

Remedial Investigation Work Plan

Coulter Automotive

104 Main Street

Charlo, MT

Facility ID 24-04615, Release 6505, Work Plan 34907

Prepared for:

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Environmental



Emergency Response



Industrial Services

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1.0 Introduction

This work plan (Work Plan 34907) was prepared in response to the MTDEQ request letter dated July 25, 2024 requiring additional remedial investigation at Coulter Automotive (Facility ID# 24-04615, Release# 6505) located at 104 Main Street, Charlo, Montana (**Figure 1**). The scope of work included in this work plan is intended to further define the extent and magnitude of petroleum contamination in soil and groundwater related to a release(s) from underground storage tanks (UST) that were removed in 1995.

1.1 Site History

The subject property has been operated as a gas station since 1946. The gas station currently operates a 4,000-gallon gasoline UST, a 6,000-gallon gasoline UST, two 1,000-gallon diesel aboveground storage tanks (AST), a 300 gallon waste oil AST, and a 500 gallon waste oil AST. Two former USTs were removed in 1995. The approximate location of the former UST basin is shown on **Figure 2**.

WCEC performed a Phase II soil and groundwater investigation at the facility in September 2022 (WCEC, 2022). A total of 8 soil boreholes and 3 temporary wells were installed as part of the investigation (**Figure 2**). Soil samples were collected from borings and submitted for volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), volatile organic compounds (VOC), lead scavengers, and RCRA metals. Water obtained from temporary wells was field-screened for volatile organic compounds using a photoionization detector. The results of the Phase II investigation indicated that soil concentrations exceeded RBSLs for VPH in vicinity of the former UST basin. Limited surface soil impacts exceeding RBSL were found in vicinity of diesel dispensers located at the southwest corner of the building. Water from a temporary well adjacent to and downgradient from the former UST basin exhibited 9,454 parts per million VOC.

A remedial investigation was initiated in September 2023 with additional soil borings and monitoring well installations. Eight soil borings were completed to 15 feet below ground surface. Worst-case samples were collected from soil cores and analyzed for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH). Only 1 RBSL exceedance was found (benzene, leaching to groundwater) in 1 soil boring approximately 40 feet southwest of the former UST basin in the estimated downgradient groundwater flow direction. The exceedance occurred at a depth of 12.5 to 13.5 feet below ground surface, which is approximately 6 feet below the shallow water table.

Eight monitoring wells were installed to approximately 15 feet below ground surface. Monitoring wells were sampled in October 2023 and April 2024. Groundwater samples collected from MW-1 and MW-2, located near and hydraulically downgradient of the former UST basin, exhibited order-of-magnitude exceedances for multiple VPH constituents (MTBE, benzene, toluene, ethylbenzene, C5-C8 aliphatics, and C9-C12 aliphatics). Although free product has not been observed, the magnitude of measured concentrations indicates the potential presence of LNAPL. Additional site characterization was recommended to more fully delineate the extent and magnitude of soil and groundwater impacts, evaluate the potential for vapor intrusion, and investigate the LNAPL occurrence.

2.0 Scope of Work

2.1 Required Scope of Work

The MTDEQ requested a Remedial Investigation Work Plan in a letter dated July 25, 2024. The purpose of the RIWP is to fully define the extent and magnitude of petroleum contamination at the Facility. In addition to the elements described in the *Montana Remedial Investigation Guidance for Petroleum Releases*, the Work Plan is to include the following:

- Validate all laboratory analytical data using DEQ's Data Validation Summary Form found online under the Guidance dropdown at the PTCS webpage¹.
- Discuss ongoing WP tasks and results with DEQ's project manager; submit written agreed-upon WP modifications as required to complete the WP objectives.
- Prepare an Update Release Closure Plan (RCP); discuss results with DEQ's project manager. Use the RCP format found online under the Guidance dropdown at the PTCS webpage¹.
- Prepare and submit an Interim Data Submittal (IDS) for each interim groundwater monitoring event. The IDS is expected to include the discussion, data, tables, and figures described in the Groundwater Monitoring Work Plan and Report Guidance for Petroleum Releases found under the Guidance dropdown at the PTCS webpage¹.
- Prepare and submit a Remedial Investigation Report detailing the results of the investigation and all groundwater monitoring events. The RI Report must include all format sections outlined under the RI Guidance document. Include a brief explanation for each section that had no work conducted or information collected.
- Use standardized DEQ WP and Report formats found under the Guidance dropdown at the PTCS webpage¹.
- Submit WP and Reports electronically following the PTCS submittal requirements found online under the Guidance dropdown at the PTCS webpage¹.

