February 9, 2026

Mr. Todd Fickler
Fickler Oil Company
725 Maverick Lane
Deer Lodge, MT 59722

Subject: Groundwater Monitoring Work Plan
I-90 Auto Truck Plaza – 1220 N Main Street, Deer Lodge, Montana
DEQ Facility 39-07856 (TID 26710); Releases 0722 and 3984; WPIDs 35117 / 35118
AWS Project No. 26005

Dear Mr. Fickler,

Air Water Soil, LLC (AWS), is pleased to present this Work Plan for the petroleum release associated with the I-90 Auto Truck Plaza (hereafter, "the site") located at 1220 N Main Street, Deer Lodge, Montana.

AWS has prepared this Work Plan on your behalf in response to a December 10, 2025, *Work Plan Requested to Monitor Petroleum Contaminated Media* letter issued by the Montana DEQ PTCS for the petroleum releases at the Site.

SITE DESCRIPTION

The site is an active petroleum distribution facility that provides retail sales of gasoline and diesel fuel products. Fuel is stored in 3 UST systems and dispensed via retail dispenser islands.

Previous investigations have resulted in the drilling and construction of 12 monitoring wells across the site. Interior well depths are reportedly about 24 feet bgs, with screened sections beginning at 5 to 10 feet bgs and extending to the full depth of each well.

Drilling has identified gravel fill from just below the pavement section to depths between 3 to 7 feet bgs. Gravel fill is primarily underlain by clay and silty clay sediments to a depth greater than 20 feet bgs.

Shallow groundwater has been consistently measured between 5 and 9 feet bgs. Groundwater flow has historically been reported towards the southwest across the site. This flow regime mimics the regional topography, sloping downward towards the Clark Fork River west of the site.

BACKGROUND

Petroleum Releases 0722 and 3984 have been extensively investigated and initially remediated per the requirements of the DEQ. Below is the known summary of background information regarding the releases:

1. Release 0722 was initially discovered during the closure and replacement of 4 USTs on April 30, 1991. Gasoline was reported as the primary contaminant, found to be leaking from the associated UST piping. Excavation efforts during the UST closure led to a 30-foot wide, 30-foot long, and 12-foot-deep trench, resulting in an estimated removal of 400 cubic yards of contaminated soil.
2. Following the replacement of USTs, 3 monitoring wells were installed to a depth of 24 feet bgs proximate to the source of Release 0722. VPH analysis of groundwater samples taken from these 3 wells revealed no detectable evidence of residual contamination.
3. Release 3984 was later discovered in November 2000, when an automatic tank gauging system had indicated inventory losses in one of the gasoline USTs. Of the previously installed monitoring wells, MW-1 was discovered to contain free-product, of which, a small amount was recovered. A previous consultant (PBS&J) noted that most of the released gasoline had flowed back into the UST due to hydrostatic forces.
4. Additional free-product recovery efforts consisted of the installation of MW-4/RW-1, a 6-inch recovery well, which was drilled to a depth of 20 feet bgs in December 2000. An active recovery system was installed in MW-4 and reportedly recovered nearly 9,500 gallons of gasoline, then removed in June 2001.
5. After free-product recovery efforts ceased, 3 USTs were removed from the tank basin and contaminated soils were excavated. A soil vapor extraction system was subsequently installed, though no hydrocarbons were detected during system evaluations, so the system was subsequently discontinued.
6. Additional corrective action has been limited to groundwater monitoring, which has consistently identified MW-8 as the only remaining monitoring well with benzene concentrations detected above Montana DEQ RBSLs. No other analytes have been detected above RBSLs within the site well network. Analysis of laboratory IBIs from the most recent groundwater sampling event in October 2022 indicates groundwater conditions favorable for anaerobic degradation in MW-8.
7. Following the most recent groundwater monitoring event, molasses and nitrate fertilizer, a surfactant, and an oxygenating agent were mixed with water and gravity-injected into MW-8 by a previous consultant (Griffith Environmental Consulting).

OBJECTIVES

This Work Plan has been prepared by AWS to meet the DEQ objectives stated in their December 10, 2025, *Work Plan Requested* letter, as well as additional objectives leading to release closure. Specific objectives of the herein planned investigation include:

- Evaluate the current extent of petroleum-contaminated media by conducting 2 groundwater monitoring events: 1 during high groundwater conditions, and 1 during low groundwater conditions.
- Analyze current and historic data to recommend strategies leading to the closure of Releases 0722 and 3984.

Tasks designed to address these objectives are described in the following Scope of Work section.

SCOPE OF WORK

The herein scope of work has been prepared to meet the requirements of DEQ as established in their Work Plan request letter. To accomplish this, AWS's scope of work will include the following 8 tasks: 1) Preliminary Research, Scoping, and Work Plan Preparation; 2) Project Management; 3) Mobilization; 4) Per Diem and Lodging; 5) Groundwater Monitoring; 6) Laboratory Analyses; 7) Data Validation Form Preparation; 8) Release Closure Plan Update; and 9) Groundwater Monitoring Report Preparation. AWS' proposed methods for these tasks are described in the following sections.

Task 1 – Preliminary Research, Scoping, and Work Plan Preparation

AWS requested historic documentation for the releases from DEQ by submitting an online request through the agency's public records request website. AWS evaluated the provided documentation to define past investigative and cleanup actions to address the releases. Thereafter, AWS discussed the findings with you and DEQ via telephone conversations, which led to the finalized scope of work presented herein.

AWS's Work Plan and cost estimate (Attachment B) have been created to satisfy the requirements stipulated in the *Montana Groundwater Monitoring Work Plan and Report Guidance for Petroleum Releases,* draft dated March 2021, and the additional requirements listed in the *Work Plan Requested* letter. Work Plan preparation included obtaining and evaluating historic documents, correspondence and planning with you and DEQ, estimating costs to implement each task, and preparing this document.

Task 2 – Project Management

Project management activities include correspondence with you, DEQ PTCS staff, and PTRCB staff regarding the scope of work and project costs. Project management will also include coordinating site access, scheduling and coordination of field personnel and activities, procuring testing and sampling equipment and supplies as necessary to complete the scope of work, and budget tracking.

Task 3 – Mobilization

Mobilization includes labor and vehicle mileage costs for project travel necessary to complete the scope of work. This generally includes AWS personnel's travel to and from the site, as well as preparation time of up to 1 hour per mobilization event, as applicable. The following is a summary of the anticipated mobilization events necessary to complete the scope of work:

- High-groundwater conditions (late spring/summer): 1 mobilization + 1 Prep; Tech II
- Low-groundwater conditions (late fall/winter): 1 mobilization + 1 Prep; Tech II

Task 4 – Per Diem and Lodging

Mobilization Per diem and lodging costs will be invoiced using PTRCB's daily meal rates and actual hotel costs incurred during completion of the scope of work, per employee. A summary of the anticipated per diem and lodging required to complete the scope of work is presented below. Per diem and lodging costs account for the mobilization schedule discussed above and are generally based on the same assumptions. The anticipated durations of mobilization events are based on AWS's professional experience and input from subcontractors, where applicable.

- High-groundwater conditions (late spring/summer): 1 mobilization + 1 prep; Tech II
    - Meals: 1 person, 2 days
    - Lodging: 1 person, 1 night
- Low-groundwater conditions (late fall/winter): 1 mobilization + 1 prep; Tech II
    - Meals: 1 person, 2 days
    - Lodging: 1 person, 1 night

Task 4 – Groundwater Monitoring

AWS will complete 2 groundwater monitoring events: 1 event in the late spring/summer months during high groundwater conditions; and 1 event in late fall/winter months during low groundwater conditions.

