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Subject: Work Plan for 2024 – 2025 Additional Remedial Investigation
Former Farmers Union Oil – 135 1st Street, Chinook, Montana 59523
DEQ FID 03-10274 *(TID 17941)*; Release 2559; WPID 34927
AWS Project 11005.6

Air Water Soil, LLC (AWS) is pleased to present this work plan for completing an additional remedial investigation (RI) at the *Former Farmers Union Oil* petroleum release site (hereafter, "the Site"). The site is located at 135 1st Street in Chinook, Montana (Figures 1 and 2, Attachment A). The work plan has been prepared on behalf of CHS, Inc. (CHS), the property owner and "responsible party" of record for the release, in response to the Montana Department of Environmental Quality Petroleum Tank Cleanup Section (DEQ) *Remedial Investigation Work Plan Required* letter, dated August 29, 2024.

BACKGROUND

AWS's understanding of the history of the petroleum release at the Site and remedial activities completed at the Site prior to 2021 is based on information aggregated by the previous consultant, CTA Environmental (CTA), and subsequently made available to AWS. The petroleum release at the Site is identified by DEQ as *CHS, Big Sky Chinook (former Farmers Union Oil); DEQ Facility ID 03-10274; Release 2559*.

A total of 22 underground storage tanks (USTs) have been utilized at the site over time, including 15 former USTs which have been removed from the ground and 7 USTs which are currently in use, as summarized below. Installation and closure dates are not available.

- 7 Active USTs
  - Gasoline: 1 20,000-gallon; 2 10,000-gallon
  - Diesel: 4 12,000-gallon
- 15 Former USTs (removed from the ground)
  - Gasoline: 4 10,000-gallon; 2 5,000-gallon; 2 4,000-gallon
  - Diesel: 4 12,000-gallon

- Waste Oil: 1 500-gallon
- Antifreeze: 1 500-gallon

In the early 1990s, DEQ LUST Trust Program undertook an investigation to identify potential sources and delineate environmental impacts caused by leaking Underground Storage Tanks (USTs) in the vicinity of the Site. In June 1992, Tetra Tech, Inc., of Helena, Montana, completed a Draft Phase II Site Investigation Report for DEQ's LUST Trust Program. The report discussed results obtained from drilling several boreholes and installing monitoring wells at the Site. One of these wells, CMW-4, was sampled and found to have relatively high levels of dissolved-phase benzene, indicative of a nearby gasoline release.

As a result, DEQ requested Farmers Union Oil investigate the extent and magnitude of the suspect release. Glacier Engineering, P.C. (Glacier) was retained by Farmers Union Oil to complete a Phase I Remedial Investigation (RI) at the Site. In July 1997, Glacier submitted an RI report which provided conclusions about the source, extent and magnitude, and risks of gasoline contamination associated with the release at the Site. The likely source of petroleum contaminants was reported to be USTs and associated piping formerly located along the east side of the main building. The USTs and piping were reportedly removed in April 1995. The extents of soil contamination to the east and the total extent of the groundwater contamination were not known.

In September 1998, Glacier completed a Phase II RI at the Site to further define the extent and magnitude of petroleum contamination. Four small-diameter boreholes were drilled and completed at the Site. Soil and groundwater from these holes were field and laboratory analyzed for the presence of vapor-phase, sorbed-phase, and dissolved-phase contaminants.

Glacier continued investigative work at the Site and completed a Phase III RI report in September 2000. Extents of petroleum contamination in soil were reportedly defined as being limited to the area east of the main building at the Site. The extent of the groundwater plume was reported as being limited to the area between the main building and the Tasty Bite Café (now demolished). Glacier recommended quarterly groundwater monitoring, evaluation of the hydraulic conductivity of the aquifer, and analysis of physical and chemical parameters of groundwater.

Between October 2001 and September 2002, Glacier completed 4 quarterly groundwater monitoring events and a natural attenuation feasibility study, including physical and geochemical aquifer parameter characterization. Glacier reported conditions were favorable for natural attenuation, noting that natural attenuation was likely occurring at the Site, albeit slowly. Due to long projected natural attenuation times, Glacier recommended a more in-depth aquifer biogeochemical study evaluate the feasibility of enhancing natural attenuation processes already occurring at the Site. Additionally, Glacier recommended additional investigation to help define the extent and magnitude of contamination from the release further to the northeast.

Glacier concluded an Enhanced Monitored Natural Attenuation Feasibility (EMNAF) study in November 2003, reporting substantial evidence that intrinsic biodegradation of gasoline

compounds was occurring. Glacier noted non-accelerated cleanup times were unrealistic, indicating an active remediation approach would be more practical to address the release. Citing computer modeling, Glacier indicated enhanced aerobic biodegradation would not be expected to be cost-effective or practical.

Glacier prepared an Accelerated Anaerobic Bioremediation Pilot Scale Work Plan in January 2005, in response to a DEQ request for additional corrective action. The study was not completed, however, as funding was not obligated by the Petroleum Tank Release Compensation Board (PTRCB) for the work plan.

A groundwater monitoring work plan was prepared by Glacier and submitted to DEQ in January 2010. Milk River Cooperatives retained CTA to implement the work plan, including a single groundwater monitoring event conducted in June 2011. CTA reported several petroleum hydrocarbon constituents were present in groundwater at concentrations exceeding DEQ's then-current regulatory criteria. CTA also reported subsurface conditions at the Site were generally unfavorable for aerobic biodegradation, although anaerobic natural attenuation of dissolved petroleum constituents appeared to have been occurring at a slow rate in some areas. CTA also completed well maintenance for damaged and/or destroyed monitoring wells at the Site as part of the 2011 work.

Groundwater monitoring was subsequently completed at the Site by CTA in August 2012, June 2013, and June 2014. Findings from the monitoring events indicated little had changed at the Site.

CHS Big Sky retained CTA to complete a sulfate-enhanced bioremediation pilot study at the Site in 2016 and 2017 to evaluate the efficacy of injecting sulfate (in the form of an Epsom salt solution) to enhance anaerobic biodegradation. CTA installed 3 new injection wells and 6 monitoring wells as part of the study. Pre-injection groundwater monitoring and injection of concentrated Epsom salt solution were completed in October 2016. Post-injection groundwater monitoring was completed in November and December 2016, and in January, April, and July 2017. Comparison of results from the 5 post-injection events with the results from the pre-injection event indicated the petroleum contaminant plume was largely stable throughout the study period, with significant variability. CTA noted a concern for potential off-site migration of contaminants in the vicinity of wells TP-7 and MW-10. Sulfate injections were reported to have potentially enhanced bioremediation at wells MW-21 and MW-23 (i.e., the wells nearest the injection points), with less evidence of beneficial impact further away, at well MW-22. Data from other monitoring wells did not suggest Epsom salt injections had a significant impact on natural attenuation.

CTA prepared and initiated a remedial action work plan in February 2020 on behalf of CHS Big Sky. Well maintenance activities were completed by CTA, after which they ceased providing environmental services. CHS Big Sky subsequently retained AWS in February 2021 to implement the unfinished elements of the work plan, including completion of semi-annual groundwater monitoring, a petroleum vapor intrusion (VI) assessment, and additional monitoring well maintenance. AWS oversaw replacement of damaged wells TP-7 and MW-5R, replaced with new

wells TP-7R and MW-16, respectively. Groundwater monitoring and VI sampling were completed during March 2021, followed by another groundwater monitoring event in June 2021.

In September 2021, AWS issued a *Report of 2020 – 2021 Remedial Action* to CHS Inc. (dba CHS Big Sky), noting petroleum contamination was still present in groundwater at concentrations exceeding regulatory criteria. Review of available analytical data indicated residual petroleum contamination in soil and groundwater were predominantly located near the north/northeast portion of the site, with minimal natural attenuation. VI data showed interior ambient volatile compound concentrations were higher than concentrations in the crawlspace and sub-slab samples. These findings indicated a potential interior source of petroleum vapors, making the determination of petroleum VI "intrusion" from the subsurface inconclusive. AWS recommended a limited excavation of the inferred "worst-case" petroleum-impacted soil along the northeast portion of the site to remove source material that continues to leach into groundwater.

OBJECTIVES

DEQ contacted AWS in August 2024 to engage in preliminary coordination prior to their issuance of the current work plan request letter. Following a project review and discussion with CHS, AWS submitted an updated summary of recommendations to DEQ via email, including a recommendation that the forthcoming scope of work include preparatory steps leading up to excavation at the northeast corner of the site.

DEQ subsequently issued their August 29, 2024 work plan request letter, stipulating the following primary objectives to that general end:

- Complete 1 groundwater monitoring event, to include:
  - Gauging of fluid levels in all existing monitoring wells related to the Site.
  - Low-flow monitoring and sampling of select wells at the Site.
- Install soil borings as necessary to:
  - Assess the extent and magnitude of potential petroleum contamination in soil near the main Site building, and to evaluate the potential for vapor intrusion near the building.
  - Collect soil samples to determine the extent of a potential excavation and evaluate the potential for residual petroleum contamination in soil near buildings to be a source of petroleum vapors.
  - Collect soil samples to determine appropriate disposal of potentially excavated material.
- Analyze soil and groundwater samples for petroleum constituents as required by Montana's Risk-Based Corrective Action Guidance for Petroleum Releases (RBCA). Include analysis of constituents necessary to assess risk or determine appropriate remedial actions. Validate data using DEQ's data validation summary form.
- Complete a full pre-construction survey to identify property boundaries, utilities, structures, and monitoring wells at the Site.
- Complete additional, preliminary coordination with stakeholders (i.e., potentially impacted parties) regarding the proposed excavation. Stakeholders are understood to include the

City of Chinook, the Montana Department of Transportation, various utility providers, and CHS's on-site operations.

- Prepare an updated Release Closure Plan (RCP) and discuss the results with DEQ's project manager.
- Prepare and submit a *Remedial Investigation Report* (*RPT_RI* format) detailing the results of the investigation.

Note that the concrete floor slab and underlying foundation from a former restaurant building are located within the anticipated remedial excavation footprint near the northeast corner of the site. The floor slab and foundation constitute a structure at a facility, as defined in DEQ's asbestos regulations, meaning DEQ regulations require evaluation of the slab (and any associated materials) to determine whether asbestos is present prior to disturbance during construction.

Therefore, in addition to the objectives specifically identified by DEQ in their work plan request letter, this work plan for pre-construction planning should also include a limited pre-demolition asbestos inspection of the residual floor slab, foundation, and any other remaining construction materials associated with the former restaurant building.

SCOPE OF WORK

In order to achieve the project objectives identified above, AWS has prepared the scope of work for this work plan to include the following 13 tasks: 1) Preliminary Coordination and Work Plan Preparation; 2) Project Management; 3) Mobilization; 4) Per Diem and Lodging; 5) Limited Pre-Demolition Asbestos Inspection; 6) Soil Borings; 7) Groundwater Monitoring; 8) Laboratory Analyses; 9) Data Validation Form Preparation; 10) Pre-Construction Site Survey; 11) Additional Pre-Construction Stakeholder Coordination; 12) Release Closure Plan Update; and, 13) Report Preparation.

Implementation of the scope of work will be accomplished following a combination of AWS's Standard Operating Procedures (SOPs) and additional methods discussed below, where applicable. Several SOPs are expected to be followed during completion of multiple tasks associated with this work plan, including *AWS SOP-01 – Field Sampling Equipment Decontamination*; *AWS SOP-08 – Sample Packaging and Shipping*; and *AWS SOP-56 – Disposal of Investigation-Derived Waste*. These and other SOPs referenced in the following sections of this work plan are presented in Attachment B.

AWS's standard task naming for petroleum release projects is intended to generally align with the PTRCB's approach to task naming, although the PTRCB staff may reassign some tasks – or portions of tasks – to different task identifiers for their own purposes. AWS anticipates utilizing the PTRCB-assigned task names during implementation and reporting for this scope of work. However, in the event CHS requests initiation of the scope of work prior to PTRCB's issuance of a funding obligation letter, AWS will use the task naming presented in this work plan.