2.2 Identification of Subsurface Utilities

Upon approval and initiation of this Remedial Investigation Work Plan, WCEC will utilize the 811 service to locate and mark any underground utilities within the area of investigation. Subsurface disturbance will only proceed after WCEC has confirmed the utility location service has been completed and is satisfactory. Utility markings will be documented using a survey-grade GPS and displayed on site maps.

2.3 Additional Soil and Groundwater Investigation

The following is a summary of the proposed scope of work:

- Delineate relative magnitude and extent of subsurface soil impacts by installing soil borings with Geoprobe tooling equipped with an Ultraviolet Optical Screening Tool (UVOST);
- Based on UVOST data interpretation, collect continuous soil cores at worst-case locations, examine cores for the presence of light nonaqueous phase liquid (LNAPL), and obtain soil samples for laboratory analyses;
- Install 1-inch diameter PVC screen in borings where LNAPL is visible in soil cores, if any, and evaluate for an accumulation of LNAPL after an equilibration period (e.g., overnight);
- Install a groundwater monitoring well at the location where LNAPL is most likely, as indicated by UVOST data interpretation, soil core observations, and/or accumulation of LNAPL in open borings screened with 1-inch PVC;
- For the purpose of conducting a groundwater contamination screening survey, collect groundwater samples from temporary sampling points installed along the west property boundary and screen for the VOC using a PID;
- Based on UVOST data interpretation, soil core observations, and groundwater screening results, install additional groundwater monitoring wells to define the downgradient extent of groundwater impacts exceeding RBSL: and,
- Evaluate the potential for vapor intrusion (VI) by testing vapor wells installed adjacent to the Coulter Automotive building.

UVOST Investigation

WCEC will establish an offset triangular sampling grid for the UVOST investigation. Nodes will be marked with paint on 15-foot spacing. The grid will overlay the former UST basin, car wash pad, and the parking area to the west and southwest (**Figure 3**). A UVOST soil boring will be installed at each grid node. Up to 48 UVOST borings may be completed during the investigation. All UVOST borings will be advanced to 20 feet below ground surface total depth.

The UVOST Data Specialist will provide real-time data interpretation and determine the sequence of soil boring installation. If necessary, the grid will be expanded to fully encompass the area of soil impacts, as necessary, based on interpretation.

Up to six (6) continuous soil cores will be collected in areas exhibiting the highest degree of impact using the

Geoprobe and dual tube tooling. All soil borings will be advanced to 20 feet below ground surface. A field geologist will describe lithologies encountered at each soil boring using Unified Soil Classification System (USCS) methodologies, note the degree of saturation, the presence of LNAPL, any soil discoloration due to petroleum contamination, and any other observed indications of petroleum hydrocarbon impacts. A soil sample will be collected from the depth interval indicated by UVOST data as being the most heavily impacted. Samples will also be collected from depths above and below the most heavily impacted interval.

All soil samples will be properly documented, preserved, placed in coolers on ice, and transported to Energy Laboratories Inc. in Helena, Montana and analyzed for VPH and EPH analyzed for volatile and extractable petroleum hydrocarbons (VPH, EPH).

All UVOST soil borings will be abandoned by filling them with granular bentonite.

Groundwater Investigation

For screening purposes, six (6) groundwater samples will be obtained along the west property boundary. Temporary sampling points consisting of a 5-foot section of 1-inch diameter PVC screen, riser, and silica sand filter pack will be installed inside Geoprobe dual tube casing. The casing will be driven to 10 feet below ground surface. The screen and filter pack will then be installed. Pelletized bentonite will be installed over the filter pack, then the casing will be removed. Samples will be obtained using a peristaltic pump or bailer, placed in Ziploc-style plastic bags, agitated, and screened with a PID. After samples are collected, PVC screens will be removed and soil borings will be abandoned by filling them with granular, chip, or pelletized bentonite.