During each event DTW measurements will be collected in the 5 existing site wells, but samples will only be collected from one well. Results from these monitoring events will track continued degradation of the residual petroleum contaminants. Groundwater sampling during each event will be completed in accordance with DEQ's *Groundwater Sampling Guidance.*

Prior to collection of groundwater samples, an electronic probe will be used to measure DTW following *AWS SOP-04*, relative to the established measuring points, in wells MW-5, MW-6, MW-7, MW-8, and MW-9R. All *SOPs* mentioned herein are provided under Attachment D. After measuring DTW in a well, the electronic probe will be decontaminated following *AWS SOP-01* prior to usage in subsequent wells to prevent cross-contamination. DTW measurements will be used to determine groundwater elevations in the wells and estimate groundwater flow characteristics.

Thereafter, groundwater monitoring will begin in MW-8. Utilizing a peristaltic pump, groundwater will be allowed to stabilize prior to collecting samples by gauging field IBIs, as stipulated in *AWS SOP-06*. After which, groundwater samples will be collected in accordance with the attached analyses matrix (Attachment C) and stored in a cooler with ice. Following the collection of groundwater samples, purge water collected during sampling will be disposed of following *AWS SOP-56*, and all downhole reusable equipment will be decontaminated following *AWS SOP-01*.

Task 5 – Laboratory Analyses

After samples are containerized and packed in a cooler with ice, coolers will be sealed following chain-of-custody protocol, as stipulated in *AWS SOP-08*. Groundwater samples collected during both events are expected to be hand-delivered to Energy Laboratories in Helena (Energy) following chain-of-custody protocol, since the anticipated route from Great Falls to Deer Lodge includes passing through Helena, which would allow AWS personnel to drop-off samples at Energy on the return trip while staying on-route.

Laboratory analyses for petroleum analytes shall be as stipulated in the RBCA document for groundwater contaminated by gasoline. AWS will request that Energy analyze the groundwater samples for VPH and various IBIs, as shown in the attached analyses matrix (Attachment C).

Task 6 – Data Validation Form Preparation

Upon receipt of final laboratory analytical data for each sampling event, AWS will complete data validation in accordance with DEQs *Data Validation Summary Form*. Data will be validated to assess the precision, accuracy, repetitiveness, comparability, and completeness of the reported parameters.

Task 8 – Release Closure Plan Update

Following completion of the 2 groundwater monitoring events and receipt of final analytical data, AWS will update the previous RCP for the site. This will include assessing the data collected during the groundwater monitoring events completed under this Work Plan and evaluating natural attenuation as a remediation strategy. The updated RCP will list identified data gaps, if present, which should be addressed during future work.

Task 9 – Groundwater Monitoring Report Preparation

Following completion of Tasks 1 through 8, including receipt and review of all final analytical data, AWS will prepare a *Groundwater Monitoring Report*. The document will present a discussion of the data from the two groundwater sampling events and will present conclusions and recommendations for additional work, as appropriate. Data will be presented in tabular form, and selected information will be presented in site figures. The report will be submitted to you and DEQ electronically, in Portable Document Format (PDF); a hard copy will not be prepared or provided.

SCHEDULE

Note that DEQ typically requires initiation of a work plan once approved, without regard to the timing of PTRCB's obligation of funding. AWS will initiate implementation of Tasks 2 through 9 following our receipt of DEQ PTCS's work plan approval, but only after also receiving Fickler Oil Company's authorization to proceed. Any delay of implementation after issuance of DEQ's work plan approval letter will need to be coordinated with DEQ.

The actual project schedule will be contingent on various conditions which are indeterminable at the time of preparation of this work plan, including but not limited to approval from all listed parties, weather, and availability of AWS personnel and subcontractors. AWS will coordinate with Fickler Oil Company, DEQ, and other stakeholders as appropriate and will make reasonable efforts to adhere to the desired schedule.

FEE

AWS's fees for completing the scope of work described in this Work Plan will be assessed in accordance with the attached Cost Estimate in Attachment B. Our estimated total fee for completing the scope of work detailed in this Work Plan is approximately **$10,763.** Our cost estimate has been prepared using AWS's current, PTRCB-approved labor and equipment rates and reimbursable costs. The services provided will be invoiced using rates approved by the PTRCB for the current billing period.

Actual costs may vary somewhat, depending on a variety of factors, including but not limited to unforeseen delays or other necessary but unexpected changes to the scope of work. AWS will coordinate changes to the scope of work, if necessary, with you, the DEQ, and PTRCB staff prior to implementing the changes.

LIMITATIONS

The scope of work included in this work plan has been prepared for Fickler Oil Company and includes only those services described above. This work plan does not include remedial or disposal services, or costs for such services, beyond those listed specifically in the scope of work.

Monitoring results represent a "snapshot" of conditions during the monitoring period from which the samples were collected and may not be representative of potential future conditions.

AWS cannot and does not warrant that the scope of services described in this work plan will be adequate to identify all potential environmental conditions or latent conditions at the site. Our scope of work will be performed with a standard of care meeting or exceeding that of other environmental consultants performing similar work in the area.

ACCEPTANCE

On January 16, 2026, Fickler Oil verbally authorized AWS to prepare this work plan. A copy of this work plan will be submitted to the Montana DEQ on behalf of Fickler Oil Company. It is understood DEQ's review of the work plan will relate only to the technical aspects of the proposed

scope of work. After AWS receives DEQ's approval of this work plan, AWS will send contract documentation to Fickler Oil to secure our services to complete the planned work.

Assuming DEQ approves the work plan from a technical standpoint, it is presumed they will forward the work plan and cost estimate to the PTRCB staff for their review. PTRCB staff's review of the work plan is presumed to relate only to the proposed costs to implement the scope of work approved by DEQ. Note that DEQ may require implementation of the work plan prior to PTRCB's obligation of funding. Any delay of implementation after issuance of DEQ's work plan approval letter will need to be coordinated with DEQ.

If you have any questions or concerns relating to this work plan, please call me at your earliest convenience to discuss (406.315.2201).

Respectfully Submitted:

Rob Craft
Environmental Technician
rob@airwatersoil.com

Alan Frohberg, P.E.
Project Manager
alan@airwatersoil.com

Attachments: A – Definitions of Acronyms
B – Cost Estimate
C – Groundwater Monitoring Analytical Plan
D – SOPs

cc: Mr. William Bergum, Montana DEQ PTCS, P.O. Box 200901, Helena, MT 59620. Transmitted via DEQ FTP server.

ATTACHMENT A

Definitions of Acronyms

DEFINITIONS OF ACRONYMS

ARM	Administrative Rules of Montana
AST	aboveground storage tank
bgs	below ground surface
BH	borehole
COC	contaminant of concern
CSM	Conceptual Site Model
cu yd	cubic yard
DCA	1,2-Dichloroethane
DEQ	Montana Department of Environmental Quality
DO	dissolved oxygen
DTP	depth to product
DTW	depth to water
EDB	1,2-Dibromoethane
EPA	United States Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbons
GWE	groundwater elevation
IBI	intrinsic biological indicator
ISCO	In-Situ Chemical Oxidization
LNAPL	light non-aqueous phase liquid
LUST	leaking underground storage tank
MNA	Monitored Natural Attenuation
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTBE	Methyl-Tertiary-Butyl-Ether
MW	monitoring well
ORP	oxidization-reduction potential
ppb	parts per billion
ppm	parts per million
pH	potential of Hydrogen
PID	photoionization detector
PTCS	Montana Petroleum Tank Cleanup Section

DEFINITIONS OF ACRONYMS CONTINUED

PTRCB	Montana Petroleum Tank Release Compensation Board
PVI	petroleum vapor intrusion
RBSL	Risk-Based Screening Level
RBCA	Montana *Risked-Based Corrective Action Guidance for Petroleum Releases*
RCP	Release Closure Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RL	reporting limit
RP	Responsible Person
SB	soil boring
SC	specific conductance
SOP	Standard Operating Procedure
SVE	Soil Vapor Extraction
TEH	Total Extractable Hydrocarbons
TP	temporary piezometer
TPH	Total Purgeable Hydrocarbons
UST	underground storage tank
VI	vapor intrusion
VOC	Volatile Organic Compound
VPH	Volatile Petroleum Hydrocarbons
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter

AIR WATER SOIL

ATTACHMENT B

Cost Estimate

GWM Event #2			
Breakfast, per person/day	2	$11.20	$22.40
Lunch, per person/day	2	$13.30	$26.60
Dinner, per person/day	1	$19.60	$19.60
Lodging, per person/night, estimate	1	$250.00	$250.00
		Event Subtotal:	$318.60
		Total Task 4 Costs:	**$637.20**

TASK 5 - GROUNDWATER MONITORING (GWM)

GROUNDWATER MONITORING UNIT COSTS	UNITS	RATE	COST
See attached DEQ/PTRCB Unit Cost Worksheet *2 GWM Events, including:* *1) High groundwater conditions (GWM #1) @ $596.75* *2) Low groundwater conditions (GWM #2) @ $596.75*	1	$1,187.00	$1,187.00
		Direct Cost Subtotal:	$1,187.00
		Total Task 5 Costs:	**$1,187.00**

TASK 6 - LABORATORY ANALYSES

GWM #1 WATER SAMPLES (1 Natural)	UNITS	RATE	COST
VPH (MT DEQ), per sample	1	$152.00	$152.00
Alkalinity (A2320B), per sample	1	$16.00	$16.00
Dissolved Methane (SW8015M), per sample	1	$70.00	$70.00
Dissolved Fe & Mn (ICP/ICPMS E200.7/8, field filtered), per sample	1	$32.00	$32.00
Total Recoverable Fe & Mn (ICP/ICPMS E200.7/.8), per sample	1	$32.00	$32.00
Metals Digestion (E200.2), per sample	1	$22.00	$22.00
Sulfates (E300.0), per sample	1	$32.00	$32.00
Sulfides (A4500-SF), per sample	1	$83.00	$83.00
Nitrogen, Nitrate + Nitrite (E353.2), per sample	1	$32.00	$32.00
Laboratory Disposal Fee (Energy Labs), per sample	1	$3.00	$3.00
PTRCB Sampling Fee (Natural + Duplicate), per sample	1	$20.00	$20.00
		GWM #1 Water Analytical Costs Subtotal:	$494.00

GWM #2 WATER SAMPLES (1 Natural)	UNITS	RATE	COST
VPH (MT DEQ), per sample	1	$152.00	$152.00
Alkalinity (A2320B), per sample	1	$16.00	$16.00
Dissolved Methane (SW8015M), per sample	1	$70.00	$70.00
Dissolved Fe & Mn (ICP/ICPMS E200.7/8, field filtered), per sample	1	$32.00	$32.00
Total Recoverable Fe & Mn (ICP/ICPMS E200.7/.8), per sample	1	$32.00	$32.00

Metals Digestion (E200.2), per sample	1	$22.00	$22.00
Sulfates (E300.0), per sample	1	$32.00	$32.00
Sulfides (A4500-SF), per sample	1	$83.00	$83.00
Nitrogen, Nitrate + Nitrite (E353.2), per sample	1	$32.00	$32.00
Laboratory Disposal Fee (Energy Labs), per sample	1	$3.00	$3.00
PTRCB Sampling Fee (Natural + Duplicate), per sample	1	$20.00	$20.00
		GWM #2 Water Analytical Costs Subtotal:	$494.00
		Total Task 6 Costs:	**$988.00**

TASK 7 - DATA VALIDATION FORM PREPARATION

GWM EVENT #1			
Staff Scientist, per hour	1	$140.00	$140.00
		Event Subtotal:	$140.00
GWM EVENT #1			
Staff Scientist, per hour	1	$140.00	$140.00
		Event Subtotal:	$140.00
		Total Task 7 Costs:	**$280.00**

TASK 8 - RELEASE CLOSURE PLAN UPDATE

LABOR COSTS	UNITS	RATE	COST
Staff Scientist, per hour	5	$140.00	$700.00
		Labor Costs Subtotal:	$700.00
		Total Task 8 Costs:	**$700.00**

TASK 9 -GROUNDWATER MONITORING REPORT PREPARATION

STANDARDIZED REPORT PREPARATION	UNITS	RATE	COST
RPT_GWM - Groundwater Monitoring Report, unit cost	1	$2,150.00	$2,150.00
Number of Monitoring Events, unit cost	2	$185.00	$370.00
		Labor Costs Subtotal:	$2,520.00
		Total Task 9 Costs:	**$2,520.00**

TOTAL ESTIMATED PROJECT COSTS: $10,762.70

This cost estimate was prepared using AWS labor and equipment rates approved by the Petroleum Tank Release Compensation Board for 2026. Work performed under this scope of work will be invoiced using PTRCB-approved rates for the period of service. Where applicable, 3 bids were solicited for subcontracted services exceeding $2,500, and submitted bids are attached. Analytical rates represent AWS's current rates for the soil and water analyses (provided by Energy Laboratories, Inc.).

Petroleum Tank Release Compensation Board — Groundwater

Monitoring and Sampling Unit Cost Worksheet

Cost Estimate Expl. | Work Plan Tasks | Unit Cost Worksheet | Help

Contractor Information

Company Name:	Air Water Soil, LLC		
Address:	1321 8th Ave N, STE 104		
City, State, Zip:	Great Falls, Montana, 59401		
Cost Estimator/Print Name:	Rob Craft	Phone:	4063152201
Signature:		Date:	2/2/2026

Project Information

Site Name:	I-90 Auto Truck Plaza	Facility ID#	39-07856
Address:	1220 N Main St	Release #	0722 and 3984
City:	Deer Lodge, Montana, 59722	WP ID#	35117 and 35118
		Treads ID#	

Monitoring Well Details

5	Total Number of Wells at Site
4	Number of Fluid Level Measurements Only (2)
1	Number of Wells to be Monitored/Sampled (4-11)
2	Average Well Casing Diameter (inches)
7	Average Depth to Groundwater (ft)
24	Average Depth of Wells (ft)

Sampling Method

- [x] Low-Flow
- [ ] Low-Flow (Low Yield Aquifer)
- [ ] No Purge
- [ ] Other (please specify)

# of Events - Monitoring/Sampling Interval

Estimated Start Date: 7/15/2026

2	Semi-Annual
	Annual
	Bi-Annual
	Other

Sampling Instrument

- [x] Peristaltic Pump
- [ ] Bladder Pump
- [ ] Submersible Pump
- [ ] Bailer
- [ ] Other (please specify)

2 Total Events

Cost Estimate Expl. | Site Information | Unit Cost Worksheet | Help

Work Plan Task List

Task	Total Cost
Work Plan Preparation	$0.00
Project Management	$0.00
Mobilization/Demobilization [1]	$0.00
Fluid Level Measurements [2]	$384.00
Groundwater Monitoring [4-6]	$677.00
Miscellaneous (Groundwater Monitoring Modifiers) [7-11]	$126.00
Lodging & Per Diem (Lodging - actual only)	$0.00
Laboratory Analysis [12-13]	$0.00
Report Preparation [14-17]	$0.00
Release Closure Plan (RCP) Preparation [18]	$0.00
Other Services	
Miscellaneous ()	$0.00
Miscellaneous ()	$0.00
Monitoring & Sampling Subtotal:	**$1,187.00**
Additional Costs Subtotal:	**$0.00**
Grand Total:	**$1,187.00**

Metals Digestion (E200.2), per sample	1	$22.00	$22.00
Sulfates (E300.0), per sample	1	$32.00	$32.00
Sulfides (A4500-SF), per sample	1	$83.00	$83.00
Nitrogen, Nitrate + Nitrite (E353.2), per sample	1	$32.00	$32.00
Laboratory Disposal Fee (Energy Labs), per sample	1	$3.00	$3.00
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TASK 8 - RELEASE CLOSURE PLAN UPDATE

LABOR COSTS	UNITS	RATE	COST
Staff Scientist, per hour	5	$140.00	$700.00
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Sulfides (A4500-SF), per sample	1	$83.00	$83.00
Nitrogen, Nitrate + Nitrite (E353.2), per sample	1	$32.00	$32.00
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		Total Task 9 Costs:	**$2,520.00**

TOTAL ESTIMATED PROJECT COSTS: $10,762.70

This cost estimate was prepared using AWS labor and equipment rates approved by the Petroleum Tank Release Compensation Board for 2026. Work performed under this scope of work will be invoiced using PTRCB-approved rates for the period of service. Where applicable, 3 bids were solicited for subcontracted services exceeding $2,500, and submitted bids are attached. Analytical rates represent AWS's current rates for the soil and water analyses (provided by Energy Laboratories, Inc.).

