



Olympus Technical Services, Inc.

June 23, 2025

Nicole Orta
Montana Department of Transportation
Environmental Services
2701 Prospect Avenue
PO Box 201001
Helena, MT 59620-1001

Re: Soil Excavation at MDT Swan Lake Facility
24526 Highway 83
Swan Lake, Lake County, Montana
MDT-316102-NO
Facility ID# 24-08739, Release #6494

Dear Ms. Orta:

Olympus Technical Services, Inc. (Olympus) is submitting this Corrective Action Work Plan (CAWP) for the above-referenced Facility (Site). The Montana Department of Transportation (MDT) advertised an Invitation for Bid (IFB) Number MDG-316102-NO for soil excavation at the above-referenced Site on May 27, 2025. The purpose of the work is to excavate overburden and impacted soil from the source area; haul impacted soil to a permitted landfarm; replace and compact the overburden; import, place, and compact backfill; till, sample, and maintain the landfarm; install one groundwater monitoring well, conduct groundwater monitoring, and prepare and submit a Cleanup Report and updated Release Closure Plan (RCP) detailing the results of the cleanup.

Facility Location and Physical Features

The former MDT Swan Lake Maintenance Facility is located at 24526 Highway 83, Swan Lake, Lake County, Montana. Google Earth gave approximate coordinates of 47.899179° degrees latitude, -113.835218° degrees longitude. According to the Montana Cadastral, the Facility lies within Section 26, Township 25 North, Range 18 West, Principal Meridian, Montana. The Facility is bordered to the north and east by Flathead National Forest Land and by Highway 83 on the west and south. According to aerial photographs, the surrounding property is undeveloped except for Highway 83. Attached Figures 1 and 2 show a location map and an aerial photograph of the Facility.

Site History

There have been three historic petroleum storage and distribution systems at the facility. Most recently there were two ConVaults, which are above ground steel tanks enclosed withing a concrete vault that serves as secondary containment. According to anecdotal information from MDT staff, the ConVaults were in operation from 2000 to 2010, which was the completion year of the new facility at Ferndale. There is an aerial photo that displays the ConVault location as recent as 2013, but it is not known whether they still stored fuel at that point. They were eventually emptied and moved to another MDT facility.

Prior to the ConVaults, there were two 2,000-gallon underground storage tanks (USTs) that were located on the United States Forest Service (USFS) leased property above the maintenance facility. The two fiberglass USTs were in use between 1992-2000 and Release 3988 was discovered upon their removal. A remedial investigation was conducted by Tetra Tech in April 2001 and found no evidence of petroleum contamination in groundwater in the location of the former USTs and downgradient areas. As a result of the Tetra Tech Investigation, release 3988 was closed.

Release 1395 was discovered in 1992 during removal of USTs that had been in operation since 1966. According to the 30-day leak report for release 1395, soil samples collected from underneath the USTs were below regulatory limits, and the release was subsequently closed. However, the release response narrative noted that an “extensive surface soil stain” was observed in the vicinity of the pump house for the USTs, but a thorough remedial investigation was never conducted for release 1395.

Previous Site Investigations

On behalf of MDT, West Central Environmental Consultants, Inc. (WCEC) conducted a Phase II Environmental Assessment to facilitate a property transfer. The assessment detected soil and groundwater contamination. Subsequent investigations have confirmed shallow subsurface soil impacts from 1 to 7 feet below ground surface (bgs) in the presumed former location of the UST system in operation from 1966 to 1992. Contamination spreads downgradient, but at greater depths of 7 to 12 feet bgs, suggesting that contamination had spread through groundwater transport.

WCEC completed a Remedial Investigation in November 2022. WCEC installed eight groundwater monitoring wells at the Former MDT Swan Lake facility in November 2022. WCEC completed an additional Remedial Investigation in May 2023. WCEC installed six additional soil boreholes (SB6-SB11) and three additional groundwater monitoring wells (MW9-MW11) at the facility in May 2023. Soil samples were collected from the soil boreholes and monitoring well borings for analysis of VPH, EPH, and lead scavengers constituents.

