will be 15-20 feet below ground surface.

The sample depth may be determined by the results of the Laser Induced Fluorescence (LIF) and PID measurements. The SOP for LIF is included in SOP 2. The SOP for PID screening is included in SOP 6.

The LIF results will be used to identify the greatest concentration of petroleum hydrocarbons in the soil borings. The highest RE% value for each boring will be collected for analytical testing. The LIF target sample depth will be removed from the 2.125-inch diameter clear plastic sleeve by cutting the sleeve along the axis and placing the sample depth into sample jars. The sample jar(s) will be labeled and placed inside a labeled ziplock baggie. The sample will be retained inside a cooler containing ice enclosed in a plastic bag.

The soil exhibiting the highest PID value for each boring may be collected if the depth does not coincide with the highest %RE. The PID target sample depth will be removed from the 2.125-inch diameter clear plastic sleeve by cutting the sleeve along the axis and placing the sample depth into sample jars. The sample jar(s) will be labeled and placed inside a labeled ziplock

baggie. The sample will be retained inside a cooler containing ice enclosed in a plastic bag.

Decontamination of the DT35 outer and inner rods will be accomplished following decontamination procedures outline in SOP 6.

SOP 3 PRE-PACK WELL INSTALLATION AND SAMPLING

1.0 Well Installation

The DT35 dual casing system will also be used to install small diameter pre-pack well screen and blank riser for the purpose of collecting groundwater samples and measuring groundwater levels (calculating hydraulic gradient.

An expendable cutting shoe will be used which allows setting prepacked well screen and blank riser through the DT35 outer casing. After the collection of the continuous soil core samples to the total depth, a 2-inch diameter prepack well screen five feet in length is lowered to the bottom of the outer casing. Blank casing is flush threaded to the pre-pack screen up to the ground surface. Pressure is exerted on the well riser while the outer casing is slowly raised. This dislodges the expendable cutting show and the well stays at the total depth while the outer casing is removed. The well head will be protected by either placing a 6-inch OD stove pipe casing over the well pipe and cementing it into a 12-inch OD hole excavated by hand using a shovel; or, surface completion of well head inside a 8-inch diameter circular vault sealed with a concrete apron.

2.0 Groundwater Sampling

This SOP provides a description of field procedures related to collection of groundwater samples. Sampling activities performed in the monitoring wells shall be conducted in an order of least-to-most contaminated to minimize the potential for cross-contamination. If free product is encountered in a monitoring well, a groundwater sample at that location will not be collected.

Specific field information regarding general activities, water level measurement, and sampling activities will be recorded in the field on specific forms. Forms for recording field information include:

- **Form A** Daily Field Log,
- **Form B** Groundwater Gauging Log, and
- **Form C** Groundwater Sampling Log.

3.0 Well Gauging

Procedures for groundwater level measurements and LNAPL thickness measurements in monitoring wells are provided in this section. Based on the background information (if present) on the monitoring wells, it is known which wells have or have had measurable LNAPL in the past. These wells will only be gauged using an oil/water interface probe. The following procedure shall be used for a well with potential LNAPL:

- Lower the probe of a decontaminated electronic sounding oil/water interface meter into the monitoring well until the meter indicates the probe has contacted the oil/groundwater surface.
- Measure the depth to product and depth to water from the survey reference mark (on the polyvinyl chloride [PVC] well casing) to the nearest 0.01 foot. If no mark is present, measure the depth to product and depth to water to the north side of the casing.
- Record the oil and water level measurements and total well depth on **Form B**.
- Decontaminate the probe and tape in accordance with the decontamination procedures outlined in SOP 5.

The following procedure shall be used for a well with no LNAPL:

- Begin with the wells that historically have had the lowest concentration of dissolved BTEX (i.e, clean to dirty). Lower the decontaminated electronic water level meter into the monitoring well until the meter indicates the probe has contacted the groundwater surface.
- Measure the depth to water from the survey reference mark (on the PVC well casing) to the nearest 0.01 foot. If no mark is present, measure the depth to water to the north side of the casing.
- Record the water level measurements and total well depth on **Form B**.
- Decontaminate the probe and tape in accordance with the decontamination procedures outlined in SOP 5.

4.0 Groundwater Sampling

A groundwater sample collected from the well will be designated using the following letters and numbers. The letters "GW" is the designation for groundwater. Following the "GW", the well ID will be listed followed by the date. For instance, GW1-010121 would designate a groundwater sample collected from well 1 on 01/01/2021.