Petroleum Tank Release Compensation Board — Groundwater

Monitoring and Sampling Unit Cost Worksheet

Cost Estimate Expl. | Work Plan Tasks | Unit Cost Worksheet | Help

Contractor Information

Company Name:	Air Water Soil, LLC		
Address:	1321 8th Ave N, STE 104		
City, State, Zip:	Great Falls, Montana, 59401		
Cost Estimator/Print Name:	Rob Craft	Phone:	4063152201
Signature:		Date:	2/2/2026

Project Information

Site Name:	I-90 Auto Truck Plaza	Facility ID#	39-07856
Address:	1220 N Main St	Release #	0722 and 3984
City:	Deer Lodge, Montana, 59722	WP ID#	35117 and 35118
		Treads ID#	

Monitoring Well Details

5	Total Number of Wells at Site
4	Number of Fluid Level Measurements Only (2)
1	Number of Wells to be Monitored/Sampled (4-11)
2	Average Well Casing Diameter (inches)
7	Average Depth to Groundwater (ft)
24	Average Depth of Wells (ft)

Sampling Method

- [x] Low-Flow
- [ ] Low-Flow (Low Yield Aquifer)
- [ ] No Purge
- [ ] Other (please specify)

# of Events - Monitoring/Sampling Interval

Estimated Start Date: 7/15/2026

2	Semi-Annual
	Annual
	Bi-Annual
	Other

Sampling Instrument

- [x] Peristaltic Pump
- [ ] Bladder Pump
- [ ] Submersible Pump
- [ ] Bailer
- [ ] Other (please specify)

2 Total Events

Cost Estimate Expl. | Site Information | Unit Cost Worksheet | Help

Work Plan Task List

Task	Total Cost
Work Plan Preparation	$0.00
Project Management	$0.00
Mobilization/Demobilization [1]	$0.00
Fluid Level Measurements [2]	$384.00
Groundwater Monitoring [4-6]	$677.00
Miscellaneous (Groundwater Monitoring Modifiers) [7-11]	$126.00
Lodging & Per Diem (Lodging - actual only)	$0.00
Laboratory Analysis [12-13]	$0.00
Report Preparation [14-17]	$0.00
Release Closure Plan (RCP) Preparation [18]	$0.00
Other Services	
Miscellaneous ()	$0.00
Miscellaneous ()	$0.00
Monitoring & Sampling Subtotal:	**$1,187.00**
Additional Costs Subtotal:	**$0.00**
Grand Total:	**$1,187.00**

Cost Estimate Expl. | Site Information | Work Plan Tasks | Help

Groundwater Monitoring and Sampling Unit Cost Worksheet

Task	Events												Totals		
	1		2		3		4		5		6				
	Units	Unit Cost	Units	Unit Cost	Units	Unit Cost	Units	Unit Cost	Units	Unit Cost	Units	Unit Cost	Units	Unit Cost	Total Cost
Sampling Frequency	Semi-Annual		Semi-Annual												
Work Plan Type															
Work Plan Preparation														/work plan	
Project Management														/hr	
Mobilization/Demobilization [1]														/mile	
Field Work															
Fluid Level Measurements [2]	4	$48.00	4	$48.00									8	$48.00 /well	$384.00
Groundwater Monitoring Setup [3]	1	$113.50	1	$113.50									2	$113.50 /site/day	$227.00
Groundwater Monitoring (<25ft total depth) - Peristaltic [4]	1	$225.00	1	$225.00									2	$225.00 /well	$450.00
Groundwater Monitoring (<25ft total depth) - Bladder [5]														/well	
Groundwater Monitoring (25-50ft total depth) - Bladder [5]														/well	
Groundwater Monitoring (50-75ft total depth) - Bladder [5]														/well	
Groundwater Monitoring (75-100ft total depth) - Bladder [5]														/well	
Groundwater Monitoring - No Purge [6]														/well	
Modifiers															
Groundwater Monitoring - Low Yield Modifier [7]														/well	
Groundwater Monitoring - IBI Modifier [8]	1	$35.00	1	$35.00									2	$35.00 /well	$70.00
Groundwater Monitoring - Filters [9]	1	$28.00	1	$28.00									2	$28.00 /filter/well	$56.00
Contaminated Purge Water - Offsite Disposal [10]														/each	
Duplicate Sample Modifier [11]														/each	
Other Services															
Other Service (please specify)														/each	
Other Service (please specify)														/each	
Lodging & Per Diem (Lodging - actual only)															
Lodging: # of people														/person/night	
Food: # of people														/person/day	
(Breafast $7.50, Lunch $8.50, Dinner $14.50)															
Laboratory Analysis [12]	Semi-Annual		Semi-Annual												
Volatile Petroleum Hydrocarbons (VPH)														/sample	
Extractable Petroleum Hydrocarbons (EPH)															
EPH "screen"														/sample	
EPH "fractions"														/sample	
Polycyclic Aromatic Hydrocarbons (PAHs)														/sample	
Lead Scavengers															
Ethylene dibromide (EDB)														/sample	
1,2-Dichloroethane (DCA)														/sample	
Drinking Water - EPA 524.3														/sample	
Intrinsic Biological Indicator Analyses (IBI)														/sample	
Other Analytical Methods														/sample	
Other Service (please specify)														/each	
PTRCB sampling fee [13] ($10.00 allowed)														/sample	
Report Preparation															
Groundwater Monitoring Report - Type [14-15]															
Groundwater Monitoring Report - Base Cost [14]														/report	
IBI Modifier [16]														/event	
Additional Wells Modifier [17]														/event	
Release Closure Plan (RCP) Preparation [18]															
Create RCP														/RCP-C	
Update RCP														/RCP-U	
														Monitoring & Sampling Subtotal:	**$1,187.00**

Additional Conditions/Comments/Costs:

Additional Costs Subtotal:	
Grand Total:	**$1,187.00**

If you require assistance, call 406-444-9710

Submit completed form to:

Petroleum Tank Release Compensation Board

PO Box 200902, Helena MT 59620-0902

ATTACHMENT C

Groundwater Monitoring Analytical Plan

AIR WATER SOIL

GROUNDWATER MONITORING ANALYTICAL PLAN

Groundwater Monitoring Work Plan

I-90 Auto Truck Plaza – 1220 N Main St, Deer Lodge, Montana

DEQ Facility 39-07856 (TID 26710); Releases 0722 and 3984; WPIDs 35117 and 35118

Wells	Depth to Water (DTW)	Volatile Petroleum Hydrocarbons (VPH) *(MT VPH Method)*	Extractable Petroleum Hydrocarbons (EPH) Screen *(MT EPH Method)*	EPH Fractions *(MT EPH Method)*	1,2-dichloroethane (DCA) *(Method 8260B)*	Ethylene Dibromide (EDB) *(Method 8011)*	Alkalinity *(Method A2320B)*	Dissolved Methane *(Method SW8015M)*	Sulfates *(Method E300.0)*	Sulfides *(Method A4500-SF)*	Nitrogen, Nitrate + Nitrite *(Method E353.2)*	Dissolved + Total Iron and Manganese *(Methods E200.7/E200.8)*
Event #1:	**High-Groundwater (anticipated late spring/summer)**											
MW-5	✓	--	--	--	--	--	--	--	--	--	--	--
MW-6	✓	--	--	--	--	--	--	--	--	--	--	--
MW-7	✓	--	--	--	--	--	--	--	--	--	--	--
MW-8	✓	✓	--	--	--	--	✓	✓	✓	✓	✓	✓
MW-9R	✓	--	--	--	--	--	--	--	--	--	--	--
Event #2:	**Low-Groundwater (anticipated late fall/winter)**											
MW-5	✓	--	--	--	--	--	--	--	--	--	--	--
MW-6	✓	--	--	--	--	--	--	--	--	--	--	--
MW-7	✓	--	--	--	--	--	--	--	--	--	--	--
MW-8	✓	✓	--	--	--	--	✓	✓	✓	✓	✓	✓
MW-9R	✓	--	--	--	--	--	--	--	--	--	--	--

Notes:

MW-##	Existing monitoring wells (MW-##) are shown in black text.
EPH, DCA, and EDB	EPH, DCA, and EDB will not be part of the analyses suite based on the contaminant source being gasoline and as confirmed during work plan scoping discussions with DEQ.