The results from the 2022 and 2023 soil boring and monitoring well installations confirm that soil and groundwater have been impacted at the facility at concentrations exceeding RBSLs. Shallow subsurface soil impacts (1 to 7 feet bgs) were identified at SB5/MW8, SB6, and SB7, indicating proximity to source. This area coincides with the presumed former location of the UST system in operation from 1966 to 1992.

Contamination at downgradient locations to the southwest (SB2, SB8/MW11, MW5) was found at greater depths (7 to 12 feet bgs) suggestive of groundwater transport in the smear zone. The southwest corner of the facility has exhibited the highest dissolved phase constituent concentrations based on the analytical results from monitoring well MW5. Impacts at MW5 were not encountered until a depth of 10 feet bgs, making excavation in this downgradient area a less feasible remedial alternative.

IBIs were analyzed during the November 2022 and May 2023 groundwater monitoring events. The results from the IBIs analysis provide evidence that natural attenuation processes are functioning at the site, shifting from an aerobic to an anaerobic regime as the plume migrates from source area to downgradient locations. Background dissolved oxygen concentrations are relatively high based on the measurements from upgradient monitoring wells. Dissolved oxygen

becomes depleted along with the other terminal electron acceptors as the plume moves along the groundwater flow path to downgradient locations.

Previous Excavation Project Examples

Former GW Sales Bulk Plant, FID 23-12064, Release 2766

The Former GW Sales Bulk Plant facility is located in Stanford, Montana and formerly operated as a bulk plant including oil storage buildings, a pump house, seven aboveground storage tanks (ASTs), piping, and a loading and unloaded rack from the 1940s through the 1980s. Investigations were performed in 1995, 1996, 1997, 1998, 2003, 2021, and 2022 in which borings and monitoring wells were advanced at the facility. Exceedances of RBSLs in soil samples collected from advanced borings and non-aqueous phase liquid (NAPL) in monitoring wells were detected at the facility. As such, petroleum impacted soil was excavated and removed from the facility in March 2024 by Olympus. Approximately 890 tons of petroleum hydrocarbon impacted soil was excavated and disposed of between March 12, 2024, and April 26, 2024 under DEQ work plan 34650.

Big Hole Petroleum, FID 99-95062, Release 4125

The Big Hole Petroleum facility is located in Wisdom, Montana and operated as a bulk storage facility with a release of approximately 400-600 gallons of unleaded gasoline reported to DEQ in September 2002. Investigations were performed in 2013 by Blue Ribbon Environmental and in 2018 by Olympus. In 2020, the owner indicated the current AST system was going to be upgraded, and an excavation was performed by Olympus to remove the accessible source area. A total of 3,827 cubic yards of petroleum impacted soil was removed from the facility and transported to two landfarms and the facility was backfilled. Work was completed under approved DEQ work plans 10894 and 34102.

Former Guaranteed Muffler Shop, FID 99-95091, Release 4729

The former Guaranteed Muffler Shop (GMS) was developed and operated as a Texaco Service Station between the 1930s to 1977. Four 4,000-gallon gasoline USTs, and one 550-gallon waste oil UST, and a fuel dispenser and associated piping were removed in 1977 when the Texaco Station closed. The property was redeveloped as Guaranteed Muffler Shop in 1980 and operated by several owners until the business closed in December 2023.

The Guaranteed Muffler Shop site was purchased by Stock Development in December 2024 with plans to demolish the current Site building and redevelop the property into an office building. After discussions with DEQ, the owner was interested in conducting an opportunistic remedial excavation to remove source area soil that extended beneath the building in the area of the former UST basin.

In May and June 2025, Olympus excavated approximately 2,030 CY of petroleum impacted material at the Site from depths ranging from 3 to 25 feet below ground surface (bgs). Work was performed under approved DEQ work plan 34967.

Work Plan - Scope of Work

The scope of work consists of the following primary tasks:



- Task 1. Work Plan Preparation
- Task 2. Project Management
- Task 3. Mobilization
- Task 4. Excavate and Stockpile Overburden
- Task 5. Excavate and Transport Impacted Soil to Landfarm
- Task 6. Excavation and Backfill Oversight
- Task 7. Overburden Placement and Compaction
- Task 8. Backfill Import, Placement and Compaction
- Task 9. Landfarm Activities
- Task 10. Well Installation and Development
- Task 11. Post-Excavation Groundwater Monitoring
- Task 12. Laboratory Analytical
- Task 13. Lodging and Per Diem
- Task 14. Data Validation
- Task 15. Release Closure Plan Update
- Task 16. Corrective Action Report

Work Plan – Primary Task Details and Budget Information

Task 1. Work Plan Preparation

This CAWP fulfills DEQ's request for a Cleanup Work Plan.