Task 1 – Preliminary Coordination and Work Plan Preparation

Prior to and during preparation of this work plan, AWS completed a variety of preliminary coordination efforts. These included correspondence with CHS and DEQ regarding project status, site logistics, potential work plan elements, rough schedules, etc.

This work plan has been created to satisfy the requirements stipulated in DEQ's *Remedial Investigation CAP (CAP_RI)* work plan format. Additionally, the general scope of work presented herein is intended to address the objectives stated in DEQ's work plan request letter and subsequent correspondence, as well as other additional scope of work items necessary to complete the work in accordance with DEQ requirements, as discussed in the Objectives section above.

Preliminary coordination elements have already been completed by AWS at the request of DEQ and are understood to be actual, reasonable, and necessary to the ongoing investigation and remediation of the release. Additionally, the inclusion of a limited pre-demolition asbestos inspection is understood to be reasonable and necessary as part of the remedial excavation planning process.

Task 2 – Project Management

Project management activities include correspondence with CHS and DEQ staff throughout the period of performance; coordinating the schedule for on-site activities with CHS's corporate and local personnel; preparation of a project-specific health and safety plan (HASP); scheduling AWS's field personnel and activities; and procuring and coordinating equipment, supplies, and subcontracted and vendor services as necessary to complete the scope of work. Project management activities also include project budget tracking and invoicing.

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, per PTRCB's standard reimbursement practice. Mobilization also includes costs for travel between the project site and hotel when overnight stays are required, and for delivery of samples to the analytical laboratory or shipping facility.

Field activities may be combined to reduce mobilization events and costs, where feasible. For the purpose of this work plan, the anticipated mobilization events necessary to complete the scope of work are summarized as follows:

- Asbestos Inspection
  - 1 mobilization event
  - Industrial Hygienist
- Soil Borings
  - 1 mobilization event
  - Staff Engineer/Scientist + Tech II

- Groundwater Monitoring
  - 1 mobilization event
  - Tech II
- Pre-Construction Site Survey
  - 1 mobilization event
  - Tech II

Task 4 – Per Diem and Lodging

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 per diem and lodging anticipated to be necessary to complete the scope of work is presented below. Per diem and lodging costs account for the mobilization schedule discussed above. The anticipated durations of mobilization events are based on AWS's professional experience and input from subcontractors, where applicable.

- Asbestos Inspection
  - Meals: 1 person, 1 day
  - Lodging: 1 person, 0 nights
- Soil Borings
  - Meals: 2 people, 3 days
  - Lodging: 2 people, 2 nights
- Groundwater Monitoring
  - Meals: 1 person, 2 days
  - Lodging: 1 person, 1 night
- Pre-Construction Site Survey
  - Meals: 1 person, 1 day
  - Lodging: 1 person, 0 nights

Task 5 – Limited Pre-Demolition Asbestos Inspection

Prior to undertaking a renovation or demolition project, DEQ requires an asbestos inspection to be performed for the structure or portion of the structure to be included in the renovation or demolition project, in accordance with the asbestos regulations set forth in the Administrative Rules of Montana (ARM 17.74.3). As noted in the Objectives section above, planned remedial excavation is anticipated to include removal of a former building floor slab and foundation, along with other potentially associated building materials. These materials constitute a portion of a structure at the site, for the purpose of DEQ's asbestos regulations.

The intent of the pre-demolition asbestos inspection will be to identify materials associated with the former building foundation and floor slab which are "suspect asbestos" as defined by DEQ, and to determine if any of these materials contain detectable concentrations of asbestos. The "project area" for the purpose of the asbestos inspection will be limited to safety and readily accessible elements of the former building foundation, floor slab, and associated materials (e.g., residual flooring, caulks, sealants, etc.).

The asbestos inspection, including collection and analysis of samples, will be completed in accordance with DEQ's asbestos regulations, as well as AWS's standard operating procedures as outlined in *AWS SOP-50 – Pre-Renovation / Pre-Demolition Asbestos Inspection*.

Note that duplicate samples, commonly collected for environmental media, are not required for asbestos inspections because between 3 to 7 samples of each unique type of material are collected and submitted to the laboratory for analysis. In the event asbestos is detected in a sample at a concentration less than one percent (< 1%), additional 400 point count analysis may be requested. The increased analytical sensitivity of the 400 point count method allows for confirmation of asbestos concentrations < 1%. Alternatively, such materials may instead by presumed to contain greater than 1% asbestos.

Laboratory samples will be transported to the analytical laboratory following *AWS SOP-08*, and in accordance with the referenced analytical methods, where applicable. Laboratory analyses to be requested are discussed in Task 8, below.

Task 6 – Soil Borings

As discussed with DEQ during preliminary coordination prior to issuance of their work plan request letter, AWS requests DEQ provide all available historic soil data for the Site which AWS does not have access to (i.e., any soil boring, test pit, and/or excavation logs originating prior to approximately 2011).

Assuming historic soil data will be available to AWS for all existing monitoring wells, AWS anticipates needing to advance approximately 15 additional soil borings to depths of approximately 15 feet below ground surface (bgs) to better define extents of residual soil impacts near the north/northeast portion of the Site, along the west and north edges of the main building, and near the existing dispenser island/canopy area (i.e., near MW-10), as feasible. Analysis of soil samples collected from these borings is also expected to be sufficient for evaluation of construction worker risk and characterization of waste for eventual remedial excavation.

Direct-push drilling will be used to complete subsurface soil sampling for this scope of work. AWS anticipates subcontracting Olympus Technical Services, Inc. (Olympus) to provide direct-push drilling services for advancement of soil borings. Direct-push drilling proposals were solicited from 3 separate drilling services firms, including: Olympus; Pioneer Technical Services (Pioneer); and Water & Environmental Technologies, Inc. (WET). Olympus provided a fee proposal, and Pioneer provided a "no-bid" response. WET did not provide a response.

AWS has identified 15 proposed boring locations (Figure 2, Attachment A) for the purpose of this work plan. Drilling provider proposals were requested to include total depths of 15 feet at each of the 15 potential locations (i.e., a total drilling depth of up to 225 feet). Actual boring locations may vary based on interpretation of field data. Additional borings may be advanced if deemed appropriate based on field data, although the total drilling depth of 225 feet will not be exceeded without prior coordination with DEQ and PTRCB, as feasible.

At least 2 full business days prior to initiating the subsurface investigation, AWS and/or Olympus will submit a subsurface utility locate request through Montana811 (aka "Call Before You Dig" or "One-Call"). Montana811 will subsequently coordinate surface marking of public underground utilities at the site. Note that public utility lines located on the service sides of meters, and any other privately owned underground utilities, are generally excluded and may not be surface marked through the Montana811 utility locate process. In the event CHS is unable to surface mark or otherwise identify the locations of known private utilities within the project area, additional coordination may be required.

Olympus will advance soil borings using direct push drilling methods, removing or drilling through pavement as necessary. Continuous soil core sampling will be achieved through use of disposable sample sleeves. Observations of lithology and the presence or absence of visual and/or olfactory evidence of petroleum impacts will be recorded on field forms by AWS.

Soil samples will be collected following the procedures outlined in *AWS SOP-02 – Soil Sample Collection*, including collection of splits for field analysis and splits for potential laboratory analyses. Field splits will be analyzed following *AWS SOP-03 – Field Measurement of Total Organic Compounds* (VOC).

Laboratory samples will be containerized from the potential laboratory splits as summarized below. The actual number of samples to be collected will depend on observations and conditions at the time of sampling. For this purpose of this work plan, AWS anticipates the following samples will be collected:

- Worst-Case Total VOCs (15 grab samples): 1 grab sample will be collected from the interval exhibiting the highest total VOC concentration in each boring. This sample will not be collected for a given boring with no exceedances of 100 ppm total VOCs, and for which no visual evidence of impacts is observed.
- Groundwater Interface (15 grab samples): The soil/groundwater interface is expected to be encountered at depths ranging from approximately 3 to 7 feet bgs. In some instances, the groundwater interface may also be the worst-case interval.
- Bottom of Hole (15 grab samples): 1 grab sample will be collected from the bottom of each boring, if different from the samples above.
- Duplicate Samples (3 grab samples): Duplicate samples will be collected at the rate of 1 for every 20 natural samples. Duplicate samples will consist of direct splits from the potential laboratory split samples for the respective natural samples they represent.

Laboratory samples will be containerized, preserved, and transported to the analytical laboratory following *AWS SOP-08*, and in accordance with the referenced analytical methods, using vessels and preservatives provided by the laboratory. Laboratory analyses to be requested are discussed in Task 8, below.

Drill cuttings left over after samples are collected will be placed back into the borings from which they were derived, as feasible. The remaining boring voids, if any, will be backfilled with chipped or granular bentonite. Cuttings which cannot be placed back into the soil borings will be handled

following the procedures outlined in *AWS SOP-56*; characterization and disposal of drill cuttings is not expected to be necessary for this scope of work. Unimpacted soil, asphalt cold patch, or concrete patch will be placed to match the surrounding surfaces, where applicable.

Reusable downhole equipment will be decontaminated by the driller before initiating each soil boring, as appropriate. Decontamination may not be necessary following completion of borings which did not exhibit evidence of petroleum contamination. Reusable sampling equipment will be decontaminated following *AWS SOP-01*.

Task 7 – Groundwater Monitoring

A single groundwater monitoring event will be conducted as part of this work plan. The wells to be gauged and monitored under this work plan, and the analytical parameters to be evaluated for each, are summarized in the groundwater monitoring analytical plan presented in Attachment B. Approximate monitoring well locations are illustrated in Figure 2 (Attachment A).

Although all 23 existing monitoring wells, injection points, and temporary piezometers will be gauged to determine liquid levels, the monitoring plan is primarily intended to evaluate potential attenuation of contaminants in the proximity of wells which exhibited petroleum constituent concentrations exceeding regulatory criteria in the most recent monitoring events (i.e., March and/or June 2021). Therefore, only the 10 select monitoring wells identified in the groundwater monitoring analytical plan (Attachment B) will be sampled as part of this scope of work.

DTW and DTP will be measured following the procedures outlined in *AWS SOP-04* and groundwater monitoring will be completed in accordance with *AWS SOP-06 – Groundwater Sampling*. AWS anticipates utilizing a peristaltic pump system to obtain samples for this project. Natural samples will be collected from each of the specified monitoring wells, along with 1 duplicate sample collected from 1 monitoring well during each event.

In the event free product is encountered in a monitoring well, a grab sample may be collected for laboratory hydrocarbon identification (HC ID) analysis. Free product grab samples may be collected using a disposable bailer and string instead of the pump system. AWS does not anticipate encountering free product during completion of this scope of work, based on previous site conditions.

Laboratory samples will be containerized, preserved, and transported to the analytical laboratory (Energy) following the procedures outlined in *AWS SOP-08*, and in accordance with the referenced analytical methods, using vessels and preservatives provided by the analytical laboratory. Laboratory analyses to be requested are discussed in Task 8, below, and in the groundwater monitoring analytical plan (Attachment B).

Reusable monitoring and sampling equipment will be decontaminated following *AWS SOP-01* prior to use in each monitoring well. Unused water evacuated from each well will be handled in accordance with *AWS SOP-56*.

Task 8 – Laboratory Analyses

AWS anticipates submitting suspect asbestos-containing building material samples collected during completion of Task 5 of this work plan to Eurofins CEI Laboratory (CEI) in Cary, North Carolina. CEI will analyze each sample for asbestos using the EPA Method 600/R-93/116 ("Method for the Determination of Asbestos in Bulk Building Materials") by Polarized Light Microscopy (PLM). AWS will request the laboratory further analyze samples found to contain asbestos in concentrations < 1% using the 400 Point Count stipulation of the EPA Method, which provides analytical sensitivity of 0.25%. Depending on the matrix, some samples may need to be prepared using the Gravimetric Reduction stipulation of the EPA Method. Analysis of bulk samples using Transmission Electron Microscopy (TEM) may be completed in lieu of Gravimetric Reduction and 400 Point Count, if recommended by the laboratory. If encountered during the inspection, vermiculite will be assumed to be ACM, as recommended by DEQ and EPA. Standard analytical turnaround time will be requested for all analyses.