Up to four (4) groundwater monitoring wells will be installed using a Geoprobe equipped with 6-inch diameter augers. Monitoring well placement will be based on LNAPL potential and groundwater screening results. Monitoring wells will be constructed using 2-inch diameter PVC screen and riser, silica sand filter pack installed at least one (1) foot above top of screen, bentonite seal, and flush mount surface completion. Due to the shallow water table (seasonally within 2 feet of ground surface), only wells installed where LNAPL is likely will be installed with screen bracketing the water table. Downgradient monitoring wells will be installed with 5-foot risers so that an adequate bentonite seal can be placed in the annulus above the filter pack. Contaminated soil cuttings will be containerized and disposed offsite at a permitted waste disposal facility. Uncontaminated soil cuttings will be disposed on site.

New monitoring wells will be developed immediately after installation by surging and bailing until turbidity is significantly reduced as evidenced by initial and final turbidity measurements and direct observation. Casing elevations will be surveyed in accordance with Montana DEQ requirements and tied into the existing monitoring well network.

A comprehensive groundwater monitoring event will be conducted by January 31, 2025, which is expected to be representative of seasonal low groundwater conditions. A second monitoring event will be conducted by June 30, 2025 to represent seasonal high groundwater conditions. All new and previously installed monitoring wells will be included in each monitoring event. Purge water will be disposed in accordance with DEQ guidance. One field duplicate sample will also be collected and submitted for laboratory analysis. Each well will be gauged with an oil-water interface probe or an electronic water level indicator with an accuracy of 0.01 foot. Samples will be collected in accordance with Montana DEQ guidance (DEQ, 2018). Low flow sampling is the anticipated sampling method. Samples will be properly documented, preserved, placed in coolers on ice, and transported to Energy Laboratories Inc. in Helena, Montana and analyzed for VPH and EPH. A trip blank will be included with samples while being transported to the laboratory.

Vapor Intrusion

A soil vapor sampling point will be installed at a location within 10 feet of the Coulter Automotive building, between the building and the former UST basin. The vapor point will be installed between 3 and 5 feet below ground surface and consist of a 6-inch long, double woven stainless steel wire screen vapor implant connected to ¼ inch diameter Teflon tubing extending to above grade. The annular space surrounding the vapor implant will be filled with 10/20 silica sand to approximately 2 inches above the top of the implant screen. A hydrated bentonite seal will be placed from the top of the sand pack to roughly 6 inches below grade. The vapor point will be finished at the surface with a 6-inch diameter flush mount monument set in concrete.

Vapor point sampling will be done during low water table conditions due to the shallow water table (2 to 6 feet seasonal range). Samples will be obtained, documented, preserved, and handled in accordance with Montana DEQ Vapor Intrusion Guidance and analytical method requirements. Samples will be analyzed by ALS Group USA laboratory in Dallas, Texas for volatile organic compounds by EPA Method TO-15 and the Massachusetts Air-Phase Petroleum Hydrocarbons (APH) method. Analytical results will be compared to vapor intrusion screening levels (VISL) for exterior subsurface soil and sub-slab vapor samples. If soil vapor concentrations exceed VISL, a vapor intrusion conceptual site model (CSM) will be prepared and a scope of work for a vapor intrusion evaluation of the Coulter Automotive building will be proposed.

A building survey will be conducted to confirm the existence and characteristics of any subgrade portions of the Coulter Automotive structure. The survey will identify room dimensions, construction materials, and features that might be preferential pathways for vapor migration (e.g., cracks, holes, wall/floor penetrations, sumps, etc.). An owner/occupant questionnaire will be administered to identify subgrade structure use and frequency of occupancy.

Site Mapping & Surveying

WCEC's Professional Engineer will oversee elevation and geospatial surveys of the soil borings and monitoring wells. WCEC will survey the top of casing of the newly installed monitoring wells at the facility to The Fourth Order (0.10 feet times the square root of total distance of the level loop in miles) with a measurement precision of 0.01 feet. The latitude and longitude of all site wells will be surveyed using a Trimble Geo 7X GPS with 1 centimeter post processed accuracy. Locations of utilities will also be included in the site survey. WCEC will overlay the data obtained in the survey on a georeferenced orthophoto or schematic to generate detailed and accurate base map for the facility.