AIR WATER SOIL

ATTACHMENT D

SOPs

STANDARD OPERATING PROCEDURE

Field Sampling Equipment Decontamination

AWS SOP-01

EQUIPMENT:

- Disposable gloves (e.g., latex, nitrile)
- Eye protection
- Phosphorus-free detergent concentrate (e.g., Alconox®, Liquinox®)
- Concentrated alcohol (e.g., isopropyl, methanol) to make 10% solution
- Concentrated nitric acid to make 10% solution
- Deionized (DI), distilled, or potable tap water
- Spray bottles, collapsible dispensers, buckets, basins
- Scrub brushes
- Disposable wet-wipes
- Paper towels
- HEPA-filtered vacuum
- Garbage bags

PROCEDURE:

Decontamination of asbestos sampling tools and equipment is generally accomplished using HEPA-filtered vacuums, disposable wet-wipes, or water and paper towels. Cleaning is continued until visible contaminants are removed to prevent cross contamination between samples, and to prevent potential fiber exposure.

Decontamination of petroleum investigation sampling equipment generally includes a 3-step process: 1) detergent scrub; 2) alcohol/acid rinse; and 3) water rinse.

Prepare detergent solution by mixing detergent concentrate with potable water in a large cooler or basin. Keep this mixture free from contaminants; draw small portions out into smaller basins/buckets as needed. Prepare 10% alcohol-in-water and 10% nitric acid-in-water solutions in collapsible containers and/or spray bottles. Methanol and nitric acid solutions should be prepared using DI or distilled water.

Decontamination should be performed in an area upwind of the contamination zone or otherwise reasonably free from contaminants of concern. Gross contaminants/debris should be removed from equipment and left in the sampling area(s) if practicable. Remove remaining gross contamination by scrubbing equipment with detergent solution in a small basin. Empty basin and refill with fresh detergent solution as necessary. Rinse with alcohol solution, nitric acid solution (when sampling for metals), and DI/distilled water.

Dry decontaminated equipment using paper towels or place in an area as free from contaminants of concern as practicable an allow to air dry.

Caution should be used to avoid direct contact with contaminated materials; gloves and eye protection should be worn during preparation of decontamination fluids and during decontamination of sampling equipment. Decontamination fluids should be prepared in a location as free from contamination as practicable.

DISPOSAL:

All disposable items (soiled wipes, used paper towels, vacuum filters, etc.) should be deposited into a garbage bag and properly disposed. Decontamination waste from asbestos decontamination may require disposal as asbestos waste.

Decontamination fluids for petroleum investigations do not need to be collected under most circumstances. Spread decontamination fluids over a paved surface, if practicable.

STANDARD OPERATING PROCEDURE

Field Measurement of Depth to Groundwater

AWS SOP-04

EQUIPMENT:

- Electric Water Level Indicator (well probe)
- Electronic Oil-Water Interface Probe (interface probe)
- Extra batteries
- Field sampling forms
- Decontamination equipment

CALIBRATION:

The well probe and interface probe should be checked annually at a minimum, or more frequently as needed, for proper operation prior to completing field activities. The well probe should be checked by lowering the probe into a cup of clean water and confirming the probe's proper response. The interface probe should be checked by lowering the probe into a cup containing both vegetable oil and clean water, and where the oil and water have had time to separate into two distinct layers, and confirming the probe's proper response to each layer.

GENERAL:

Measure the depth to water in all wells , using the well probe, from the north quadrant of the top of the well casing or from a designated measuring point, as appropriate. Measure and record vertical distance from measuring point to ground level (unless measuring point has been surveyed for elevation). Make sure the measuring point is labeled or marked on the well casing so future measurements can be made from the same location. Obtain a depth to water from the established measuring point to the nearest hundredth of a foot. Record data on appropriate field forms.

Decontaminate the well probe between each well in accordance with AWS SOP-01 and/or the project-specific SAP.

If free-product petroleum is known or suspected to be present in a well, an interface probe should be used to measure the depth to water and thickness of free product in the well.

Using the interface probe, measure the depth to the top of free-product below the designated measuring point. Continue to lower the probe until the bottom of the product/top of groundwater interface is reached. Record both measurements on field forms. Product thickness can be calculated by subtracting the depth to the top of free-product measurement from the depth to groundwater/free-product interface measurement.

Decontaminate the interface probe between each well in accordance with the AWS SOP-01 and/or the project-specific SAP.

STANDARD OPERATING PROCEDURE

Groundwater Sampling

AWS SOP-06

EQUIPMENT:

- 5-gallon bucket graduated in gallons
- Low-flow cell or 12-ounce glass jar
- Hydrogen potential (pH) and temperature meter
- Specific conductance (SC) meter
- Dissolved oxygen (DO) meter
- Oxidation/reduction potential (ORP) meter
- Turbidity meter
- Coolers and ice
- Sample bottles
- Sampling pump – Peristaltic or Bladder-type with controller and compressor
- Disposable bladders (if using bladder pump)
- Disposable tubing
- Bailer(s)
- Bailer rope or Teflon cable reel
- Preservatives
- Disposable in-line filters or filter apparatus with filter media
- Field sampling forms
- Decontamination equipment and indelible marker
- Fluids
- Stopwatch
- Electronic Oil-Water Interface Probe (interface probe)
- Graduated vessel

MAINTENANCE:

All equipment should be inspected for damage and proper functionality (including battery charge) prior to use in the field. Unstable or "drifting" measurement readouts may be indicative of damaged probes/sensors, especially if the problem persists following recalibration. Damaged or improperly functioning equipment should be repaired or replaced as appropriate.

All meters, probes, pumps, sampling equipment, and sample vessels should be decontaminated in accordance with AWS SOP- 01 and following completion of sampling.

CALIBRATION:

Instruction manuals should always be kept with meters, especially sections pertaining to calibration and trouble shooting. Keep spare batteries with each meter. Calibration fluids appropriate for the anticipated sample ranges (pH 4.01 buffer solutions for acidic samples) should be kept with meters and should not be used if marked expiration dates have been exceeded. Several small sample vessels should be kept with meters for calibration and sample analyses.

Calibration of individual meters will vary; calibration should always be performed in accordance with the manufacturer's recommendations. In general, most meters should be calibrated at the beginning of each field day, at a minimum. Additional calibrations may be necessary if meter readings become questionable. Performance of "bump testing" to

determine whether meters are within acceptable calibration ranges is advisable for sampling events longer than approximately 6 hours.

DO meters calibrate with barometric pressure. ORP and SC meters may only require periodic calibration using calibration solutions appropriate for the anticipated sample ranges. Two or three-point calibration is advisable for most pH meters; for two-point calibrations, consideration should be given to the anticipated sample range. Turbidity meters use four standards for calibration (800 NTU, 100 NTU, 20 NTU, and 0.02 NTU), if 20, 100, or 800 NTU drifts more than 10% the solution needs to be replaced. Temperature sensors for most meters do not require calibration.