AWS anticipates submitting soil and groundwater samples collected during completion of this work plan to Energy Laboratories, Inc. (Energy) in Helena, Montana. Standard analytical turnaround time will be requested for all analyses. Laboratory analyses for soil and water samples collected under this scope of work will be requested as follows for the respective tasks:

Soil Samples from Direct-Push Drilling (Task 6)

All natural and duplicate soil samples collected during direct-push drilling activities will be analyzed for the following parameters:

- *Volatile Petroleum Hydrocarbons (VPH)*, by the Montana VPH Method: All soil samples, including natural and duplicate samples. Anticipated to be 48 samples.
- *Extractable Petroleum Hydrocarbons (EPH) Screen*, by the Montana EPH Method: All natural samples. No duplicate samples. Anticipated to be 45 samples.
- *EPH Fractions*: all samples exhibiting Total Extractable Hydrocarbon (TEH) concentrations exceeding DEQ's EPH Screen criterion of 200 milligrams per kilogram (mg/kg). No duplicate samples. Anticipated to be up to 30 samples.
- *1,2-Dichloroethane (DCA)*, by EPA Method 8260B: 1 natural sample per boring, from the inferred worst-case sample. No duplicate samples. Anticipated to be 15 samples.

In addition to providing information necessary for evaluation of the extents of petroleum contamination in the study area, and for evaluation of the potential for petroleum vapor intrusion of the main building at the Site, the analyses listed above are understood to be sufficient to characterize anticipated remedial excavation waste for eventual disposal.

It is assumed eventual remedial excavation waste will be transported to and disposed at the Hill County Unified Disposal (HCUD) landfill, located west of Chinook, for the purpose of this work plan. Based on information provided by the Hill County Health and Planning department, AWS understands HCUD does not require any specific analytical data for disposal of petroleum-contaminated soil waste.

AWS anticipates all drill cuttings generated during this investigation will be placed back into the borings from which they were derived, thereby negating the need for cuttings disposal. In the event disposal of drill cuttings is required, however, the analyses listed above are also anticipated to be sufficient for characterization of cuttings waste for the purpose of disposal of the HCUD landfill.

Water Samples from Groundwater Monitoring (Task 7)

Laboratory analysis of select IBIs will be requested, along with laboratory analysis of petroleum analytes stipulated in the current RBCA document for groundwater suspected of being contaminated by gasoline and diesel. The table in Attachment B summarizes the analyses which will be requested for natural and duplicate samples to be collected during the single groundwater monitoring event planned for this scope of work.

Task 9 – Data Validation Form Preparation

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

Note that PTRCB reimburses preparation of DEQ's *Data Validation Summary Form* separately from the actual validation of data, which is reimbursed as a portion of the Report Preparation task. AWS anticipates preparing a total of 2 *Data Validation Summary Forms* for this project, as discussed in the preceding sections and summarized below:

- Soil Sample Analytical Report: 1
- Groundwater Sample Analytical Report: 1

Task 10 – Pre-Construction Site Survey

The intent of the pre-construction survey will generally be to accurately identify locations of property boundaries; adjoining roadway right-of-way boundaries (including US Highway 2, City of Chinook streets, and City of Chinook alleys); driveway approaches, sidewalks, structures, and surface features (e.g., gravel, asphalt, concrete, bushes, trees, lawn, or other landscaping, etc.); above ground components for existing UST systems (e.g., fill ports, vent lines, pump islands, etc.) and inferred product supply and vent line locations (as feasible); subsurface utility alignments and depths; above ground utilities; monitoring wells locations and measuring point elevations; and sufficient surface elevation data to facilitate planning for remedial excavation and backfill.

Proposals were solicited from 3 separate surveying firms for the scope of work described above, including: Cushing Terrell; Atlas Land Surveys (Atlas); and Arrow Creek Survey Co. (Arrow Creek). Neither Atlas nor Arrow Creek responded. Cushing Terrell provided a fee proposal, noting the caveat that AWS provide a technician to assist with locating, opening and closing monitoring wells, and to assist with the leveling procedure. AWS anticipated retaining Cushing Terrell to complete the pre-construction site survey for this scope of work.

Task 11 – Additional Pre-Construction Stakeholder Coordination

Following review of historic data to be provided by DEQ and new data to be gathered during completion of this scope of work, AWS will undertake preliminary coordination with anticipated remedial excavation project stakeholders for the potential remedial excavation. These are expected to include: CHS Inc site personnel; utility owners (e.g., water, sewer, natural gas, electrical, and telecommunications); and adjacent property owners (i.e., the City of Chinook and the Montana Department of Transportation).

Preliminary coordination efforts are expected to include (but may not be limited to) preparation for, attendance to, and follow-up coordination after meetings with stakeholders regarding the feasibility of potential excavation as it relates to potential impacts to site access and operability, on-site and near-site utility service interruptions, and various off-site property owner concerns.

This task was added to the scope of work to address a project objective stipulated by DEQ, as discussed in the Objectives section of this work plan. AWS believes the additional coordination and remediation planning elements proposed in this task are "necessary and reasonable" relating to the investigation and remediation of the petroleum release at the Site.

Task 12 – Release Closure Plan Update

Following completion of all Tasks 2 through 12, including receipt and review of all final analytical data, AWS will update the previous RCP. This will include assessing available historical data for the release, as well as data collected during the investigation to be completed under this work plan. The results will be evaluated to help determine an appropriate remediation plan to address residual contamination from the petroleum release at the site. Information obtained during completion of Task 12 will be considered and discussed in the updated RCP. The updated RCP will also list identified data gaps which should be addressed during future work.

Task 13 – RI Report Preparation

Following completion of Tasks 2 through 13, including receipt and review of all final analytical data, AWS will prepare a summary report which will comply with DEQ's RPT_RI (*Remedial Investigation Report*) format. The report will also be prepared to include elements required by DEQ for a pre-demolition asbestos inspection.

As noted above, PTRCB reimburses data validation as a portion of the Report Preparation task, so data validation will be completed under Task 13, even though completion of the *Data Validation Summary Forms* will technically be completed under Task 9.

In any case, the report will include a discussion of methods and findings from the remedial investigation activities completed as part of this scope of work; discussion of data validation; and discussion of the updated RCP. Data will be presented in tabular form, and select information will be presented on a site diagram(s). The report will be submitted to CHS Inc. and DEQ electronically, in Portable Document Format (PDF). A hard copy of the report 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 13 following our receipt of DEQ's work plan approval, but only after also receiving CHS'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 CHS, DEQ, and other stakeholders as appropriate and will make reasonable efforts to adhere to the desired schedule.

FEE

AWS's fee for completing the scope of work described in this Work Plan will be assessed in accordance with the cost estimate presented in Attachment D. The cost estimate includes drilling and surveying subcontractor fee proposals, as well as applicable portions of the DEQ/PTRCB groundwater monitoring unit cost tool. Services provided will be invoiced using AWS's PTRCB labor and equipment rates for the period of performance. Our estimated total fee for completing the scope of work detailed above is approximately $69,480. The estimated total fee is based on our 2024 PTRCB billing rates and the assumptions noted herein.

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 CHS, DEQ, and PTRCB staff prior to implementing the changes.

Petroleum release 2559 at the Former Farmers Union Oil site in Chinook is eligible for PTRCB reimbursement of eligible costs, with no known penalties or reductions in eligibility. AWS understands CHS is recognized by the PTRCB as an eligible party for reimbursement of costs associated with the investigation and remediation of the release.

The PTRCB has already reimbursed 50% of the first $35,000 in eligible costs for this release (commonly referred to as the "$17,500 co-pay" for a release) and is expected to provide reimbursement of 100% of subsequent eligible costs, up to a maximum of $1 million ($982,500.00 after deductible, with no penalty). It is important to note that some costs for common tasks are considered ineligible by the PTRCB staff, including costs incurred performing tasks required by DEQ, in some cases. Examples of costs which are typically ineligible for reimbursement include, but are not limited to, the following:

- Preliminary coordination efforts and other costs incurred prior to work plan preparation.
- Investigation and remediation activities completed without prior DEQ approval.
- Costs exceeding PTRCB staff's established maximum allowable rates or task totals for project administration, groundwater sampling, work plan and report preparation, etc.

- All costs associated with removal of USTs.
- Some costs associated with hazardous materials (e.g., asbestos, lead paint, etc.) assessment and abatement and subsequent building demolition.
- Some costs associated with maintenance and repair of monitoring wells and monitoring well protectors.
- Preparation of applications for PTRCB reimbursement of eligible costs.

Based on information provided by PTRCB staff on August 19, 2024, a total of $275,278.30 in costs have been submitted for reimbursement for this release, and PTRCB has issued $256,045.11 in reimbursements to date. Accordingly, 100% of eligible costs are expected to be reimbursed by the PTRCB, up to the $1 million release maximum.

AWS will submit invoices relating to this scope of work directly to CHS for payment. We anticipate preparing and submitting an application for reimbursement to the PTRCB following completion of the final report for this work plan. The reimbursement application prepared and submitted by AWS will include additional documentation required by the PTRCB, including *Acknowledgement of Payment Form 6* documents confirming AWS's receipt of payment from CHS for AWS invoices included with the application. Completed *Form 6* documents will also be included confirming AWS's payment to our subcontractors, as applicable.

AWS anticipates the PTRCB will subsequently issue a reimbursement payment directly to CHS. As discussed above, and in our previous correspondence, AWS anticipates a portion of the anticipated costs shown in the Cost Estimate will be deemed ineligible by the PTRCB. CHS will remain financially responsible for payment of AWS's invoices in the event costs are deemed ineligible for reimbursement by the PTRCB.

LIMITATIONS

The scope of work included in this work plan has been prepared for CHS Inc. 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

CHS authorized AWS to prepare this work plan by issuing CHS PO 4900288595 on September 16, 2024. Please indicate CHS's acceptance of and authorization to initiate this work plan and

associated cost estimate, under the terms of the CHS PO 4900288595, by signing below and returning a signed copy to AWS.

Work Plan Acceptance: _____

Signature / Printed Name Date

A copy of this work plan will be submitted to the Montana DEQ on behalf of CHS. It is understood DEQ's review of the work plan will relate only to the technical aspects of the proposed scope of 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.

Once the PTRCB staff has reviewed our proposed costs and has obligated funding for costs they deem eligible for reimbursement, AWS will confirm CHS's approval before initiating implementation of the work plan. 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 (406.315.2201) at your earliest convenience to discuss.