Task 2. Project Management

The estimated value for this task includes time for the project geologist to coordinate and manage all aspects of the project including planning and coordination, utility locate notifications for the excavation and landfarm areas, scheduling, discussion of on-going and potential updating of work plan tasks and interim laboratory analytical results with DEQ case manager, reviewing the one-time landfarm application and permit, reviewing previous remediation reports, maps and data for the Facility, scheduling subcontractors, coordinating waste management, and other miscellaneous administrative tasks associated with the project. The Project manager will coordinate with designated MDT, DEQ and US Forest Services representatives. The costs for project management are included in Task 2 of the cost estimate.

Task 3. Mobilization

Task 3 in the cost estimate details mobilization costs from our Helena, Montana office. A crew of one Tech III and two Tech IIs will mobilize for the excavation and backfill tasks. A Staff Scientist will mobilize to provide oversight of excavation and backfilling tasks. An excavator, front-end loader, dozer will be mobilized with a semi-truck and lowboy to complete the excavation, backfilling, and landfarm construction tasks. A Tech III/licensed Monitoring Well Constructor (MWC) will mobilize to install one replacement well (MW8). A Tech II will mobilize within 30 days after the completion of excavation to sample the 11 on-site wells. A Tech II will mobilize with a trailer towing a tractor/tiller for three tilling events. The Tech II will collect the annual landfarm sample during one of the tilling events.

Task 4. Excavate and Stockpile Overburden

Task 4 for includes excavation and stockpiling of clean overburden. Excavation will be completed with a hydraulic excavator. A front-end loader will be used to move stockpiles, as

necessary. The excavated soil will be screened with a photoionization detector (PID) using a headspace method. Soil with PID readings for volatile organic compounds (VOCs) that are less than or equal to 100 parts per million (ppm), per DEQ endorsement, will be considered clean overburden, segregated from higher concentration soils, and stockpiled on Site to be used as backfill. These overburden stockpiles will be placed near the area they were excavated to be surveyed prior to use as backfill. Multiple overburden stockpiles are likely to be placed around the excavation, as backfill is anticipated to occur as the excavation progresses. Per the IFB, the estimated quantity of overburden is 200 bank cubic yards (BCY).

Assuming a swell factor of 25%, the anticipated stockpile volume is estimated as 250 loose cubic yards (LCY). The cost for excavating and stockpiling overburden is provided on a LCY basis based on surveys of the overburden stockpiles. This price includes the labor, materials, and equipment that is necessary to excavate and stockpile the overburden soil.

Task 5. Excavate and Transport Impacted Soil to Landfarm

Task 5 includes excavation of soil using a hydraulic excavator and front-end loader. The one-time landfarm application included in the IFB shows the quantity of impacted soil that will be treated at the landfarm is expected to be between 400 and 600 cubic yards. This bid is based on an impacted soil quantity of 600 BCY. Assuming a 25% swell factor, the anticipated quantity of impacted soil hauled to the landfarm is 750 LCY. The excavation quantity will be measured by a count of the number of loads hauled to the landfarm.

Boring logs from previous drilling has shown that the predominant soil type is sandy gravel backfill in the upper foot, underlain by clay till with gravel to a depth of 14 feet bgs. One soil boring met refusal at 7.5 feet bgs. According to the IFB, MDT will provide a grizzly screen to filter out larger rocks and boulders from the impacted material prior to hauling to the landfarm. The screened rocks and boulders will be segregated from the impacted soil and used as backfill.

According to the IFB, there is a defunct septic tank constructed from timbers located at the Site. Per the IFB, MDT will inspect the septic tank and have it pumped out prior to the excavation activities if sludge is present in the tank. Olympus will remove and dispose of the septic tank at a Class II landfill if it interferes with excavation activities.