PROCEDURE:

AWS will complete groundwater sampling in accordance with the procedures presented below. Where applicable, groundwater sampling procedures will also be completed in accordance with the current version of DEQ's *Groundwater Sampling Guidance.*

Initial Measurements - Begin by determining the depth-to-water (DTW) in accordance with the AWS SOP-04, and/or the project-specific SAP. If DO is a desired field analysis, gently lower the DO meter's probe, calibrated per manufacturer's guidelines, to just beyond the DTW observed in the previous step. Once submerged, readings will begin trending in a consistent increasing or decreasing manor, until a transitional point is reached and the initial trend is reversed. This transitional point should be recorded on the appropriate sampling form as the pre-purge DO.

Well Purging - Purging must be performed on all wells prior to sample collection. Well purging will be accomplished using a peristaltic pump, bladder pump, or with a disposable polyethylene bailer. The specific purging method shall be chosen based on the following: DTW; diameter of well; existing well configuration; contaminant(s) of concern; and/or, the project-specific SAP. Sampling is generally not conducted when free product (e.g., light non-aqueous phase liquid, or LNAPL) is present.

Where pumping methods are used, field water quality indicators (WQIs) will be observed and recorded in approximate five-minute intervals. Evacuation of fluids will continue until DO, pH, SC, ORP, and turbidity readings stabilize. Stabilized readings will include changes of no more than 0.1 standard unit (su) for pH and no more than 3 percent (%) for SC, no more than 10 percent (%) for DO and turbidity, and 10 millivolts (mV) for ORP.

Where bailer methods are used, purging should remove at least three (3) casing volumes of fluid from the well and until stabilized WQIs are achieved. The following equation is used to calculate well casing volume in gallons:

$$V = 3.14 \times (r^2) \times h \times 7.48$$

Where: V = volume (gallons)
r = well radius (feet)
h = height of water column in well (feet)

The radius of the well pack will be used for the well radius (r) for calculating volumes. For example, a 2-inch diameter PVC monitoring well installed in a 6-inch diameter borehole with sand filter pack would use a well radius of 3 inches or 0.25 feet.

The height of the water column (h) is calculated as the total well depth minus the DTW measurement for the well.

WQIs will be observed during bailing of each well, if feasible. Stabilized readings will include changes of no more than 0.1 su for pH, no more than 3% for SC, no more than 10% for DO or turbidity, and no more than 10 mV for ORP. If WQIs have not stabilized after five (5) casing volumes have been evacuated, it is at the discretion of the AWS field technician whether to collect a sample or to continue purging.

The actual pumping duration and/or volume of water purged from the well, along with the WQI readings, must be recorded on appropriate sampling forms for all methods of purging.

Wells with documented or expected low yield/slow recovery may require sample collection without prior purging due to limited available water volume.

If the recovery of a low-yield well exceeds 2 hours after purging, a sample shall be extracted as soon as sufficient volume is available in the well. At no time will a monitoring well be pumped dry if the recharge rate causes formation water to cascade down interior portions of the well casing, causing an accelerated loss of volatile organics and change in pH.

General Well Sampling - Wells must be sampled from the least contaminated to the most contaminated, if known. Open well and measure DTW in accordance with the AWS SOP-04. Decontaminate all sampling/down-well equipment in accordance with the AWS SOP-01. Use disposable nitrile gloves throughout decontamination and sampling procedures and use new gloves for each sampling point.

The actual pumping duration and/or volume of water removed from the well, along with all WQI readings, must be recorded on appropriate sampling forms for all methods of sampling.

Low-Flow Method - The goal of low flow purging and sampling is to collect water samples that reflect the total mobile organic and inorganic loads transported through the subsurface under ambient flow conditions, with minimal physical and chemical alterations from sampling operations. During this procedure, emphasis is placed on minimizing hydraulic stress at the well-aquifer interface by maintaining low water-level drawdowns, and by using low pumping rates during purging and sampling operations.

WQIs are monitored during purging to identify stabilized conditions to determine when sample collection may begin. Stabilized readings will include changes of no more than 0.1 su for pH, no more than 3% for SC, no more than 10% for DO or turbidity, and no more than 10 mV for ORP.

The low-flow method should be implemented with a positive-lift pump (e.g., peristaltic or bladder pump). The pump intake should be located within the well-screen interval and at a depth that will remain under water at all times. It is recommended that the intake depth and pumping rate remain the same for all sampling events. The following equation is used to calculate the pump intake depth or sampling depth:

$$SD = DTW + [(TD - DTW) \div 3]$$

Where: SD = Sampling depth (feet)
DTW = Depth to water (feet)
TD = Total well depth (feet)

Note this equation places the pump intake in the upper one-third of the water column and should be modified to sample from deeper depths, accordingly (e.g., if wanting to sample from the middle of the water column, replace the value of 3 with 2 in the equation).

The low-flow cell should be set up over the 5-gallon bucket so that the pump tubing discharge flows into the cell and overflows into the bucket. The pH, temperature, SC, and ORP (if used) meters should be set up to monitor water quality in the low-flow cell during purging and sampling.

Disposable tubing should be cut to a length that extends from the down-well bladder pump, or sampling depth for peristaltic pump, to the low-flow cell discharge point.

DTW should be measured before installing the pump and continuously recorded during purging at consistent intervals (e.g., 5 or 10 minutes). Pumping rates should, as needed, be reduced to the minimum capabilities of the pump to ensure drawdown of less than 0.3 foot or stabilization of the water level. If the minimal drawdown that can be achieved exceeds 0.3 foot, but remains stable, continue purging until the three (3) casing volumes are removed and/or water quality parameters stabilize.

The final purge volume must be greater than the stabilized drawdown volume plus the pump's tubing volume. If the drawdown has exceeded 0.3 foot and WQIs have stabilized, calculate the volume of water between the initial water level and the stabilized water level. Add the volume of the water which occupies the pump's tubing to this calculation. This combined volume of water needs to be purged from the well after the water level has stabilized before samples are collected.

Bailer Method – Removal of water from the well by bailing will be accomplished using a new, disposable, polypropylene (or other material specified in the SAP), bailer and a spool of polypropylene rope or equivalent bailer cord (e.g., Teflon-coated stainless-steel cable). The length of the bailer and cord should be sufficient for the bailer intake to reach the middle of the well-screen section, and to allow evacuation of water from the lower one-third of the well casing, if needed.

Bailing should be a semi-continuous procedure of removing water from the upper one-half of the water column. Care should be taken not to disturb sediment in the bottom of the well.

Bailed water should be gently poured into a decontaminated, 12-ounce glass jar equipped with pH, temperature, SC, and ORP (if used) meters to monitor water quality. Bailing will continue until the purging requirements stated previously are achieved.

Domestic Well Sampling – If an active domestic or irrigation well needs to be sampled, then the water needs to be initially purged. First, the total volume of water in the well casing is calculated using equation provided on Page 2 of this SOP. Thereafter, a minimum of three (3) casing volumes of water should be evacuated from the well prior to sampling.

Well purging should be accomplished by opening a faucet connected to the well pump. A faucet location should be selected as close to the well pump as possible. The faucet shall not be located after water treatment systems such as softeners or filtration units.

Flow from the faucet should be measured using a graduated vessel and stopwatch. Several measurements should be taken to monitor possible changing flows during the purging procedure.

If desired, WQIs may be monitored in the discharged fluid during the well purging.

Collecting Water Samples - Label each sample container with project number, sample location, well owner, date, time, sampler's initials, preservative, and analysis required. Wear new disposable nitrile gloves immediately prior to obtaining the sample.

For low-flow samples, several inches should be cut from the end of the sample effluent tubing (i.e., removing the portion in contact with the flow-through monitoring cell) before collecting water samples. A disposable in-line filter should be attached to the cut end of the tubing, as needed, prior to collection of filtered samples.

For domestic well sampling, pump flow should be reduced so that a constant minimal flow is achieved from the faucet. Samples should be collected directly from the faucet and not through rubber hoses. Filtered samples may be obtained by using a filter apparatus fitted with new filter media.