Respectfully Submitted,

J. Scott Vosen
Project Manager
scott@airwatersoil.com

Attachments: A – Figures
B – AWS Standard Operating Procedures
C – Groundwater Monitoring Analytical Plan
D – Cost Estimate

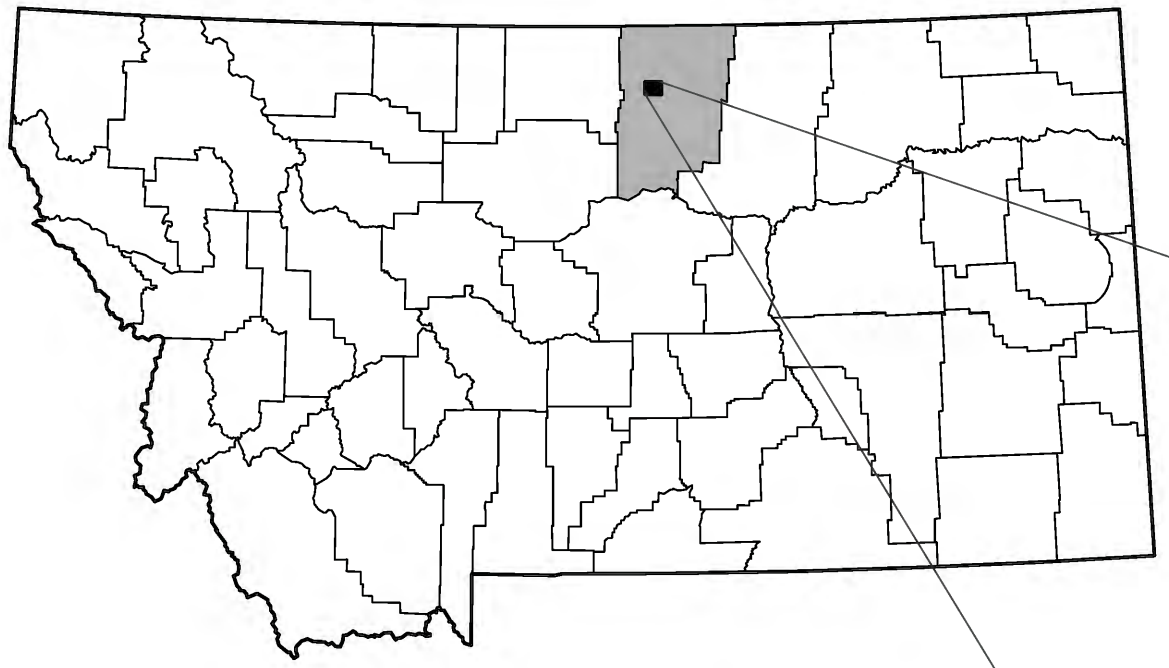
cc: Donnie McCurry, Montana DEQ PTCS, P.O. Box 200901, Helena, MT 59620. Transmitted via email to DMcCurry@mt.gov.

ATTACHMENT A

Figures

AIR WATER SOIL
GREAT FALLS, MT
p 406.315.2201

CHINOOK, BLAINE COUNTY, MONTANA



NORTH

1
FIG 1

SITE VICINITY MAP

DEQ FACILITY ID 03-10274; RELEASE 2559; WPID 34927
135 1ST STREET, CHINOOK, MONTANA 59523
FORMER FARMERS UNION OIL
WORK PLAN FOR 2024 - 2025 ADDITIONAL REMEDIAL INVESTIGATION
CHS INC.

10.10.2024
11005.6

DRAWN BY
DRESCH

CHECKED BY
JSV

SITE VICINITY MAP

FIGURE
1

AIR WATER SOIL
GREAT FALLS, MT
p 406.315.2201

GTA/FARMERS UNION FEEDS

DOTD DOTD DOTD DOTD

MW-5 (ABANDONED ON 9-21-11)

MW-5R (DESTROYED)

1ST STREET (HIGHWAY 2)

CMW-13

CMW-2

FENCED STORAGE AREA

FARMERS UNION OIL COMPANY NEW BUILDINGS

ASPHALT PARKING AREA

SW

MISSOURI STREET

SW

SW

2ND STREET

MW-14

TP-7R

TP-7 (DESTROYED)

FARMER'S UNION OIL MAIN BUILDING

MW-6R

MW-16

MW-12

FORMER BUILDING FOUNDATION

MW-23

MW-22

NG

NG

MH

SS

SS

MW-24

MW-21

PUMP ISLAND

MW-20

MW-25/IP-4

MW-10

SS

MW-9

P

MW-15

MW-2

P

P

IP-03

IP-01

W

IP-02

T

MW-8

PUMP ISLAND

PP

STORAGE

LPG

BULK ISLAND RACK

MW-3

SS

W

MW-4R

SS

MH

NORTH

1
FIG 2

SITE DIAGRAM

PROPOSED BORING LOCATIONS

0 20' 40' 80'

LEGEND

APPROXIMATE PROPOSED BORING LOCATIONS. ACTUAL LOCATIONS MAY DIFFER BASED ON FIELD OBSERVATIONS.

MW-X MONITORING WELL

IP-XX INJECTION POINT

TEMPORARY PIEZOMETER

ACTIVE UST BASIN

FORMER UST BASIN

DOTD DEPARTMENT OF TRANSPORTATION DRAIN

SW STORM SEWER

SS SANITARY SEWER

W WATER LINE

NG NATURAL GAS LINE

P ELECTRICAL

T TELEPHONE LINE

MH MANHOLE

NOTE: ALL UTILITIES ARE APPROXIMATE

DEQ FACILITY ID 03-10274; RELEASE 2559; WPID 34927

135 1ST STREET, CHINOOK, MONTANA 59523
FORMER FARMERS UNION OIL

WORK PLAN FOR 2024 - 2025 ADDITIONAL REMEDIAL INVESTIGATION

CHS INC.

10.10.2024
11005.6

DRAWN BY DRESCH

CHECKED BY JSV

SITE DIAGRAM

FIGURE
2

ATTACHMENT B

AWS Standard Operating Procedures

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

Soil Sample Collection

AWS SOP-02

EQUIPMENT:

- Shovels, spades, hoes, trowels, etc.
- Stainless steel mixing bowl
- Stainless steel hand auger
- Excavation equipment (e.g., backhoe, trackhoe)
- Drill rig sample equipment (e.g., steel split spoons, MacroCore® tubes)
- Field forms
- Disposable gloves and decontamination fluids (per AWS SOP-01)
- Leak-tight cooler with ice

GENERAL:

Soil samples should be described according to the procedures outlined in the Unified Soil Classification System (USCS – method ASTM D2487) or the Soil Conservation Service (SCS) classification system. Soil texture should be classified by either the USCS or USDA classification.

Pertinent soil sample information should be recorded on sampling forms or on specific documents identified in the SAP. Information should be recorded in a way to facilitate preparation of an overall soil sample summary. Information to be recorded for individual soil samples typically includes the following:

- Sample name/I.D.
- Collection date and time
- Sample type (grab/composite; natural/duplicate)
- Sample location, including diagram reference, if applicable
- Sample preservation, if applicable
- Analysis(es) to be performed
- Notation of deviations from SOP, if applicable

Decisions regarding sample collection and analyses will be guided by project-specific parameters and conditions. Collection and analysis of soil samples for evaluation of suspected or confirmed petroleum releases will generally be completed in accordance with the Montana Department of Environmental Quality (DEQ) *Final February 2024 Montana Risk-Based Corrective Action Guidance for Petroleum Releases (RBCA)*. Sampling requirements stipulated in the RBCA are shown in *Table B – Testing Procedures for Soils and Water* from the RBCA, which is presented on the following page of this SOP.

Decontamination will be completed following procedures outlined in AWS SOP-01.

Petroleum Product	VPH	EPH Screen	EPH Fractionation	EPH for PAHs	RCRA Metals + Zinc	EPA Method 8260B – Oxygenates /VOCs	Lead Scavengers
Gasoline/Aviation Gasoline	R						SS
Diesel (#1 & #2)	R	R	X	SS			
#1 - #2 Heating Oils	R	R	X	SS			
#3 - #6 Fuel Oils		R	X	X			
Used/Waste Oil	R	R	X	X	SS	R	SS
Kerosene, Jet Fuel (Jet-A, JP-4, JP-5, JP-8, etc.)	R	R	X	SS			
Mineral/Dielectric Oils		R	X				
Heavier Wastes		R	X	X			
Crude Oil	R	R	X	X			
Unknown Oils/Sources	R	R	X	X	SS	R	SS

Table B - Testing Procedures for Soils and Water

R - required analysis

X - analysis to be run if the EPH screen concentration in is >200 mg/kg TEH or >1,000 µg/L TEH in soil and water, respectively.

SS - Site-specific determination.

SURFACE SAMPLING:

Surface soil samples are collected from the surface to depths of approximately 6 inches below ground surface (bgs), unless otherwise specified in the project specific SAP. Sufficient sample will be collected for the analysis that will be performed, but generally, this will be less than 1 quart. Soil samples will be collected in either wide mouth glass jars or re-sealable polyethylene bags (Ziploc® or equivalent).

Samples should be collected from an area of approximately 1 square foot or less using shovels, trowels, etc., as appropriate. Where composite samples are desired for petroleum samples, care should be taken to minimize volatilization while mixing. Field mixing may be accomplished in the mixing bowl or in a sealed Ziploc bag for EPH and metals samples. Field compositing should not be completed for VPH or VOC samples. Aliquots may be containerized individually and submitted for laboratory compositing, if necessary.

If a sod or duff layer is present, this layer should be peeled back to the top of the mineral soil. Likewise, larger aggregate (e.g. > ¾" diameter) should generally be removed from the sample.

The sample must be well mixed, with a representative portion placed in the sample container. Quarter the sample in the bowl/bag and place an equal volume of soil from each quarter in the sample container(s) provided by the laboratory. Label sample containers (location, depths, etc.) and place on ice as quickly as practicable and keep cool until receipt by laboratory. Transfer to laboratory using chain-of-custody (COC) protocol and overnight shipping or direct delivery, if applicable.

SUBSURFACE SAMPLING:

Ensure subsurface utilities, including any private utilities (e.g., electrical for signs, water & controls for irrigation, etc.) have been surface-marked prior to initiation of subsurface sampling activities. Consider utilizing "daylighting" techniques where utility locations are unknown.

Arrange for disposal of cuttings/waste material prior to initiation of sampling (e.g., return to boring/excavation; transport/dispose at a landfill; etc.), including waste manifesting, if appropriate. Where waste materials must be temporarily left on site, arrange for storage in drums, lined berms, etc., as appropriate.

Ensure equipment (drill rigs, backhoes, trackhoes, etc.) can safely access the areas to be sampled. Minimize damage to the surface (landscaping, pavement, etc.) as feasible, or arrange for repair prior to on-site activities.

Subsurface sampling will generally be completed using a hand auger, excavator, or drill rig. Sampling procedures for each type of equipment are described below. Sample collection, homogenization, compositing, transfer to sampling containers, and transmittal to the laboratory should follow the same procedures as outlined for collection of surface samples.

Hand auger: Auger holes can be drilled at a consistent diameter or in a telescoping manner, if contamination between sample intervals is a concern. The telescoping method includes advancing the largest auger to an approximate depth of 3 feet bgs, collecting specified depth increment samples as the auger is advanced. Install temporary casing (e.g., new or decontaminated PVC) with a diameter slightly smaller than the borehole to keep the hole open and reduce possible cross-contamination between depth intervals. Using the next size smaller bucket auger, repeat the process. Record lithology from recovered cuttings throughout. Select sample intervals for field screening and packaging for laboratory analysis in accordance with procedures described in the SAP. Return cuttings to the boring as feasible, or abandon the boring with hydrated bentonite chips. Restore the site in accordance with the project plan.

Drill Rig: Retrieve sampler from driller. Split spoon samplers are generally utilized by advancing alternating larger samplers (~3-inch diameter) and small samplers (~1.5-inch diameter), both being approximately 2.5-feet long, using hollow-stem auger drilling methods. MacroCore® samples are generally obtained by advancing 4-foot-long sample tubes of approximately 1.5-inch diameter using a direct-push drilling method. In either case, record lithology and percent recovery from cores retrieved. Collect at least 1 sample interval from each recovered interval for field screening, and select sample intervals for packaging for laboratory analysis in accordance with procedures described in the SAP. Return cuttings to the boring as feasible, or abandon the boring with hydrated bentonite chips. Restore the site in accordance with the project plan.

Excavations: Excavate to the prescribed depth. If the excavation depth exceeds 5 feet, OSHA construction standards for shoring or sloping must be followed to prevent accidental injury. Sampling personnel should enter the excavation only as necessary, and always with care, during and after excavation. Soil profile descriptions shall be made from a freshly

scraped surface along the excavation wall or base, as feasible. Soil samples shall be collected from depth intervals specified in the SAP.

After sampling is completed, the excavation should be backfilled with excavation material in the reverse order that it was excavated so topsoil material is returned to the surface. Alternatively, if excavated material is being disposed, backfill with imported fill material. Backfill material should be mechanically compacted to extents feasible, or in accordance with project-specific requirements in the SAP. Restore the site in accordance with the project plan.