According to the IFB, the impacted soil is located in the area delineated by monitoring well MW8, and soil borings SB6 and SB7 (see attached WCEC RI Report Figure 5). The extent and depth of the excavation will be guided by a combination of field screening using visual observations, and by field screening soils for VOCs using a headspace method with a PID. The PID will be calibrated daily using 100 ppm isobutylene-in-air calibration gas. Soil with PID readings for VOCs greater than 100 ppm will be considered impacted soil and will be stockpiled prior to loading or directly loaded into side-dump trailers for transportation to the one-time landfarm located at the MDT Ferndale Maintenance Facility.

The excavation activities will be completed during a period of low water to minimize groundwater infiltrating into the excavation. Per MDT recommendations in the IFB, the excavation will start in the southwest corner of the proposed excavation area and proceed northeast. No excavation dewatering is approved by MDT. Olympus will utilize strategic excavation sequencing and backfilling with overburden to minimize the impacts of groundwater infiltrating into the excavation.

Confirmation samples will be collected per the following based on discussion with DEQ:

- two composite samples for each of the four sidewalls (0-2' and 2-7')
- one composite sample for the floor,
- a discrete sample of contamination left in place,
- one sample as necessary to evaluate direct contact, and
- one field duplicate.

The samples will be analyzed for EPH Screen and VPH. EPH fractions with polycyclic aromatic hydrocarbons (PAH) will be analyzed for samples if the EPH Screen concentration exceeds 200 ppm. Per DEQ guidelines, EPH will be run on composite samples and VPH will be run on discrete samples. DEQ requires that two discrete VPH samples be collected and analyzed for each composite EPH sample.

The Task 5 cost for excavating and processing the impacted soil through a grizzly screen, transporting the impacted soil to the landfarm, and removal and disposal of the defunct septic tank is provided based on the anticipated volume of 750 LCY of soil as measured by the number of load hauled to the landfarm. This price includes the labor, materials, and equipment that is necessary to complete this task.

Task 6. Excavation and Backfill Oversight

Task 6 in the cost estimate presents the cost for excavation and backfill oversight. This includes time for a staff scientist for collecting soil samples, oversight of excavation, and management of post-excavation activities. It also includes time to collect GPS points for the stockpile survey. The volumes of the clean overburden soil stockpiles will be measured by a staff scientist/engineer using a centimeter-grade GPS, level, and rod, and the quantity of LCY will be determined based on the surveyed data. Because backfill is likely to occur as excavation progresses, overburden will be surveyed as individual stockpiles removed from the excavation. Once surveyed, the stockpile will be allowed to be used as backfill. The LCY quantities will be tracked by the staff scientist and submitted as the payment quantity as determined by this measurement process, and data files will be available to DEQ to confirm quantities.

Task 7. Overburden Placement and Compaction

Task 7 includes placement, and compaction of excavated overburden to be reused as backfill. For the purposes of this CAWP, it is estimated that approximately 200 BCY (250 LCY) will be able to be used as backfill. Overburden will be placed in approximately 6-inch-thick, loose lifts, and compacted.

The cost per LCY of overburden is included in Task 7 of the cost estimate. This price includes the labor, materials, and equipment that is necessary to backfill and compact the overburden, including compaction testing.

Task 8. Backfill Import, Placement and Compaction

Task 8 includes placement, and compaction of imported fill to the site. For the purposes of this CAWP, it is estimated that approximately 750 LCY will be impacted and not reused onsite. Imported fill will be placed in approximately 6-inch-thick, loose lifts, and compacted with a trench roller. The imported fill will comply with Section 203 of the MDT Standard Specifications for Road and Bridge Construction, including compaction testing. A quantity of 1,760 pounds of dry

powder Oxygen Releasing Compound with calcium peroxide (ORC-A) will be mixed into the backfill as it is placed.

Task 8 in the cost estimate provides the cost per ton, estimating imported fill at 1.4 tons per LCY and requiring approximately 1,050 tons, for backfilling and compacting the excavation. The attached cost for the ORC-A is based on the attached quote from the manufacturer (Regenesis). The Task 8 costs include the labor, materials, and equipment for importing, placing, and compacting backfill, compaction testing, and providing and mixing the ORC-A in the backfill.