Groundwater purging and sampling may be performed utilizing a disposable bailer, a dedicated bladder pump, or a peristaltic pump. These data are recorded on **Form C**.

4.1 Field Equipment Calibration

Field equipment is used during sampling activities to measure groundwater elevations, collect samples, and measure field parameters. Calibration of the multi-meter is done each day prior to collecting groundwater parameters.

In general, calibration and operation of all equipment used for collection of samples and field parameters from monitoring wells will conform to the respective manufacturer's specifications. Instrument calibrations and calibration checks shall be recorded on **Form C**.

Field equipment function checks shall be performed in accordance with procedures described in this section. Calibration of pH meters shall be performed to pH standards (4, 7, or 10 standard units) bracketing the actual field measured value. The specific conductivity meter shall be calibrated to one of three standards, 2,000, 6,000, or 10,000 micro Siemens per centimeter (mS/cm), whichever is closer to the field measured value. Dissolved oxygen is calibrated using the barometric pressure method outlined by the manufacturer. ORP calibration standard is 220 mv at 25°C.

5.0 Peristaltic Pump Sampling Procedures

The ¼-inch polyethylene tubing used to purge the groundwater is set in the mid-screen level in each well. These wells will be sampled in accordance with EPA SOP Low Stress (Low Flow) Purging and Sampling Procedure for The Collection of Groundwater Samples from Monitoring Wells (*US EPA, 1996 and 2010*).

The well purging process for a monitoring well using a peristaltic pump consists of the following steps:

1. Measurements of DO, SC, temperature, pH, and ORP will occur by way of probes that are installed in a clear flow through cell. The pumps flow rate will be set to an approximate flow rate of between 100-200 milliliters per minute (mL/min). The flow rate

will be adjusted for long pulses of water, so one pump cycle will deliver a minimum of 40 mL of water as recommended by EPA Low-Stress Standard Operating Procedure (US EPA, 2010).

2. Purge groundwater from the monitoring well into a bucket to check for potential sheen.
3. Record the parameters DO, SC, temperature, pH, and ORP at a frequency of 5 minute intervals. Stabilization is considered to be achieved when three consecutive readings are within the following limits:
    - **DO.** 10% for values greater than 0.5 mg/L; if three DO values are less than 0.5 mg/L, consider the values stable;
    - **SC.** 3%;
    - **Temperature.** 3%;
    - **pH** +- 0.2 unit; and
    - **ORP.** +- 100 millivolts (mV).
4. Fill the sample bottles for BTEX first. Sample bottles for these analytes must be filled such that there is no headspace in the bottle.
5. Continue to collect groundwater to fill all other sample bottles filling the VOC bottles first (no headspace), SVOC second (no Headspace), metals third and any remaining COCs fourth.

6. Purge water is containerized and transported to the refinery process wastewater treatment system.
7. Record the sample description and required information on the chain-of-custody form.

6.0 Bailer Purging and Sampling Procedures

Well purging and sampling procedures will be performed using disposable bailers in wells that do not contain dedicated sampling pumps. The procedure for sampling using disposable bailers is provided below. The purge and sample data is recorded on **Form C**. The well purging process for a monitoring well using a disposable bailer consists of the following steps:

1. Attach new nylon rope to a disposable bailer before well evacuation activities. Discard the nylon rope after the monitoring well has been sampled.
2. Purge groundwater from the monitoring well into a bucket to gauge the volume of water recovered. After purging each well volume, take field parameter measurements by following these directions. Pour well water directly from the bailer into a sample cup and measure temperature, pH, and specific conductance, dissolved oxygen and ORP with the multi parameter meter. Record the groundwater parameter measurements on **Form C**, after the readings on the meter have stabilized.
3. Bail three well casing volumes and record the volume bailed on **Form C**. Because the wells are completed with a 2-inch casing, the following equation can be used to calculate one casing volume:

    (TD – DTW) X 0.163 = 1 casing volume in gallons

    Where:

    TD = total well depth
    DTW = depth to water

4. Discharge purged water into an approved polyethylene drum. The purge water will be discharged to the refinery process wastewater treatment system.

5. If the well is bailed dry before three well casing volumes have been evacuated, then

record the volume bailed on **Form C** and allow the well to recover (no longer than 24 hours).