PREPARATION AND PRESERVATION:

All soil samples will be packaged and preserved in accordance with the respective analytical method(s), using containers and preservatives provided by the analytical laboratory, where applicable. Samples will be placed in coolers with ice (or refrigerators) as soon as practicable following collection and will be kept cool until received by the laboratory, as required for the respective method(s).

Samples will be containerized and shipped using chain-of-custody protocol, as outlined in AWS SOP-08. This includes placement of custody seals on coolers (or on individual sample containers).

Standard analytical methods, sample container and preservation requirements, and analytical hold times are presented in *Table A – Soil Sampling and Preservation Protocol* on the following page of this SOP. The provided *Table A* has been taken from DEQ's *Final February 2024 RBCA*.

Parameter	Analytical Method	Sample Container/ Preservation	Holding Time
Soil Samples			
VPH	Montana Method VPH	60 mL or 40 mL VOA vials or 4 oz wide mouth jar. Collect at least 10 g of soil, cool to 4 ±2° C. Must be preserved at the lab in methanol within 48 hours of collection. or Methanol preservation in the field.1 mL methanol for every g soil, +/- 25%; lab can provide appropriate vials with methanol for easy collection; cool to 4 ±2° C. If preserving with methanol in the field, a sample containing no methanol must also be submitted for determining moisture percentage.	28 Days to analysis from collection. If collecting in the field without methanol, lab preservation in methanol w/in 48 hours and 28 days to analysis from collection.
EPH Screen	Montana Method EPH	4-oz wide-mouth amber glass jar, cool to 4±2° C	Extracted within 14 days of collection. Analyzed within 40 days of extraction.
EPH Fractionation with or without PAH's	Montana Method EPH (PAHs: 8270))	One 4-oz glass jar, cool to (4 ± 2) °C	Following EPH Screen 14-day to extraction, 40 days to analysis.
VOCs/Oxygenates/ 1,2 DCA/lead scavengers EDB	EPA Method 8260 /SW-846-5035A	One 4-oz. glass jar, cool to (4 ± 2) °C Preserve in methanol in field or at lab within 48 hours of collection.	48 hours to lab extraction. 14-day hold time from collection MeOH preservation: 14 days to extraction and analysis from collection.
RCRA Metals plus zinc (Except Hg) Mercury (Hg)	EPA Method 6010 or 6020 EPA Method 7471 B	One 4-oz. plastic or glass jar, no preservation One 4-oz. plastic or glass jar, no preservation	6 months 28 days
% Moisture-required for all soil samples	USDA Handbook 60 method 26 (or equivalent)		

Table A - Soil Sampling and Preservation Protocol

Alternate approved versions of the methods are allowed.

STANDARD OPERATING PROCEDURE

Field Measurement of Total Volatile Organic Compounds

AWS SOP-03

EQUIPMENT:

AWS measures total volatile organic compounds (VOC) using a photoionization detector (PID) with a 10.6 electron volt (eV) lamp, following a "heated headspace" method. The PID should be fully charged the day prior to field usage, and extra batteries or field chargers should be available, as feasible. Calibration equipment and supplies should be included in the field kit based on the recommendations of the manufacturer. These generally include a cylinder of compressed calibration gas, a pressure/flow regulator, and an activated carbon "zero" filter.

Field screening sample containers may consist of either heavy zip-top plastic bags (e.g., Ziploc® Freezer bags or equivalent) or glass canning jars fitted with aluminum foil under the metal lid rings. Plastic bags and aluminum foil should never be reused. When using canning jars, the jars and rings should be decontaminated between sample analyses (see AWS SOP-01). Whether plastic bags or glass jars are used, sample vessels and sample amounts should be consistent in composition and volume for all field total VOC samples collected for a given project. This will facilitate consistent sample headspace for all field screening samples, increasing data reliability.

Use of personal protective equipment (e.g., disposable latex or nitrile gloves, eye protection, etc.) and decontamination fluids and equipment should be consistent with AWS SOP-01 and AWS SOP-02.

CALIBRATION:

The PID should be field calibrated prior to use at least once per day, at a minimum. Bump testing and/or recalibration should be completed if the accuracy of field data are questioned by the operator, or if the duration of field activities following initial calibration exceeds 8 hours.

In an upwind or otherwise vapor-free atmosphere, turn the instrument on and initiate the calibration procedure per the manufacturer's instructions. Ensure the calibration span setting in the instrument matches that of the calibration gas. The calibration span gas utilized for field screening of total VOCs at petroleum release investigation projects is 100 parts per million (ppm) isobutylene in air.

PROCEDURE:

Collect soil samples following AWS SOP-02, including labeling of field screening sample containers with the appropriate sample name/identification (ID). Field screening samples are often collected from the same locations as laboratory samples. In such instances, the portions to be containerized for field screening are referred to as field "split" samples.

Ensure field split samples are kept out of direct sunlight, allowing them to warm to approximately 70-80 degrees Fahrenheit (°F) as determined by feel (approximately room temperature). This may be accomplished by placing the sample vessel on the floor board of a running vehicle with the heater turned on. In this scenario, caution should be used to avoid exposing vehicle occupants to VOCs (roll-down windows to provide cross-ventilation). To ensure data precision, warm all samples for a given project to approximately the same temperature over approximately the same amount of time, if practicable.

Attach the sample probe to the PID and allow the instrument to complete its warm-up cycle, if necessary. Opening the sample vessel as little as possible, insert the probe into the "headspace" of the sample vessel. This can be accomplished by opening the zip-top plastic bag enclosure approximately ¼-inch or by poking the probe through the foil jar cover. In either instance, avoid inserting the sample probe directly into the soil. Samples should be analyzed in order of assumed impacts, beginning with the samples inferred to be least impacted and finishing with the samples inferred to be most-impacted.

Continually observe the instrument readout and record the highest concentration (or use the instruments "Max" function, if available, taking care to reset the instrument's "Max" value after each sample reading). Sample name/ID and observed total VOC concentrations should be recorded in a way to facilitate preparation of an overall soil sample and field screening data summary for the project.

Heated and analyzed soil samples must never be containerized for laboratory analysis. Laboratory samples must be split from the original sample and containerized and preserved separately, immediately following collection. Alternatively, laboratory samples may be collected and containerized separately following completion of field analyses.

MAINTENANCE:

The instrument should always be stored in the case provided by the manufacturer when not in use. Maintenance and storage of the instrument and batteries should be conducted in accordance with the manufacturer's recommendations.

Periodic instrument maintenance should be completed as recommended by the manufacturer, including occasional partial disassembly and removal, cleaning, or replacement of in-line filters and or lamps. Other failed components should be replaced as necessary as well. Some maintenance may need to be completed by the manufacturer or authorized service center.

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 long enough so that the bailer intake reaches the middle of the well-screen section, but should be long enough to evacuate water from the lower one-third of the well depth 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 need to 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 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 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:

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

NOTE: 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.

Replace well cap and lock (if present) when sampling is complete.

Replace all appurtenances on the domestic well, if present prior to work, when sampling is complete.

Prepare all necessary chain-of-custody forms, sampling forms, and other documentation.

Prepare and ship samples in accordance with AWS SOP-08.

CHAIN-OF-CUSTODY (COC) 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

Pre-Renovation / Pre-Demolition Asbestos Inspection

AWS SOP-50

EQUIPMENT:

- Ladders.
- Flashlight to aid in visibility.
- 2-mil zip-top sample bags (or similar).
- Spray bottle with soapy water.
- Knife, core tool, chisel, hammer, pliers, and other appropriate tools.
- Silicone caulk.
- Spray acrylic or other encapsulant.
- Duct tape and painter's tape.
- Cloth (pre-moistened) for cleaning up debris and tools.
- Vacuum cleaner equipped with high efficiency particulate air (HEPA) filters.
- Writing utensils, including pencil, eraser, pen, and indelible ink pens.
- Digital camera.
- Personal Protective Equipment (PPE), including negative pressure, ½-face respirator with HEPA cartridges, eye protection, disposable gloves, cut resistant gloves, and disposable coveralls with hood and booties.

PLANNING:

Prior to commencing inspection activities, the following tasks should be performed:

- Confirm the scope of the renovation or demolition project from the client (e.g., project owner, contractor, architect, engineer, etc.). Obtain project construction documents from the owner, project architect, or project engineer, if available, to facilitate this effort.
- Develop the project area for the purpose of the inspection based on the scope of the renovation or demolition project.
- Coordinate site access with the client and/or current building owner or occupant, if different. Identify the appropriate on-site contact to coordinate with during the inspection.
- Develop a project schedule agreeable to all appropriate stakeholders.
- Review existing project area diagrams and construction documents, if available, to become familiar with the project scope and the facility layout, including construction eras and building systems.
- Review previous asbestos inspection reports, if available.
- Coordinate with vendors for any additional equipment required to complete the inspection (e.g., man lifts, etc.).
- Coordinate with subcontractors or other service providers, if necessary (e.g., roofing contractors, if roof patching will be required).

INSPECTION:

Pre-renovation and pre-demolition asbestos inspections are completed in accordance with the requirements set forth in the Administrative Rules of Montana, Title 17, Chapter 74, Subpart 3 (ARM 17.54.354); the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulation set forth in Title 40, Part 6, Subpart 141 of the Code of Federal Regulations (40 CFR 61.141); and applicable portions of the requirements set forth in the Asbestos Hazard Emergency Response Act (AHERA) as outlined in 40 CFR 763.86.

General guidelines for conducting the inspection are as follows:

- Conduct an initial site walk of all interior and exterior portions of the project area with the on-site contact identified in the planning phase. Discuss bulk sampling protocols, access, schedules, allowable damage at sample points, required repairs, etc.
- Confirm the current building layout matches diagrams obtained during the planning phase.
- Identify construction eras, as feasible, to facilitate determination of homogenous areas (HAs).
- Identify building systems and associated components (e.g., foundations, mechanical, electrical, plumbing).
- Document location of and access to all pipe chases, pipe tunnels, crawl spaces, attics, and roof(s), if applicable to the inspection project area.
- Prepare a project area floor plan diagram, if none is otherwise available, or update the existing diagram to reflect actual conditions, as appropriate.
- Conduct a thorough inspection of all safely and readily accessible portions of the project area. Document access limitations.
- Complete a HA summary form to identify each unique HA of suspect ACM within the project area. Include material descriptions, conditions, locations, estimated quantities, and anticipated condition of the materials during removal.
- Assign unique HA designations to each suspect ACM using AWS's standard HA definition sheet.
- Photograph the project area, including multiple angles of each interior and exterior room, space, or area. Include context photos to indicate location when taking close-up photographs. Document noteworthy findings and conditions.

NUMBER OF SAMPLES:

Surfacing Materials

Surfacing material samples are collected based on the square feet (SF) of surfacing material expected to be disturbed by the project, as follows:

- ≤ 1,000 square feet: 3 bulk samples per HA
- 1,000 to 5,000 square feet: 5 bulk samples per HA
- > 5,000 square feet: 7 bulk samples per HA

Thermal System Insulation (TSI)

TSI is sampled in a manner representative of the respective materials, with at least 3 bulk samples collected from each HA. At least 1 bulk sample is to be collected from each HA of patched TSI totaling less than 6 SF and not otherwise assumed to be ACM.

Bulk samples are collected from each insulated mechanical system where cement or plaster, or similar hard pack materials used on fittings, such as tees, elbows, or valves are to be treated as separate HAs, based on similar appearance, age, color, and texture.

Although bulk samples do not need to be collected from HAs where the inspector has determined the TSI to be fiberglass, foam glass, rubber, or other non-asbestos containing building material, per current regulations, AWS's inspectors will collect bulk samples from

these materials in order to comply with current DEQ policy (and forthcoming, proposed DEQ regulations).

Miscellaneous Materials

Bulk samples should be collected from each miscellaneous material. The number of samples should be sufficient to determine whether the material is asbestos containing. AWS collects at least 3 bulk samples from each HA of miscellaneous materials.