Task 9. Landfarm Activities

Per the one-time landfarm permit provided in the IFB, background samples of the native soils at the landfarm will be collected prior to spreading impacted soil. The background samples will be analyzed for VPH and EPH.

Impacted soil will be hauled from the former Swan Lake Maintenance Facility and placed into the one-time landfarm permitted by DEQ at the MDT Ferndale Maintenance Facility according to Task 5. The soil will be graded into 6-inch-thick layer at the landfarm with a dozer within one week of completion of excavation activities. A berm will be constructed along the perimeter of southwest corner of the landfarm from native soil in the landfarm area.

The landfarm soil will be tilled approximately 3 months after the soil is spread, once prior to the first snowfall in late fall, and once in late spring after snowmelt. Soil in the landfarm will be sampled in the Fall of 2026. Five-point composite samples per 200 cubic yards of soil placed in the landfarm will be analyzed for VPH, EPH/EPH fractions, and semi-volatile organic compounds (SVOCs) by EPA Method 8270.

An annual sampling event of native soil 1 to 3 feet beneath the native surface of the landfarm will be completed to verify that constituents of concern have not leached into the native soil. The annual samples will be analyzed for VPH, EPH, and SVOCs.

Task 10. Well Installation and Development

This task includes the installation of a replacement monitoring well for MW-8 to a depth of 14 feet bgs for the collection of ground water samples, and to evaluate the source area after corrective actions have been completed. One, two-inch diameter monitoring well will be installed by a licensed Montana Monitoring Well Constructor (MWC). The well will be constructed with 4 feet of flush-threaded Schedule 40 polyvinyl chloride (PVC) casing, and 10 feet of pre-packed screen, including screen points, and locking plugs. The well will be backfilled with 10/20 Colorado silica sand (CSS) to approximately 1-foot above the screened interval, bentonite pellets to approximately 2 feet bgs, and concrete to the surface. The well will be completed with a flush mount well monument encased in a concrete collar, and well lid will be labeled, and the top of casing marked with the approximate north direction. The ground surface will be graded to match existing conditions. The well will be developed following a pumping and surging method prior to sampling according to Olympus' SOPs and DEQ guidance. The well will not be sampled for at least one week following development.

A monitoring well installation report will be prepared by the MWC and submitted to the Montana Bureau of Mines and Geology (MBMG) Ground Water Information Center (GWIC) within 60 days of installation. Task 10 includes costs for well installation and development.

Task 11. Post-Excavation Groundwater Monitoring

Groundwater monitoring will be conducted by a Technician III within 30 days following excavation activities and at least one week following development of the new well MW-8. Eleven on-Site wells will be sampled. Monitoring will include:

- Measurement of the groundwater static water level (SWLs) in the 11 wells with an electronic water probe;
- Collection of ground water samples, including a field duplicate, using low-flow methods in general accordance with DEQ's *Groundwater Sampling Guidance*. Samples will be collected with a peristaltic pump with a flow-through cell. Field measurements of ground water quality parameters including pH, temperature, oxidation-reduction potential, specific conductivity, dissolved oxygen, and turbidity will be recorded during ground water sample collection. Depth to ground water measurements will be recorded during the entire low-flow purging and sampling procedure. When the well is considered stabilized, the tubing will be disconnected from the flow-through cell and groundwater samples will be collected directly from the tubing. Sampling information, including purge volume, will be documented on a field form.
- All ground water samples will be submitted for laboratory analysis of VPH and EPH screen. EPH fraction with PAHs will be analyzed if the EPH Screen threshold is exceeded.
- All groundwater samples will also be analyzed for Intrinsic Biodegradation Indicators (IBIs) consisting of ferrous iron, manganese, nitrates/nitrites, sulfates, and methane.
- Non-disposable sampling equipment will be decontaminated prior to sampling the first well and after each well is sampled.
- Purge water will be disposed of according the DEQ Petroleum Tank Cleanup Section (PTCS) Disposal of Untreated Purge Water from Monitoring Well flowchart.