When using a bailer, take care to minimize degassing or contamination of the sample by submerging and withdrawing the bailer slowly to avoid splashing. Do not place the bailer on the ground. Filtered samples may be obtained by using a filter apparatus fitted with new filter media.

Add preservatives to the sample container prior to sample collection. Remove water from the well and transfer sample water directly into sample bottles (using an in-line filter or filter apparatus, as necessary), maintaining a slow linear flow with as little agitation as possible.

For volatile analyses, fill vials at the rate of about 100 milliliters per minute (24 seconds for 40 mL vial) or less. Fill each sample vial completely so the water forms a convex meniscus at the top to ensure no air space exists in the vial after it has been capped. After filling, immediately cap, invert, and gently tap the vial to check for trapped air. If air bubbles are present, un-cap vial, add more sample water and repeat procedure. If air bubbles continue to be present after repeated filling attempts, cap the vial, keep for laboratory analyses, and note the condition on the field form.

For inorganics samples not requiring preservatives, rinse sample containers three (3) times with sample water before final collection. Do not rinse containers for organics analysis.

Water samples should be preserved as described in the following table, or in accordance with instructions from the analytical laboratory, if different:

PARAMETER	NUMBER	CONTAINER	PRESERVATION	MAXIMUM HOLDING TIME UNTIL EXTRACTION / ANALYSIS
VOCs	3	40 mL glass VOA	6°C and HCL	14 days
VPH	2	40 mL glass VOA	6°C and HCL	14 days for extraction/ 28 days for analysis
EPH	2	1000 mL glass bottle	6°C	14 days for extraction/ 28 days for analysis
SVOCs	2	1000 mL glass bottle	6°C	7 days for extraction/ 40 days for analysis
Metals	1-2*	250 mL plastic bottle	6°C and HNO_3	6 months 28 days for mercury
Inorganics	1	Varies	varies	Varies – contact laboratory

Notes: VOCs – Volatile Organic Compounds; VPH – Volatile Petroleum Hydrocarbons; EPH – Extractable Petroleum Hydrocarbons; SVOCs – Synthetic Volatile Organic Compounds; mL – milliliter; °C – degrees Celsius; HCL – hydrochloric acid; HNO_3 – nitric acid. *Filtered and/or unfiltered.

Dispose purge water in accordance with AWS SOP-56.

Replace well cap and lock (if present) when sampling is complete, and replace all appurtenances on domestic wells (if present prior to work), when sampling is complete.

Prepare all necessary chain-of-custody forms, sampling forms, and other documentation. Package and ship samples in accordance with AWS SOP-08.

STANDARD OPERATING PROCEDURE

Sample Packaging and Shipping

AWS SOP-08

CHAIN-OF-CUSTODY PROCEDURES:

A chain-of-custody (COC) form must be prepared for all samples collected in the field for laboratory analysis. Multiple samples from the same sampling event, relating to a specific single project, may be included on a COC form. Samples from more than one project should not be included on the same COC form. The sampler should use a COC form provided by the laboratory performing sample analyses.

Completed COC forms must be maintained from the time of sample collection until the time of sample delivery to the analytical laboratory. The completed COC form should accompany the samples through analysis and final disposition. A copy(ies) of the COC form(s) should be maintained in the project file.

Information to be included on the COC form will include, but is not limited to:

- Project number / name
- Sampler's name and signature
- Date and time of sample collection, per sample
- Unique sample name/identification (ID)
- Number of containers per sample
- Sample media (e.g., soil, water, vapor)
- Sample preservative (if applicable)
- Requested analysis(es)
- Comments or special instructions to the laboratory

All samples must be assigned unique sample names/IDs. The information on the COC form, including the ID for a specific sample, must correspond to the information recorded by the sampler on the field forms, and the sample ID label on the sample container, for the respective sample.

A sample is considered under a person's control when it is in their possession. When custody of a sample is relinquished by the sampler, the sampler will sign and date the COC form and note the time that custody was relinquished. The person receiving custody of the sample will also sign and date the form and note the time that the sample was accepted into custody. The goal is to provide a complete record of control of the samples. Should the chain be broken (signed by the relinquisher, but not receiver, or vice versa), the integrity of the sample is lost and the reliability of the resulting analytical data may be degraded.

Samples must be packaged and shipped (or directly transported) to the laboratory following the procedures described below. If an overnight shipping service is used to transport the samples to the laboratory, custody of the samples must be relinquished to the shipping service. If possible, have the shipping service sign the COC form prior to placing the COC form in the sample cooler. If this is not possible (i.e., form placed in sealed cooler), a note should be included on the COC that the shipping company will receive the samples with the COC form inside the sample container.

PACKAGING:

All environmental samples should be packaged and shipped using the following procedures:

- Label all sample containers with indelible ink (on the side of the container, not on the cap or lid).
- Place labeled sample containers in a sturdy outer shipping box or cooler. When samples must remain refrigerated, use a well-insulated cooler containing an adequate amount of ice, making sure the cooler drain plug is taped shut (if applicable). Water ice should be used whenever feasible. Use of dry ice is more likely to result in freezing of samples, and use of reusable (e.g., "blue") ice packs is likely to result in samples exceeding the allowable temperature range.
- Place soil and water sample containers in an upright position and wrap the containers with cushioning material for stability during transport. Samples should not be loose; the cooler and packed samples should be able to withstand rough handling during shipment without sample container breakage. If feasible, all sample containers and ice bags should be placed inside at least 1 heavy plastic bag, inside the cooler. The top of the outer bag should be twisted and taped in a "goose neck" fashion to help prevent leaks. It is advisable to place absorbent materials in the outer bag when liquids (including water ice) will be shipped.
- Fill out the appropriate shipping forms and place the paperwork in a Ziploc® bag (or equivalent) and tape it to the inside lid of the shipping container. Shipping forms usually include: 1) a COC form, documenting the samples included in the shipment; 2) an analysis request form, specifying the laboratory analyses for each sample (these are usually on the same form but may be separate).
- If more than one cooler is used per COC, put a photocopy in each of the additional coolers and mark them as a copy. Clearly identify on the COC (and copies) the total number of coolers included in the sample group.
- Complete and apply a custody seal to the exterior of each cooler where the lid meets the cooler container. Close and seal the cooler using clear packing tape. Secure the shipment label with address, phone number and return address clearly visible.

SHIPPING HAZARDOUS MATERIALS / WASTE:

Hazardous materials need to be shipped using procedures specified under Federal Law.

Transportation regulations for shipping of hazardous substances and dangerous goods are defined by the U.S. DOT in 49 CFR, Subchapter C, Part 171 (October 1, 1988); IATA and ICAO. These regulations are accepted by Federal Express and other ground and air carriers.

According to U.S. DOT regulations, environmental samples are classified as Other Regulated Substances (ORS). ORS are articles, samples, or materials that are suspected or known to contain contaminants and/or are capable of posing a risk to health, safety, or property when transported by ground or air. Samples, substances, or materials from sources other than material drums, leachate streams, and sludges should be considered as ORS or environmental samples. Materials shipped under the classification of ORS must not meet any of the following definitions:

- Class 1: explosives
- Class 2: gases (compressed, liquefied, dissolved under pressure, or refrigerated)
- Class 3: flammable liquids
- Class 4: substances susceptible to spontaneous combustion

- Class 5: oxidizing substances
- Class 6: poisonous (toxic and infectious)
- Class 7: radioactive materials
- Class 8: corrosives.

Coordinate special shipping or direct-delivery arrangements with the Project Manager for samples meeting any of the definitions above.

STANDARD OPERATING PROCEDURE

Disposal of Investigation-Derived Waste

AWS SOP-56

EQUIPMENT:

- Disposal drums (typically steel)
- Adjustable wrench, end wrench, or ratchet/socket for drum lids
- Buckets
- Funnels
- Plastic sheeting (typically 6-mil or heavier)
- Utility knife or scissors
- Shovels (flat, spade, etc.)
- Plastic garbage bags

SOLID WASTE:

Solid investigation-derived waste (IDW) generally includes small quantities of soil generated from drilling or test pit excavations. Larger quantities of waste generated from remedial actions are excluded from this SOP.