SAMPLE LOCATIONS:

Sample locations should be selected to be representative of the HA being sampled. Sample locations should be distributed evenly throughout the sampling area, as feasible. If fewer than nine samples are collected, a random sampling scheme should be used to determine their location. Choosing sample locations according to personal judgment produces samples that may not be representative and can lead to a wrong decision about the presence or absence of asbestos. The sampling scheme described below can be used to avoid this problem.

Divide the sampling area into 9 generally equal sub areas by dividing the length and breadth of the sampling area into 3 equal lengths/widths and drawing a grid over the diagram. This can be done carefully by eye without the need for exact measurements. If the sampling area does not easily fit into a rectangular shape, parts of the grid might not be in the sampling area. This is not a problem in most cases. If a large part of the grid falls outside the sampling area, it is advisable to divide the sampling area into 2 or more separate sampling areas, each of which is approximately rectangular, and select sample locations by applying the sampling scheme to each sampling area. Number each grid area (i.e., 1 through 9) and select sample locations from within randomly selected grid areas. A random/pseudo-random number generator may be used to select grid areas.

SAMPLE IDENTIFICATION:

Assign a unique sample identification (ID) to each sample location, using AWS's standard HA and sample naming format. Each sample will also be assigned a sequential, numerical sample number (1 through ##), which is recorded on the HA summary sheet. The sample ID and sequential number should both be placed on the sampling container, and both are recorded on the laboratory chain of custody.

SAMPLE COLLECTION:

Since inhalation of asbestos fibers during asbestos inspections and sampling projects may pose a health hazard, the use of proper work practices and PPE by building inspectors is required during the sampling process.

Use appropriate sampling equipment and work practices to prevent or limit disturbance of materials, as feasible. Wet methods should be used where feasible, as appropriate, to minimize the potential for airborne contaminant. Inspectors may also wear a negative pressure, half-face, air-purifying respirator fitted with HEPA cartridges. Disposable gloves and coveralls may be worn as appropriate to prevent contamination of the inspectors skin and clothing. Leather or cut resistant gloves may be worn to prevent hand abrasions. Safety glasses may be worn to protect eyes where falling or flying debris is likely.

Following collection of each sample, mark the HA summary sheet to confirm collection of the sample, and also mark the location of the sample on the sampling diagram. Place samples into the outer project sample container.

Clean contaminated tools and equipment with wet wipes. Clean disturbed materials at and adjacent to sample locations with wet wipes or a HEPA vacuum.

Stabilize sample locations, where appropriate, with caulk, encapsulant, etc., to minimize subsequent fiber release.

SAMPLE HANDLING:

After placing a sample in a container according to the procedures outlined earlier, enter the ID and sample numbers on the project chain-of-custody (COC) form. Confirm all samples containers are accounted for at this time. Mark the requested analyses on the chain-of-custody. Scan, photograph, or make a photocopy of the completed chain of custody.

Submit the samples with the COC to a laboratory meeting the requirements of the DEQ for asbestos bulk sample analysis. Upon receipt of samples from the inspector, the laboratory should check and sign the chain-of-custody and remit a copy to the inspector. The completed chain-of-custody should be included as an attachment to the laboratory's analytical report.

Polarized light microscopy (PLM) according to EPA Method 600/R4-93-116 is the approved method for analyzing bulk materials for asbestos. PLM uses a light microscope equipped with polarizing filters. The identification of asbestos fiber bundles is determined by the visual properties displayed when the sample is treated with various dispersion staining liquids. Identification is substantiated by the actual structure of the fiber and the effect of polarized light on the filter, which is viewed by the trained technician. The limit of detection of asbestos by PLM is about 1% by area. Samples containing lower levels of asbestos are not reliably detected by this technique. Samples exhibiting detectable asbestos at concentrations less than 1% should be assumed to be ACM or, alternatively, further analyzed by 400 point count to confirm the concentration of asbestos is < 1%.

QUALITY ASSURANCE:

After inspection is completed, and prior to departing the project site, perform a field quality assurance program including the following tasks:

- Review all inspection forms and diagrams for completeness.
- Confirm all sample containers are accounted for and present in the project sample container.
- Conduct a final project area walk through to verify all safely and readily accessible HAs of suspect ACM have been identified and sampled (or presumed to be ACM).
- Prior to shipping the samples to the laboratory, review the COC for completeness, and verify all samples are correctly named/numbered and accounted for.

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.

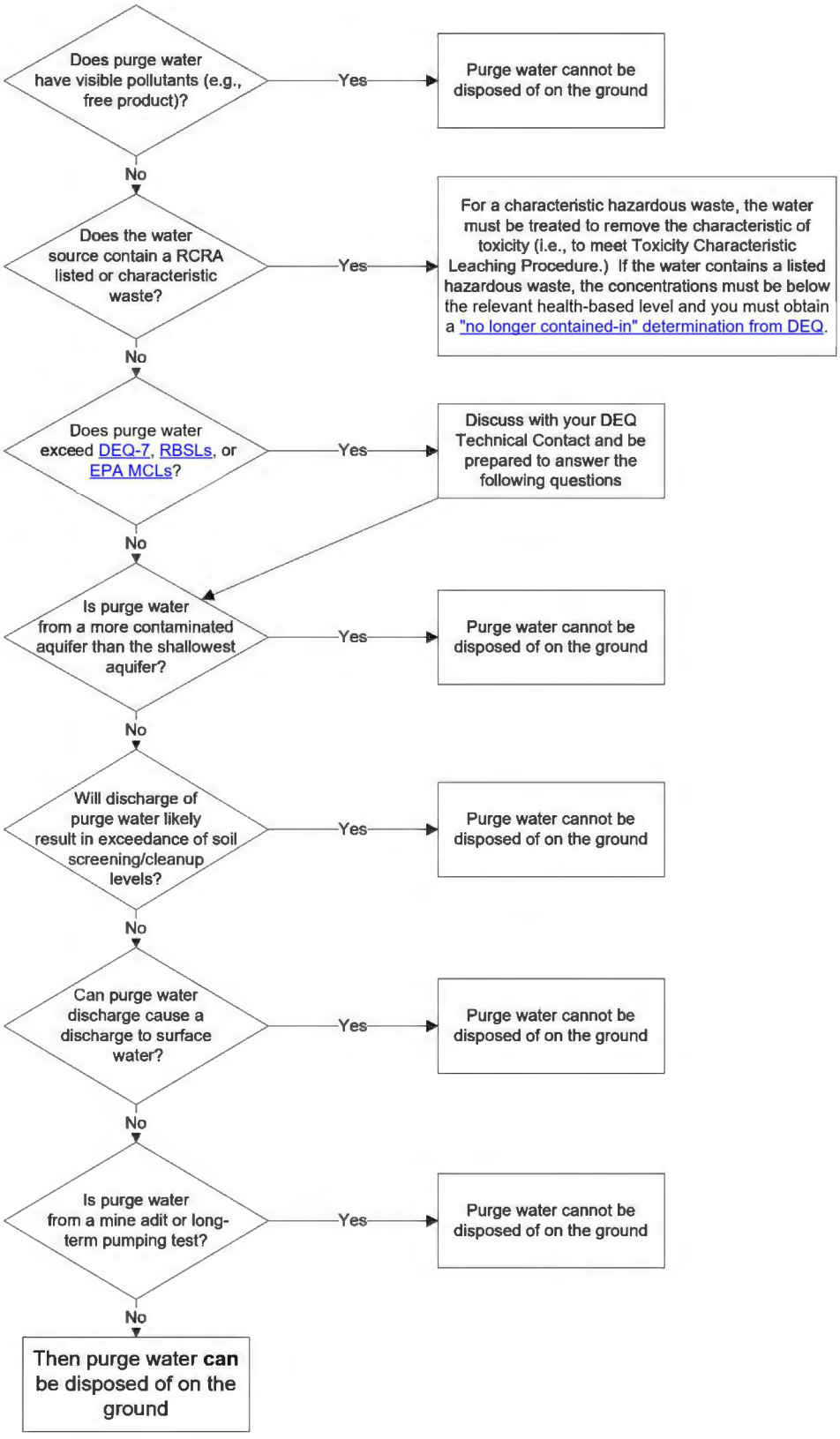
General trash and personal protective equipment waste shall be cleansed of any gross contaminated soil accumulation and shall be placed in plastic garbage bags and properly disposed at a licensed solid waste disposal facility.

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

ATTACHMENT C

Groundwater Monitoring Analytical Plan

AIR WATER SOIL

GROUNDWATER MONITORING ANALYTICAL PLAN

Work Plan for 2024 - 2025 Additional Remedial Investigation
Former Farmers Union Oil - 135 1st Street, Chinook, Montana 59523
DEQ FID 03-10274 *(TID 17941)* ; Release 2559; WPID 34927

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)*	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:	**Date to be determined**										
CMW-2	✓	--	--	--	--	--	--	--	--	--	--
CMW-13	✓	--	--	--	--	--	--	--	--	--	--
IP-1	✓	--	--	--	--	--	--	--	--	--	--
IP-2	✓	--	--	--	--	--	--	--	--	--	--
IP-3	✓	--	--	--	--	--	--	--	--	--	--
IP-4 *(formerly MW-25)*	✓	--	--	--	--	--	--	--	--	--	--
MW-2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-4R	✓	--	--	--	--	--	--	--	--	--	--
MW-6R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-8	✓	--	--	--	--	--	--	--	--	--	--
MW-9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-12	✓	--	--	--	--	--	--	--	--	--	--
MW-14	✓	--	--	--	--	--	--	--	--	--	--
MW-15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-20	✓	--	--	--	--	--	--	--	--	--	--
MW-21	✓	--	--	--	--	--	--	--	--	--	--
MW-22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW-23	✓	--	--	--	--	--	--	--	--	--	--
MW-24	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TP-7R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Duplicate	--	✓	--	--	--	--	--	--	--	--	--

AIR WATER SOIL

ATTACHMENT D

Cost Estimate

COST ESTIMATE
2024 - 2025 Additional Remedial Investigation
Former Farmers Union Oil
135 1st Street, Chinook, Montana 59523
DEQ Facility ID 03-10274 (TID 17941); Release 2559; WPID 34927

TASK 1 - PRELIMINARY COORDINATION AND WORK PLAN PREPARATION

PRELIMINARY COORDINATION	UNITS	RATE	COST
Project Engineer/Scientist, per hour	6	$160.00	$960.00
		Preliminary Coordination Subtotal:	$960.00
STANDARDIZED CAP PREPARATION			
CAP_RI, unit cost	1	$1,400.00	$1,400.00
		RI CAP Subtotal:	$1,400.00
ADDITIONAL, NON-STANDARDIZED CAP PREPARATION			
Project Engineer/Scientist, per hour	1	$160.00	$160.00
Industrial Hygienist, per hour	2	$164.00	$328.00
		Additional Asbestos CAP Subtotal:	$488.00
		Total Task 1 Costs:	**$2,848.00**

TASK 2 - PROJECT MANAGEMENT

LABOR COSTS	UNITS	RATE	COST
Project Engineer/Scientist, per hour	16	$160.00	$2,560.00
		Labor Subtotal:	$2,560.00
		Total Task 2 Costs:	**$2,560.00**

TASK 3 - MOBILIZATION

LIMITED PRE-DEMOLITION ASBESTOS INSPECTION	UNITS	RATE	COST
Industrial Hygienist - prep, per hour	1	$164.00	$164.00
Industrial Hygienist - mobilization, per hour	4.5	$164.00	$738.00
Mileage, per mile	266	$0.720	$191.52
		Event Subtotal:	$1,093.52
SOIL BORINGS			
Staff Engineer/Scientist - prep, per hour	1	$134.00	$134.00
Staff Engineer/Scientist - mobilization, per hour	6	$134.00	$804.00
Tech II, per hour	6	$107.00	$642.00
Mileage, per mile	285	$0.720	$205.20
		Event Subtotal:	$1,785.20
GROUNDWATER MONITORING			
Tech II - prep, per hour	1	$107.00	$107.00
Tech II - mobilization, per hour	5.5	$107.00	$588.50
Mileage, per mile	275	$0.720	$198.00
		Event Subtotal:	$893.50