2.4 UVOST Data Interpretation

Data from the UVOST investigation will be used to prepare 2-dimensional contaminant contour maps and 3-dimensional visualizations, including top views of various responses, and cross sections/fence diagrams depicting LNAPL occurrences. Visualization will incorporate lithology, water table, and underground utility corridors, as applicable. Advanced waveform analysis will consist of generation of UVOST data scatter plots with additional analysis using Non-Negative Least Squares (NNLS) if differing LNAPL types or additional potentially contributing sources are identified.

2.5 Reporting

An interim data submittal will be prepared per DEQ guidelines and submitted to DEQ after the first groundwater monitoring event, anticipated to be completed by the end of January 2025. At the conclusion of the investigation and data analysis process, WCEC will prepare a Remedial Investigation Report which will conform to and include all applicable components detailed in the MTDEQ Guidance for Remedial Investigation of Petroleum Releases [DEQ-WMRD-RI-1] and the Montana Remedial Alternatives Guidance for Petroleum Releases [DEQ-WMRD-RAA-1]. These components include maps showing borehole locations, site features, locations of historic and existing petroleum storage and dispensing equipment, locations of underground utilities, cumulative soil and groundwater data tables, a summary of data interpretation, and conclusions regarding the completeness of the investigation. The resulting conceptual site model will be presented and used to complete a Remedial Alternatives Analysis (RAA) and update the Release Closure Plan (RCP). The RAA and RCP will inform recommendations for appropriate remedial actions to resolve the release.

3.0 Estimated Costs & Project Timeline

The scope of work outlined in this work plan is tentatively scheduled to begin in Fall 2024, pending approval from the MTDEQ. The attached *Estimated Costs - Remedial Investigation Work Plan 34907* spreadsheet details anticipated project costs to complete the required scope of work.

3.1 Planned Workflow & Cost Explanations

WCEC will complete the scope of work included in this work plan during three individual field events with completion and reporting milestones as follows:

- **Event 1 – Planned completion by December 31, 2024:** Utility locate, UVOST investigation, soil boring and groundwater monitoring well installation, vapor point installation, well development, and site survey.
- **Event 2 – Planned completion by January 31, 2025:** Seasonal low groundwater monitoring and soil vapor point sampling. Interim Data Submittal (IDS) to MTDEQ.
- **Event 3 – Planned completion by June 30, 2025:** Seasonal high groundwater monitoring.
- **Event 4 - Planned completion by August 15, 2025:** Draft RI Report submitted to MTDEQ for review.
- **Event 5 – Planned completion within 45 days of receipt of MTDEQ comments:** Final RI Report submitted to MTDEQ.