6. Once three well volumes have been removed (or purged dry and recovered 24 hours) and the field parameters have been recorded, slowly lower the bailer into the monitoring well to avoid agitation of the groundwater. Fill the sample bottles for VOC first (no headspace), SVOC second (no Headspace), metals third and any remaining COCs fourth. Sample bottles for these analytes must be filled such that there is no headspace in the bottle.

7. Record the sample description and required information on the chain-of-custody form.

SOP 4 Slug Test

1.0 Slug Test

A 10 PSI pressure transducer is threaded through a 2-inch well cap with rubber grommet that seals the inside of the well. The pressure transducer is placed near the center of the well screen (approximately 12 feet BGS). The well cap is fitted with a bicycle tire type valve to allow pressurizing in inside of the well.

2.0 Pneumatic Test Apparatus

In pneumatic slug testing, the well head is sealed and air pressure or vacuum is used to change the static water level. As air pressure in the well is increased or decreased, the water level changes until the water pressure "up" and the air pressure "down" are equal. Once the water level is stable, a release valve is quickly opened, instantaneously releasing the air pressure or vacuum. The water level recovers without splashing and the pressure transducer and data logger/computer record the changes in water level and time.

A slug test performed at a well will be referenced in the database management system in the same manner as the soil and groundwater samples. This will allow the selection of the calculated K value derived from the slug test from the same XYZ data management system. The letter “K” is the designation for hydraulic conductivity value, followed by the well number and date. For instance, K1-010121 would designate a slug test K value calculated from well 1 on 01/01/2021.

SOP 5 Sub-Slab Air Sampling

1.0 Installation

Select the locations for installation of brass pre-constructed Vapor Pin®. Divide the building into thirds, place one sub-slab vapor pin near the center of each third, if possible. The depth of the vapor pin is determined by the depth of the concrete slab; however, each Vapor Pin® is to be installed just below the concrete slab such that the potential vapors immediately below the concrete slab are being sampled. A 1.5-inch diameter hole will be drilled to a depth of approximately 1.75-inches deep. This is to allow the Vapor Pin® to be recessed below the concrete surface. Set the supplied drill bit flange in the 1.75-inch diameter hole as a guide to drill a 5/8-inch diameter Vapor Pin® hole through the concrete slab. Extend the drill bit a couple of inches below the concrete slab to verify the Vapor Pin® hole is completely through the concrete slab. Fit the supplied silicon sleeve over the Vapor Pin® and insert it inside the 5/8-inch diameter hole using the supplied tap and cover that protects the barbed fitting on top of the Vapor Pin®. Set the supplied stainless steel cap flush to the floor to cover the Vapor Pin®.

2.0 Sampling

Each brass Vapor Pin® will be purged of vapor after installation and then allowed to set undisturbed for 48 hours before collecting a grab sample from each Vapor Pin®. Rather than purging three volumes of air from the Vapor Pin® and tubing before collecting a sample, each Vapor Pin® will be purged using a PID and O_2 meter at a rate <= 0.2 liters per minute and collect the air sample after the PID and O_2 levels have stabilized.

A grab sample will be collected from each Vapor Pin® by attaching one end of Tygon™ and Nylaflow LM ¼-inch diameter tubing to the Vapor Pin® and the other end to a 1 liter Summa TO-CAN. The grab sample is collected by opening the sampling valve of the pre-evacuated canister and allowing the canister to fill to ambient pressure (typically a minute or less).

One grab sample will be collected from each Vapor Pin® weekly for four consecutive weeks following EPA SOPs (EPA ERT #2042, 2001). The atmospheric pressure, wind speed, precipitation and temperature at the site the days samples are collected will be recorded. The soil gas samples will be shipped overnight delivery to and analyzed by Pace Laboratory for VOCs using EPA Method TO-15.

SOP 6 Decontamination

1.0 Hand Tools and Equipment

Hand tools and equipment will be decontaminated between each sample location by using a three-bucket wash and rinse system. The sampling equipment will be washed in the first bucket using low-phosphate detergent and tap water, followed by a triple rinse in bucket two containing tap water and lastly a triple rinse in bucket three containing deionized/distilled water. The sampling equipment will then be allowed to air dry before proceeding to the next sampling grid.

One equipment rinseate sample per day may be collected by pouring distilled water over the decontaminated field equipment and collecting the rinseate water into the sample containers. The equipment rinseate sample will be submitted to the laboratory for analyses of COCs in the work plan.