Soil cuttings are typically placed back in the holes from which they originated, thereby negating the need for disposal. Similarly, if drill or test pit cuttings do not demonstrate evidence of contamination, as determined through visual or olfactory observations, or through field analysis of total volatile organic compounds (VOC; see AWS SOP-03), the cuttings may instead be spread on unpaved areas of the site. In such instances, coordinate with project stakeholders (e.g., the client, site owner, regulatory personnel, etc.) to determine acceptable areas for placement.

Cuttings which demonstrate evidence of contamination must be transported to an appropriate solid waste disposal facility, such as a licensed landfill or permitted land farm. Characterization of cuttings waste should be completed in accordance with the requirements of the disposal facility selected for the project, as requirements often vary by facility.

Contaminated cuttings may be temporarily stored at the site in steel drums, or stockpiled on paved surfaces or plastic sheeting, when characterization has been completed in advance. Care should be taken to limit the potential for runoff of contaminant from uncovered stockpiles in the event of a precipitation event. For example, berms under plastic sheeting around the perimeter of the stockpile will help prevent runoff. In any case, stockpiled cuttings should be loaded and transported for disposal as quickly as feasible.

Alternatively, when advanced characterization is not feasible, the cuttings may be placed in steel drums and temporarily stored at the site. In some cases, temporary storage of stockpiled soil may be required, in which case stockpiles should be placed on and covered by plastic sheeting, with covered berms utilized as appropriate to limit the potential for runoff of contaminant. Coordinate the temporary storage approach and locations with project

stakeholders, and complete waste characterization, transport, and disposal as promptly as feasible.

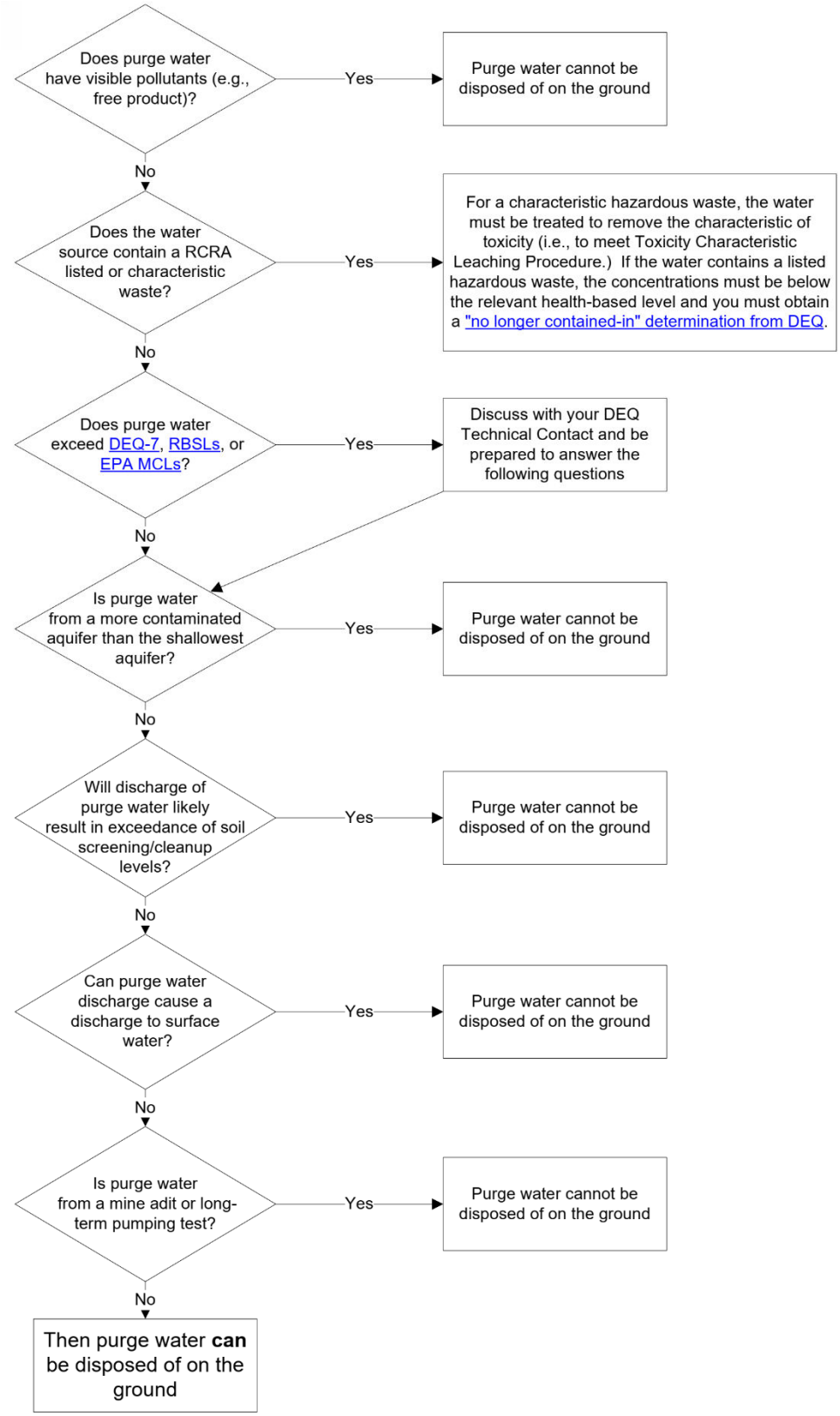
General trash and personal protective equipment waste shall be cleansed of any gross contaminated soil accumulation and shall be placed in plastic garbage bags and properly disposed at a licensed solid waste disposal facility.

LIQUIDS:

Liquid IDW includes purge water generated during well development and groundwater monitoring activities. Purge water shall be assessed in accordance with the Montana Department of Environmental Quality (DEQ) flow chart provided below.

Purge water assessed via the DEQ flow chart and determined not to contain known contaminants may be spread on the ground surface near the source well or boring. Where feasible, such purge water will be surface applied on paved surfaces. Purge water shall not be poured into storm water inlets, sewer manholes, natural drainages, or surface water bodies.

Purge water which is assessed via the DEQ flow chart and is determined to be contaminated shall be contained in drums and disposed at a licensed liquid waste disposal facility in accordance with that facility's disposal requirements. Alternatively, options for disposal of contaminated purge water may be discussed with DEQ in accordance with the flow chart on the following page. Temporary on-site storage of liquid waste in drums should be coordinated with project stakeholders. Characterization of liquid waste should be completed in accordance with the requirements of the disposal facility selected for the project, as requirements often vary by facility. Waste characterization and disposal should be completed as quickly as feasible.


Does purge water have visible pollutants (e.g., free product)?
Yes
Purge water cannot be disposed of on the ground
No
Does the water source contain a RCRA listed or characteristic waste?
Yes
For a characteristic hazardous waste, the water must be treated to remove the characteristic of toxicity (i.e., to meet Toxicity Characteristic Leaching Procedure.) If the water contains a listed hazardous waste, the concentrations must be below the relevant health-based level and you must obtain a "no longer contained-in" determination from DEQ.
No
Does purge water exceed DEQ-7, RBSLs, or EPA MCLs?
Yes
Discuss with your DEQ Technical Contact and be prepared to answer the following questions
No
Is purge water from a more contaminated aquifer than the shallowest aquifer?
Yes
Purge water cannot be disposed of on the ground
No
Will discharge of purge water likely result in exceedance of soil screening/cleanup levels?
Yes
Purge water cannot be disposed of on the ground
No
Can purge water discharge cause a discharge to surface water?
Yes
Purge water cannot be disposed of on the ground
No
Is purge water from a mine adit or long-term pumping test?
Yes
Purge water cannot be disposed of on the ground
No
Then purge water **can** be disposed of on the ground