4.0 References

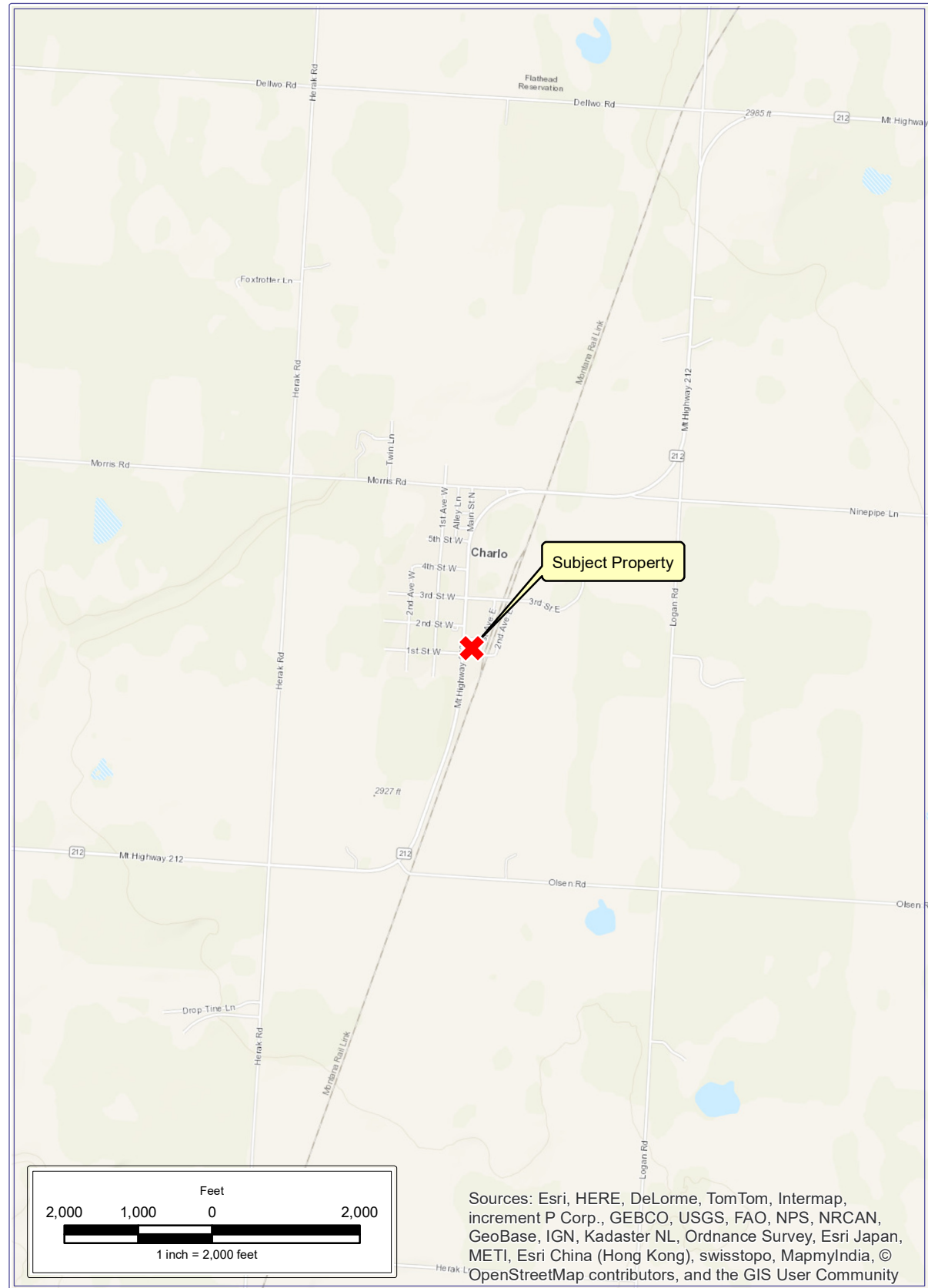
Montana Department of Environmental Quality. (MTDEQ, 2018). *Montana Risk-Based Corrective Action Guidance for Petroleum Releases.* May 2018.

Montana Department of Environmental Quality. (MTDEQ, 2021). *Montana Vapor Intrusion Guide.* September 2021.


West Central Environmental Consultants. (WCEC, 2022). *Phase II Remedial Investigation Report.* Coulter Automotive, Charlo, MT. October 24, 2022.

West Central Environmental Consultants. (WCEC, 2024). *Remedial Investigation Report, Coulter Automotive, Charlo, MT.* May 3, 2024.

Figures



LEGEND

 Site Location



Site Location Maps

Coulter Automotive
104 Main Street
Charlo, MT 59824

DRAWN BY: TCP
DATE: 09/26/22
SCALE: 1:10,200



FIGURE 1

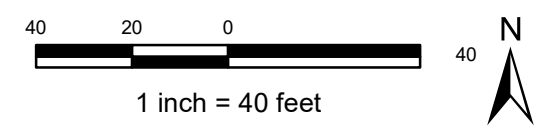
PROJECT NUMBER: 22-14633-70

IMAGE SOURCE: ESRI BASEMAPS



LEGEND

- ⊕ Existing Monitoring Well
- Previous Soil Boring
- Soil Vapor Probe
- Fmr UST Basin
- UVOST Investigation



UVOST Area of Investigation

Coulter Automotive
104 Main Street
Charlo, MT 59824

DRAWN BY: SAW
DATE: 09/19/24
SCALE: As Shown



PROJECT NUMBER: 2403-0992 IMAGE SOURCE: Google Earth

FIGURE 2