Task 12. Laboratory Analytical

Per the IFB, the following samples will be analyzed at an analytical laboratory:

- Background samples of the native soils at the landfarm will be collected prior to spreading impacted soil. The background samples will be analyzed for VPH and EPH.
- Impacted soil characterization samples will be collected and analyzed for VPH, EPH Screen, and SVOCs by collecting one five-point composite sample per 200 cubic yards deposited at the landfill.
- Excavation confirmation soil samples will be analyzed for VPH, EPH, and EPH Fractions with PAHs if the EPH Screen threshold is exceeded.
- Groundwater Samples from 11 wells plus QA/QC samples will be analyzed for VPH and EPH, EPH fractions with PAHs if the EPH Screen threshold is exceeded, and IBI parameters including ferrous iron, manganese, nitrates/nitrites, sulfates, and methane.

- An annual landfarm soil sample and a landfarm soil sample collected in the Fall of 2026 will be analyzed for VPH, EPH Screen, EPH Fractions with PAHs if the EPH Screen threshold is exceeded, and SVOCs.

Samples will be immediately placed on ice and in coolers and submitted to Energy Laboratories in Helena, Montana, following chain-of-custody (COC) protocol. Task 12 in the cost estimate presents the unit cost for each analyte. The analytical costs are not included in the response since the IFB specifies that laboratory fees will be billed directly to MDT.

Task 13. Lodging and Per Diem

Lodging for 19 days has been included in Task 13. Lodging will be procured in Swan Lake or Big Fork and invoiced at cost. Lodging is for Tasks 4, 5, 6, 7, 8, 10, and 11.

The state per diem rate of \$33.50 for 23 days has also been included in Task 13. Per diems are for Tasks 4, 5, 6, 7, 8, 9, 10, and 11.

Task 14. Data Validation Review

All laboratory analytical reports will be reviewed for accuracy and validity using DEQ's Data Validation Summary Forms (DVSFs). The DVSFs will be prepared by a staff scientist. There are six different sample sets which will require data validation review, including landfarm native background soils, impacted soil characterization samples, excavation confirmation samples, one groundwater monitoring event, and two landfarm sampling events. Task 14 includes the costs estimated for preparing the DVSFs.

Task 15. Updated RCP Preparation

The RCP for the Site will be updated, including Site history, along with remedial recommendations, including additional remediation work, well installations, and compliance monitoring required to resolve the release. Task 15 includes the costs estimated for updating the RCP.

Task 16. Corrective Action Report Preparation

The results of the soil excavation, confirmation sampling, groundwater monitoring well installation, groundwater monitoring results, and landfarm management activities will be presented in a Standardized Generic Applications Report (Report_AR-07) to DEQ after the excavation, groundwater sampling, and landfarm management activities are complete. This report will contain the sections required in the Standardized Abbreviated Contaminated Soil Excavation and Disposal Report (Report_AR-04), and the monitoring well completion reports submitted to MBMG GWIC. Task 16 includes a cost estimate for this report based on the anticipated effort necessary to prepare and complete all the reporting.

Schedule

The excavation and associated activities will be completed by September 30, 2025. Groundwater monitoring will be completed by October 31, 2025. A draft cleanup report will be submitted to MDT for review by October 31, 2026. Olympus will submit the final report within two weeks of receiving comments from MDT. Deliverables for the draft and final reports will include one hard copy and one electronic copy in pdf format.

Cost

The cost to complete the scope of work outlined above is estimated at \$100,438.46, including the 1% contractor withholding for construction, as detailed on the attached cost schedule. Laboratory analytical fees are paid directly by MDT and are not included in the total price.

Please contact me if you have any questions regarding this plan.

Sincerely,



Kevin S. Rauch, P.E.
Vice President/Principal Engineer

Attachments: Work Plan Cost Estimate
Groundwater Monitoring Tool
Soil Boring/Monitoring Well Installation Worksheet
Figure 1: Topographic Map
Figure 2: Site Map
WCEC RI Figure 5
Regenesis Quote



Olympus Technical Services, Inc.

Site Topographic Map
Former MDT Maintenance Facility
Swan Lake, Montana

**FIGURE
1**



Olympus Technical Services, Inc.

Site Aerial Map
Former MDT Maintenance Facility
Swan Lake, Montana

**FIGURE
2**