2.0 Push Probe/Drilling Equipment

All down hole drilling equipment and associated tools will be pressure-washed between boreholes. Pipe racks or similar will be used to elevate the drilling equipment (e.g., rods and augers) during pressure washing. Decontamination of the DT35 outer and inner rods may be accomplished using a mobile decontamination pad (MDP) constructed in an open double axel trailer, or on bermed plastic placed over an asphalt pavement surface. The outer and inner rods would be pressured washed within the MDP and the fluids would be contained in the MDP or plastic bermed area and allowed to evaporate.

SOP 7 FIELD SCREENING PHOTO IONIZATION DETECTOR (PID)

1.0 Objective

This procedure describes the field-screening method of analyzing organic vapors emitted from within the pore spaces of a soil sample. Following appropriate techniques, the real-time data can be used to estimate relative levels of organic contamination in the soil. In addition to providing assessment information, headspace analysis can be used for health and safety purposes.

2.0 EQUIPMENT AND SUPPLIES

The following equipment and supplies are necessary to conduct field headspace testing:

- Photoionization detector (PID)
- Calibration gas standards for PID of known concentrations (SOP 8)
- DT35 Dual tube sampling system.
- Ziplock plastic baggies.

3.0 PROCEDURE

The following procedure will be used for field headspace testing of soil samples:

1. The PID is calibrated daily to a standard of 100 parts per million (PPM) isobutylene (SOP 8).
2. When the outer rods are driven into the subsurface, the cutting shoes shears a 2.125-inch OD soil core inside a clear plastic liner that is attached to the smaller inner rods. Once filled, the liner with the soil sample is removed from the bottom of the outer casing by lifting the inner rods.
3. Cut the plastic sleeve length wise to expose the sample and remove the soil to be tested with the PID. Granular soils should be broken apart and cohesive soils should be broken by crushing the sample as it is placed in the ziplock plastic bag. Place approximately 100-500 grams of soil in the ziplock plastic bag. Place the ziplock plastic bag in the sun to warm or on the dashboard of the truck to warm the sample for approximately 5-10 minutes.
4. Turn the PID on before opening the ziplock plastic bag. Open one end of the ziplock bag just enough to insert the PID probe and then pinch the plastic bag around the PID probe tip. Take a PID reading, results will be PPM.

5. Record the PID reading on the boring log at the depth of the sample tested. Repeat this process for any sampled depth of interest.

SOP 8 EQUIPMENT CALIBRATION

1.0 Objective

Parameters which would be likely to change with time prior to delivery to the laboratory are generally measured in the field. Because of the potential for temporal differences in measured values, laboratory measurements of these parameters, although potentially more precise, would be less accurate than measurements collected in the field. In addition, field measurements can serve as an initial screening tool to evaluate relative degree of physical properties of samples.

Field measurements are typically performed for the following parameters: (1) total volatile organic vapors in soil, (2) fluid pH, (3) fluid specific conductance (Cond), (4) fluid temperature (T),fluid oxidation/reduction potential (ORP), and dissolved oxygen (DO). The equipment to be used for the above parameters include, a Photoionization detector (PID) total organic vapors in soil and groundwater, a YSI 6500 Water Quality Meter for pH, T, Cond, ORP and DO. JLI uses a Geopump® peristaltic pump connected to a flow through cell to collected groundwater samples when the depth to groundwater is less than 20 feet.

The calibration and maintenance history, as appropriate, of all equipment used to make measurements will be recorded in the field note book. In general, equipment must be checked for calibration on a daily basis and according to manufacturer's equipment operation procedure.

2.0 CALIBRATION

2.1 Photoionization Detector (PID)

The PID must be calibrated in order to display concentration in units' equivalent to PPM. First a supply of clean air, which contains no off gases or vapors, is used to set the zero point. Then, isobutylene at 100 PPM (span gas), is used to set the reference standard. The cylinder of span gas and flow regulator needed for calibration is included with the PID instrument.

2.2 YSI 6500 Water Quality Meter

The YSI meter is calibrated daily for pH, T, Cond and DO. The YSI meter is factory calibrated for T and ORP and this calibration is updated every 6 months. The YSI meter is calibrated for ph, Cond and DO by turning on the instrument and selecting the calibration function. The screen displays the calibration steps the user follows using the following standards:

- pH – calibrated to 4, 7 and 10
- Cond – calibrated to known solution of 10,000 microsiemens per centimeter (ugS/cm)
- DO – calibrated by entering the local barometric pressure in mm/hg.