PRE-CONSTRUCTION SITE SURVEY	UNITS	RATE	COST
Tech II - prep, per hour	1	$107.00	$107.00
Tech II - mobilization, per hour	4.5	$107.00	$481.50
Mileage, per mile	266	$0.720	$191.52
		Event Subtotal:	$780.02
		Total Task 3 Costs:	**$4,552.24**

TASK 4 - PER DIEM AND LODGING

LIMITED PRE-DEMOLITION ASBESTOS INSPECTION	UNITS	RATE	COST
Breakfast, per person/day	0	$8.25	$0.00
Lunch, per person/day	1	$9.25	$9.25
Dinner, per person/day	0	$16.00	$0.00
Lodging, per person/night	0	$200.00	$0.00
		Event Subtotal:	$9.25
SOIL BORINGS			
Breakfast, per person/day	4	$8.25	$33.00
Lunch, per person/day	6	$9.25	$55.50
Dinner, per person/day	4	$16.00	$64.00
Lodging, per person/night	4	$200.00	$800.00
		Event Subtotal:	$952.50
GROUNDWATER MONITORING			
Breakfast, per person/day	4	$8.25	$33.00
Lunch, per person/day	4	$9.25	$37.00
Dinner, per person/day	4	$16.00	$64.00
Lodging, per person/night	2	$200.00	$400.00
		Event Subtotal:	$534.00
PRE-CONSTRUCTION SITE SURVEY			
Breakfast, per person/day	0	$8.25	$0.00
Lunch, per person/day	1	$9.25	$9.25
Dinner, per person/day	0	$16.00	$0.00
Lodging, per person/night	0	$200.00	$0.00
		Event Subtotal:	$9.25
		Total Task 4 Costs:	**$1,505.00**

TASK 5 - LIMITED PRE-DEMOLITION ASBESTOS INSPECTION

LABOR COSTS	UNITS	RATE	COST
Industrial Hygienist, per hour	3	$164.00	$492.00
		Labor Subtotal:	$492.00

EQUIPMENT COSTS	UNITS	RATE	COST
Disposable Gloves, per pair	4	$1.50	$6.00
		Equipment Subtotal:	$6.00
		Total Task 5 Costs:	**$498.00**

TASK 6 - SOIL BORINGS

LABOR COSTS	UNITS	RATE	COST
Staff Engineer/Scientist, per hour	24	$134.00	$3,216.00
Tech II, per hour	24	$107.00	$2,568.00
		Labor Subtotal:	$5,784.00
SUBCONTRACTOR COSTS (on-site services)			
Olympus Technical Services, per attached bid. *NOTE - AWS solicited bids from Olympus Technical Services (bid attached); Pioneer Technical Services ("No bid" response attached); and Water & Environmental Technologies (no response).*	1	$5,905.50	$5,905.50
		7% Mark-up:	$413.39
		Subcontractor Subtotal:	$6,318.89
EQUIPMENT COSTS			
Digital Camera, per day	3	$23.10	$69.30
Photoionization Detector, per day	3	$115.50	$346.50
Disposable Gloves, per pair	45	$1.50	$67.50
		Equipment Subtotal:	$483.30
		Total Task 6 Costs:	**$12,586.19**

TASK 7 - GROUNDWATER MONITORING

GROUNDWATER MONITORING UNIT COSTS	UNITS	RATE	COST
See attached DEQ/PTRCB Unit Cost Worksheet	1	$3,997.50	$3,997.50
		Direct Cost Subtotal:	$3,997.50
		Total Task 7 Costs:	**$3,997.50**

TASK 8 - LABORATORY ANALYSES

SUSPECT ASBESTOS SAMPLES	UNITS	RATE	COST
Standard PLM (estimate), per layer	12	$5.68	$68.16
PLM, 400 Point Count, per sample	0	$20.44	$0.00
Gravimetric Reduction PLM, per sample	0	$39.74	$0.00
Gravimetric Reduction TEM, per sample	0	$56.78	$0.00
CARB 435 (LOD 0.25%), per sample	0	$90.84	$0.00
Laboratory Disposal Fee (CEI), included	0	$0.00	$0.00
PTRCB Sampling Fee, per sample	12	$10.00	$120.00
		Suspsect Asbestos Analytical Costs Subtotal:	$188.16

SOIL SAMPLES (45 Natural + 3 Duplicate)	UNITS	RATE	COST
Moisture, per sample	48	$19.00	$912.00
VPH (MT DEQ), per sample	48	$132.00	$6,336.00
EPH Screen (MT DEQ), per sample	45	$83.00	$3,735.00
EPH Fractions (MT DEQ), per sample	30	$170.00	$5,100.00
1,2-DCA (8260), per sample	15	$85.00	$1,275.00
Laboratory Disposal Fee (Energy Labs), per sample	48	$3.00	$144.00
PTRCB Sampling Fee (Natural + Duplicate), per sample	48	$10.00	$480.00
		Soil Analytical Costs Subtotal:	$17,982.00
WATER SAMPLES (10 Natural + 1 Duplicate)			
VPH (MT DEQ), per sample	11	$132.00	$1,452.00
EPH Screen (MT DEQ), per sample	10	$83.00	$830.00
EPH Fractions (MT DEQ), per sample	10	$170.00	$1,700.00
1,2-DCA (8260), per sample	10	$85.00	$850.00
Alkalinity (A2320B), per sample	10	$10.00	$100.00
Dissolved Methane (SW8015M), per sample	10	$50.00	$500.00
Dissolved Fe & Mn (E200.7/8, field filtered), per sample	10	$20.00	$200.00
Total Recoverable Fe & Mn (E200.7/8), per sample	10	$35.00	$350.00
Sulfates (E300.0), per sample	10	$10.00	$100.00
Sulfides (A4500-SF), per sample	10	$40.00	$400.00
Nitrogen, Nitrate + Nitrite (E353.2), per sample	10	$25.00	$250.00
Laboratory Disposal Fee (Energy Labs), per sample	11	$3.00	$33.00
PTRCB Sampling Fee (Natural + Duplicate), per sample	11	$10.00	$110.00
		Water Analytical Costs Subtotal:	$6,875.00
		Total Task 8 Costs:	**$25,045.16**

TASK 9 - DATA VALIDATION

SOIL BORINGS	UNITS	RATE	COST
Staff Engineer/Scientist, per hour	1	$134.00	$134.00
		Event Subtotal:	$134.00
GROUNDWATER MONITORING			
Staff Engineer/Scientist, per hour	1	$134.00	$134.00
		Event Subtotal:	$134.00
		Total Task 9 Costs:	**$268.00**

TASK 10 - PRE-CONSTRUCTION SITE SURVEY

LABOR COSTS	UNITS	RATE	COST
Tech II, per hour	3	$107.00	$321.00
		Labor Subtotal:	$321.00

SUBCONTRACTOR COSTS (on-site services)	UNITS	RATE	COST
Cushing Terrell, per attached bid. *NOTE - AWS solicited bids from Cushing Terrell (bid attached); Atlas Land Surveys (no response); and Arrow Creek Survey Co. (no response).*	1	$7,800.00	$7,800.00
		7% Mark-up:	$546.00
		Subcontractor Subtotal:	$8,346.00
		Total Task 10 Costs:	**$8,667.00**

TASK 11 - ADDITIONAL PRE-CONSTRUCTION STAKEHOLDER COORDINATION

LABOR COSTS	UNITS	RATE	COST
Project Engineer/Scientist, per hour	10	$160.00	$1,600.00
		Labor Subtotal:	$1,600.00
		Total Task 11 Costs:	**$1,600.00**

TASK 12 - RELEASE CLOSURE PLAN UPDATE

LABOR COSTS	UNITS	RATE	COST
RCP Update, unit cost	1	$595.00	$595.00
		Labor Costs Subtotal:	$595.00
		Total Task 12 Costs:	**$595.00**

TASK 13 - REPORT PREPARATION

STANDARDIZED REPORT	UNITS	RATE	COST
RPT_RI - Remedial Investigation Report, unit cost	1	$3,700.00	$3,700.00
		RI Report Subtotal:	$3,700.00
ADDITIONAL, ASBESTOS INSPECTION REPORT			
Industrial Hygienist, per hour	6	$160.00	$960.00
Drafter CAD, per hour	1	$98.00	$98.00
		Asbestos Inspection Report Subtotal:	$1,058.00
		Total Task 13 Costs:	**$4,758.00**

TOTAL ESTIMATED PROJECT COSTS: $69,480.09

This cost estimate was prepared using AWS labor and equipment rates approved by the Petroleum Tank Release Compensation Board for 2024. 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 asbestos analyses (provided by Eurofins CEI) and soil and water analyses (provided by Energy Laboratories, Inc.).

Petroleum Tank Release Compensation Board
Soil Boring/Monitoring Well Installation Unit Cost Worksheet

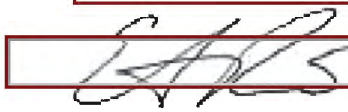
Contractor Information

Company Name: Olympus Technical Services, Inc.

Address: 6809 King Avenue West, Unit F

City, State, Zip: Billings, Montana 59106

Cost Estimator: Ethan Perro Phone: 406-430-1784

Signature:  Date: 9/27/2024

Project Information and Specifications

Site Name: Former Farmers Union Oil

Address: 135 1st Street

City: Chinook

Facility ID # 03-10274

Release # 2559

WP ID # 34927

Type of Drilling Equipment

- ☐ Hollow-Stem Augers
- ☐ Air Rotary
- ☑ Direct Push
- ☐ Other (please specify)

Monitoring Well Specifications

Number of Wells

Surface: Concrete: ☐ Asphalt: ☐ Barren: ☐

Depth (per well)

Estimated Depth to Groundwater (ft)

Boring Diameter (inches) 2.25

Casing Diameter and type (inches)

Surface Completion: Flush Mount ☐ Aboveground ☐

Soil Boring

Number of Borings 15

Boring Diameter (inches) 2.25

Depth (per boring - ft) 15

Surface: Concrete: ☑ Asphalt: ☑ Barren: ☐

Soil Disposal: Onsite: ☐ Stockpile: ☐ Drums: ☑

Abandonment: Bentonite: ☑ Soil Cuttings: ☑

Soil Sampling

- ☑ Continuous Soil Sampling
- ☐ Interval Soil Sampling (specify interval)
- ☑ No Sampling

Cost Estimate Explanation:

(1) Mobilization/Demobilization: Includes all costs and mileage to transport equipment, materials, and personnel to and from the site location. More than one mobilization event of either the drilling rig or support vehicle will require justification and pre-approval by the DEQ-PTCS and Board staffs. This item should be estimated on a per mile unit rate.

(2) Soil Boring Installation: Includes all costs (labor, equipment, and materials) to drill, collect soil samples and abandon soil borings, as well as decontaminate equipment. Drilling costs should be estimated using a per foot unit rate. Unit cost should include handling of contaminated soil by stockpiling or placing in drums. Assume level "C" personal protective equipment.

(3) Monitoring Well Installation: Includes all costs (labor, equipment, and materials) to drill, collect soil samples, and complete monitoring well to specifications and according to Montana Well Drillers Board rules, as well as decontaminate equipment. Drilling costs should be estimated using a per foot unit rate. Unit cost should include handling of contaminated soil by stockpiling or placing in drums. Assume level "C" personal protective equipment.

(4) Drilling Standy: Drilling standby should be estimated on an hourly basis. Prior approval and justification for accumulating standby time is needed prior to billing.

(5) Well Development: Includes all costs (labor, equipment, and materials) to develop monitoring wells. This task should be estimated using a per well unit rate.

(6) Monitoring Well Abandonment: Includes all costs (labor, equipment, and materials) to properly abandon a well location according to the Montana Well Drillers Board rules. Abandonment costs should be estimated using a per well unit rate.