SOP 9 SAMPLING MANAGEMENT CHAIN OF CUSTODY

1.0 Objective

This section describes sample handling and shipping documentation requirements to ensure the integrity of the samples collected and submitted to the laboratory for analysis, and to provide the laboratory with explicit instructions for the analytical services required. The following general procedures are summarized in this section:

- Sample labeling,
- Sample packaging and shipping, and
- Chain-of-custody.

2.0 Sample Labeling

All sample containers will be labeled using waterproof ink with the following information on labels:

- Client or project name,
- Sample identification number,
- Date and time of collection,
- Requested analysis, and
- Container type and type of preservation used.

All groundwater samples collected each day are to be listed on the Daily Field Log (**Form A)**. Duplicate samples will be labeled with a “D” after the well ID. A fictitious sample ID number is not needed since the internal QAQC laboratory report serves as additional checks on the laboratory QAQC policy.

3.0 Sample Packaging and Shipping

The following procedures apply to all groundwater samples packed for transport to the laboratory:

- Place each sample into an individual laboratory supplied bubble wrap bag.
- Each sample from the well will be comprised of 4-40milliliters (mL) vials for BTEX and GRO, and 4-40 mL vial for DRO. These are all placed into a 1-liter sealable baggie and labeled on the outside of the baggie with the sample name, date, and sample time. This is performed to verify the sample during preparation of the chain of custody, and to assist the laboratory personnel at the log in procedure at the laboratory.
- Place bubble wraps on the inside bottom of the cooler.
- Line the cooler with a laboratory supplied 6-millimeter thick clear plastic bag (plastic bag) that extends above the cooler at least 18-inches so the bag can be sealed with a zip-tie strap.
- Place the samples inside the plastic bag and pack the plastic bag with the contents of one bag of crushed ice. Spread the ice evenly over the entire contents of the plastic bag. Zip tie the plastic bag shut.
- Place the completed chain of custody inside a 1-liter sealable baggie and tape the baggie to the inside lid of the cooler.
- Remove any expired shipping label for the cooler. Place the laboratory supplied overnight priority shipping label on the cooler. Remove the receipt of the shipping label and attach it to the copy of the chain of custody that is inside the cooler.
- Attach two signed custody seals over the cooler lid where it seals to the body of the

cooler. Tape the cooler shut by wrapping shipping tape around the cooler lid and base and over the custody seals at least two layers thick.

- Ship the coolers using Federal Express or United Parcel Service only from a distribution location that is staffed by company personnel. No shipping cooler is ever to be left unattended at a drop location.

4.0 Chain-of-Custody

Chain-of-custody is a mechanism employed to ensure that data resulting from laboratory analysis are credible and defensible. Chain-of-custody begins at the time and point of sample collection. Documentation of sample possession and chain-of-custody is provided by the use of sample labels and chain-of-custody forms.

The chain-of-custody record will be initiated in the field and will accompany each sample during shipment to the laboratory. The chain-of-custody record allows transfer of custody of a sample or group of samples in the field to any laboratory. Information listed on the chain-of-custody includes:

- Sample Identification;
- Project name, location, and number;
- Sampling dates and times;
- Name of sampling technician(s);
- Media being tested for each sample;
- Number of containers per sample;
- Signature of person relinquishing and receiving custody;
- Requested analyses for each sample; and
- Special requirements/comments for project or analysis.

The sampler relinquishing the samples will keep one copy of the chain-of-custody forms and send the remaining copies with the samples. The chain-of-custody form shall be sealed in a waterproof plastic bag and placed inside the shipping container.

SOP 10 INVESTIGATION DERIVED WASTE

1.0 Classification

Investigation derived waste (IDW) will include soil, groundwater, and personal protection equipment (PPE). The following IDW rules will apply for the SAP.

2.0 Soil

Soil is generated from core samples recovered from the push probe plastic sleeves. The unused soil is considered deminimus and will be broken into fine media and remain onsite. If required by MT DEQ, a Waste Profile Sheet will be completed with the required analytical documentation for offsite transportation and disposal. This will be further discussed in the work plan if required by the site-specific conditions.

3.0 Groundwater

Groundwater purged from the wells using low flow procedure is considered deminimus and will l first be containerized in a bucket to document the volume of water removed. The groundwater will then be discharged to an asphalt surface away from storm drains and allowed to evaporate.

4.0 PPE

PPE does not warrant any special disposal. PPE will be disposed of in trash receptacles.