Soil Boring/Monitoring Well Installation Unit Cost Worksheet

TASK	UNIT COST	NUMBER OF UNITS	TOTAL COST
Mobilization/Demobilization [1]			
Mobilization/Demobilization: Drilling Rig	$3.50 /mile	480	$ $1,680.00
Mobilization/Demobilization: Support Vehicle	/mile		$ $0.00
Soil Boring Installation [2]			
Drilling (0'-50' range per boring)	$17.00 /foot	225	$ $3,825.00
Drilling (50'-100' range per boring)	/foot		$ $0.00
Other (please specify)			$ $0.00
Monitoring Well Installation [3]			
Drilling (0'-50' range per well)	/foot		$ $0.00
Drilling (50'-100' range per well)	/foot		$ $0.00
Other (please specify)			$ $0.00
Drilling Standby [4]			
-prior approval needed	/hour		$ $0.00
Well Development [5]			
Well Development	/well		$ $0.00
Monitoring Well Abandonment [6]			
Abandonment	/well		$ $0.00
Lodging may only be paid at actual costs when documented by receipts.			
Per Diem			
Lodging: (number of individuals) 1	$150.00 /person per day	2	$300.00
Food: (number of individuals) 1	$33.50 /person per day	3	$100.50
Maximum Daily Per Diem allowed $30.50 (Breakfast $7.50, Lunch $8.50, Dinner $14.50)			
		TOTAL PROJECT EXPENSE	$ $5,905.50

Additional Conditions/Comments/Costs:

Assume 3 days including mobilization.

If you require assistance, call 406-444-9710.
Submit completed form to:
Petroleum Tank Release Compensation Board
PO Box 200902, Helena MT 59620-0902

Scott Vosen

From: Nathan Farley <nfarley@pioneer-technical.com>
Sent: Wednesday, October 2, 2024 10:32 AM
To: Scott Vosen
Subject: RE: Request for Proposal - Chinook Former Farmers Union Oil

Hey Scott we are just to busy currently now and will not be able to provide a bid for this project. Thanks for the opportunity.

Nathan Farley | Senior Designer/Technician
1101 S. Montana | Butte, Montana 59701 | nfarley@pioneer-technical.com
Office: 406-497-8032 Ext. 8032 | Cell: 541-880-8918 | www.pioneer-technical.com
PIONEER TECHNICAL SERVICES

From: Scott Vosen <scott@airwatersoil.com>
Sent: Friday, September 27, 2024 11:46 AM
Subject: Request for Proposal - Chinook Former Farmers Union Oil

All:

Please find the attached *Request for Proposal – Environmental Drilling (RFP)*, relating to a remedial investigation AWS will be conducting on behalf of CHS Inc. at their *Former Farmers Union Oil* petroleum release site in Chinook, Montana.

Once you've had a chance to review the RFP, please let me know if you have any questions.

I appreciate your time in reviewing and considering this RFP.

If you will not be providing a proposal, please let me know that at your earliest convenience.

Thank you.

AWS AIR WATER SOIL
J. Scott Vosen
Principal
406.315.2201 office
406.217.3774 mobile
airwatersoil.com

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 Avenue North, Suite 104		
City, State, Zip:	Great Falls, Montana 59401		
Cost Estimator/Print Name:	J. Scott Vosen	Phone:	406.315.2201
Signature:		Date:	10/10/2024

Project Information

Site Name:	Former Farmers Union Oil	Facility ID#	03-10274
Address:	135 1st Street	Release #	2559
City:	Chinook, Montana 59523	WP ID#	34927
		Treads ID#	17941

Monitoring Well Details

23	Total Number of Wells at Site
13	Number of Fluid Level Measurements Only (2)
10	Number of Wells to be Monitored/Sampled (4-11)
2	Average Well Casing Diameter (inches)
5	Average Depth to Groundwater (ft)
10	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: 2/1/2025

	Semi-Annual
1	Annual
	Bi-Annual
	Other

Sampling Instrument

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

1 Total Events

Cost Estimate Expl. | Unit Cost Worksheet | Site Information | 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]	$611.00
Groundwater Monitoring [4-6]	$2,314.00
Miscellaneous (Groundwater Monitoring Modifiers) [7-11]	$1,072.50
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:	**$3,997.50**
Additional Costs Subtotal:	**$0.00**
Grand Total:	**$3,997.50**

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	Annual														
Work Plan Type															
Work Plan Preparation														/work plan	
Project Management														/hr	
Mobilization/Demobilization [1]														/mile	
Field Work															
Fluid Level Measurements [2]	13	$47.00											13	$47.00 /well	$611.00
Groundwater Monitoring Setup [3]	2	$107.00											2	$107.00 /site/day	$214.00
Groundwater Monitoring (<25ft total depth) - Peristaltic [4]	10	$210.00											10	$210.00 /well	$2,100.00
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]	4	$53.50											4	$53.50 /well	$214.00
Groundwater Monitoring - IBI Modifier [8]	10	$53.50											10	$53.50 /well	$535.00
Groundwater Monitoring - Filters [9]	10	$27.00											10	$27.00 /filter/well	$270.00
Contaminated Purge Water - Offsite Disposal [10]														/each	
Duplicate Sample Modifier [11]	1	$53.50											1	$53.50 /each	$53.50
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]	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:	**$3,997.50**

Additional Conditions/Comments/Costs:

The groundwater monitoring event is part of a larger remedial investigation work plan (CAP_RI) being prepared for the site. This unit cost worksheet will be appended to the overall work plan cost estimate and therefore only includes costs for water level measurement and groundwater monitoring. Costs for work plan preparation, project management, mobilization, per diem, lodging, analytical, report preparation, and other tasks are shown in the overall cost estimate for the work plan and are not shown here.

4 wells are presumed to be low-producing. Wells MW-2 and MW-22 are expected to be low-producing wells, based on previous performance. Wells MW-9 and MW-15 have not been sampled since 2014 and are also expected to be potentially low-producing.

Additional Costs Subtotal:	
Grand Total:	**$3,997.50**

If you require assistance, call 406-444-9710
Submit completed form to:
Petroleum Tank Release Compensation Board
PO Box 200902, Helena MT 59620-0902

Cushing Terrell

October 1, 2024

Scott Vosen
Air Water Soil
Great Falls, MT

Re: Surveying Services
Site and Elevation Survey

Dear Scott:

Cushing Terrell is pleased to have been asked to provide a proposal for surveying services for a site and elevation survey to locate soil borings and to locate and determine the elevation of monitoring well casings located within Lots 1 – 19, Block 6 and Lots 3, 5, 7, 9, 11, 13, 15, 17 & 19, Block 7, of Chinook Townsite, Chinook, Montana. We look forward to working with you on this project.

The following fee proposal includes the Scope of Work as discussed. Cushing Terrell's proposed professional team includes the disciplines required for a project of this technical and sensitive nature. All professional services will be provided by Cushing Terrell's staff.

After your review, please indicate your approval of this proposal by signing this proposal in the space provided at the end of this letter and return one copy for our records.

Cushing Terrell will perform its services consistent with the professional care and skill ordinarily provided by professionals practicing in the same or similar location under the same or similar circumstances.

Thank you for this opportunity. We are looking forward to providing you with the Surveying services for this project. If you have any questions, please do not hesitate to contact me at 406-239-8465 or evanvernon@cushingterrell.com.

Sincerely,
Cushing Terrell

Evan Vernon
Professional Land Surveyor

cc: Cushing Terrell File -

PROJECT UNDERSTANDING

Air Water Soil is seeking surveying services for a site and elevation survey to locate soil borings and to locate and determine the elevation of monitoring well casings located within Lots 1 – 19, Block 6 and Lots 3, 5, 7, 9, 11, 13, 15, 17 & 19, Block 7, of Chinook Townsite, Chinook, Montana.

Surveyor

Cushing Terrell
306 West Railroad Street, Suite 104
Missoula, MT 59802
406.239.8465

This project would be managed from our Missoula office. Our professional team will be led by the following key team members:

Principal-in-Charge: Alan Bronec
Project Manager: Evan Vernon
Staff Surveyor: Jonny Gonzalez

SUBJECT SITE

SCOPE OF SERVICES

Cushing Terrell will provide the following Scope of Services:

100 Land Surveying

101 Site and Elevation Survey

Boundary Location: A sufficient number of property monuments, or existing occupation will be located and the record boundaries will be shown using a “best fit” methodology. This will not be a boundary survey but should provide a fairly accurate location of the boundary for the purpose of determining setback distances and location of improvements. Existing easements which are known and the surveyor is made aware of will be shown.

Site Survey: Locations of all monitoring wells will be recorded utilizing real time GPS measurements. Structures and other improvements such as signs, fences, pump islands, underground tank risers and lids, light poles, sheds, landscaping, walks, driveways, gravel areas, roadways, alleys, and concrete slabs will be located.
Utilities: Existing utilities will be verified using the "one-call" locating service which will normally locate public utilities (storm sewer, sanitary sewer, water, electric, telephone, and cable television) within the existing right-of-ways. Visible manifestations of existing private utilities will be shown and plotted and the probable underground connections will be shown. If it is desired to verify the location of underground private utilities, arrangements can be made with a locating service to mark them for an additional fee. We will also make every attempt to obtain as-built drawings and information from the governing bodies.
Topography: Ground elevations will be determined and contours will be drawn using an appropriate contour interval as directed by the client or as needed for design. From the field data a site plan will be developed that can be used for the design remediation efforts. The topographic survey will be provided in electronic format for future use if desired.
Elevation Survey: For a total of 23 monitoring wells, the NAVD 88 elevation of the north rim of the interior well casing will be determined within 0.01' utilizing optical leveling procedures.
Control: One durable benchmark will be set in the survey area for use in future construction and coordinate data will be provided for a minimum of three intervisible control points for future use.
Drafting of Plat: Production of plat at appropriate scale with delivery of desired number of paper copies along with Autocad Civil 3d .dwg electronic files.
Monitoring Well Spreadsheet: An Excel spreadsheet will be provided which lists X, Y and Z coordinates for the monitoring wells.

Services not set forth in this section are specifically excluded from the scope of Cushing Terrell's services and Cushing Terrell assumes no responsibility to perform any services not specifically listed in this agreement. This proposal does not include any boundary survey, preparation of easements and legal descriptions, and construction staking.

Cushing Terrell shall retain ownership of all reports, drawings, plans, specifications, electronic files, field data, notes and other documents and instruments prepared by Cushing Terrell as instruments of service. Cushing Terrell shall retain all common law, statutory and other reserved rights, including, without limitation, all copyrights thereto.

PROFESSIONAL FEES

Task #	Task Name	Task Fee	Fee Type
100	**Land Surveying**		
101	Site and Elevation Survey	$7,800	L
	Total Fee	**$7,800**	

Fee Types:

H – Hourly Fee Budget. Actual fee depends on work completed
L – Lump Sum

Services provided under this contract will be on a Lump Sum basis. This fee is subject to change if additional scope of work is added.

REIMBURSABLE EXPENSES
Reimbursable expenses are included in the above fee estimate.

QUALIFICATIONS
This proposal is based upon the following provisions:

- An AWS employee will be at the site to help open and close monitoring wells and to help with the leveling procedure.

PROJECT SCHEDULE
Fieldwork is to be coordinated with AWS and will occur in the fall / winter of 2024. All deliverables will be completed within two weeks of completing fieldwork. Seasonal weather including accumulations of snow and ice can affect survey accuracy. If survey work is requested during such conditions, an additional trip may be needed following the thaw, to pick up details that were hidden under snow and ice during the initial visit. This additional work would be an add service and would be charged according to the 2024 Hourly Rate Sheet.

TERMS OF THE CONTRACT
The attached contract will be the legal basis for providing the above work.

Legal fees incurred as a result of modifying a standard agreement, the agreement conditions or using Owner provided agreements will be billed as a reimbursable expense to the project.

This proposal is valid for 30 (thirty) days from date of issue.

Thank you for this opportunity. We are looking forward to providing you with the Surveying services for this project. If you have any questions, please do not hesitate to contact me at 406.239.8465 or evanvernon@cushingterrell.com.