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Re: Additional Corrective Action Work Plan Required for the Petroleum Release at The Friendly Corner, 718 Elliot Ave, Hysham, Treasure County, Montana; Facility ID 52-06316 (TID 29186), Release 2589, Work Plan 34916

Section 1: Cover Letter

Per Montana Department of Environmental Quality (DEQ) requested work plan #34916, AJM Incorporated (AJM) has prepared the following work plan outlining the soil investigation and groundwater at the Friendly Corner in Hysham, MT. This work plan illustrates the locations and purpose for up to five (5) soil borings near the fuel system to evaluate soil impacts from hydrocarbons and the construction of up to three (3) monitoring wells to determine groundwater impacts from release 2589.

Section 2: Facility History/Release Background

The current operator is Cross Petroleum Services and has three active fuel systems, two gasoline underground storage tanks (UST), one diesel UST, and piping from the tank basin to the dispenser islands in the center of the lot. Bill Cunningham owned the property before Cross Petroleum up until 2009 when Greg Cross purchased the property. The initial release was discovered on May 11, 1995 when Marketing Specialists were completing a piping system upgrade. At the time, no further action to move forward with a cleanup was established by the DEQ. The release was rediscovered in July 2021 during a phase II environmental site assessment (ESA) along the Montana Department of Transportation (DOT) right of way. Five bore holes were drilled to collect soil and groundwater grab samples. All groundwater samples and soil samples at the soil/water interface measured volatile petroleum hydrocarbons (VPH) that exceed Montana's risk-based screening levels (RBSLs).

Section 3: Summary of Facility Conditions

The results of the July 2021 ESA have encouraged the Montana DEQ to require further investigation and continue discussions relating to the 1990's release. Surface cover at this site includes asphalt near the canopy and south of the irrigation ditch that divides the property (see site photos in section 4). North of the irrigation ditch is primarily dirt surface with a new store building. Based on the Phase II ESA groundwater is expected to be encountered at approximately 13ft below ground surface (bgs). A receptor survey will be conducted to report the local uses from this shallow aquifer.

Section 4: Work Plan Maps
See Appendix A for all work plan site maps.

Section 5: Objectives of Investigation
The purpose of the soil boring section (Task 1) is to further determine the extent and magnitude of the hydrocarbon impact located beneath and around the fuel system. Information will be used to estimate the volume of soil that may be removed during an excavation as a soil remediation technique. Results from the ESA indicate primary leak location seems to be closest to the fuel canopy and dispenser piping and therefore, most of the proposed soil boring locations are around the canopy. The soil borings are predicted to be drilled in a uniform grid pattern near the fuel canopy. This information will be helpful to determine if hydrocarbons percolated downward or spread out before reaching the groundwater.

The purpose of the monitoring well construction section (Task 2) is to determine the hydrocarbon impacts on the local groundwater. 2in monitoring wells will be established to collect long term water quality data and will allow for understanding of the groundwater movement and plume extent and magnitude. With the addition of three monitoring wells, a reliable upgradient sample, fuel canopy sample, and down gradient sample can be collected.

The purpose of the groundwater monitoring section (Task 3) is to track the local groundwater during high and low times of the season to understand how hydrocarbon concentrations are fluctuating. Seasonal groundwater tracking will also better explain how local irrigation may affect the groundwater flow direction and gradient.

Section 6: Minimum Work Plan Tasks
TASK 1 – SOIL BORING
A complete soil boring cost estimate, bid spec sheet, and contractor bids can be found in Appendix B. Further soil sampling procedures and methods can be found in section 7.

TASK 2 – MONITORING WELL CONSTRUCTION
Hydrogeological Conditions
Based on results found during the remedial investigation under WP #34717, the groundwater flows in an expected direction toward the Yellowstone River at approximately N27°E and 12ft/mile gradient. During this investigation, evidence supports that the release originates from the fuel canopy area, and less so from the UST tank basin area. Therefore, AJM proposes installing up to three (3) additional groundwater monitoring wells to determine the extent and magnitude of impacted groundwater near the fuel canopy and down gradient toward the expected plume boundary.

The three wells are proposed to be constructed in the following locations:

- MW-7 will be installed immediately south of the fuel canopy to determine the up-gradient petroleum hydrocarbon concentrations.
- MW-8 will be installed directly north of the fuel canopy to determine the likely highest impacted groundwater area.
- MW-9 will be installed toward the northeast corner of the parking lot near the DOT right of way to determine the plume down gradient boundary and if impacts are moving off site.

TASK 3 – GROUNDWATER MONITORING
Groundwater monitoring will be completed quarterly for the first year to determine the localized impacts the irrigation ditch may have on the groundwater flow and direction. The first groundwater

sampling round will be conducted after well construction in the spring of 2025 and the subsequent sampling rounds will be conducted in the summer, fall, and early winter 2025. Groundwater will be analyzed for Extractable Petroleum Hydrocarbons (EPH) screen and Volatile Petroleum Hydrocarbons (VPH).

Section 7: Investigation Methods, Equipment, Technology, and Personnel

Soil borings and monitoring wells will be constructed using a direct push geo-probe rig provided by a qualified drilling company. At least three drillers were contacted regarding the project. The Bid specifications and contractor estimates are attached in Appendix B.

Utility Locate

Prior to soil boring, both public and private utility locates will be performed to help prevent damage to public and onsite utilities. Because the fuel lines are non-metallic and significantly more difficult to accurately identify, AJM will also be onsite when the private locate is being performed to discuss the anticipated locations of these lines. The private locate will use ground penetrating radar (GPR) to aid in the identification of fuel piping.

Soil Sample Collection

Approximately 5 soil borings are proposed to collect soil samples up to depths of 15ft below ground surface (bgs). A geo-probe rig will be used to collect soil samples as this drilling technique will create the least amount of borehole cuttings and debris. Additionally, predicted soil characteristics based on the phase II ESA and WP 347171 investigation include soft sandy clay loam which should be compatible with this drilling technique. These borings are designed to be located following the perimeter of the tank basin, fuel lines to dispensers and around the canopy. Samples will be collected based on in field screening and observations. It is anticipated that samples will be collected at depths of 5ft and 9ft. All samples will be collected following AJM's approved Quality Assurance Project Plan (QAPjP) on file with the DEQ with the established MDEQ Quality Assurance Plan (QAP).

The samples will be collected from the sampling core of the geo-probe drilling system via typical clear plastic sleeves. Using olfactory, visual and photoionizing detector reading (heated head space), two soil samples from each borehole will be collected. Up to sixteen (16) samples may be collected, including samples from the soil boring that are to be drilled during the construction of the three (3) groundwater monitoring wells.

Decontamination protocol will be used between each sample collection to mitigate any cross contamination between samples. Samples will be immediately placed on ice, documented using a laboratory approved chain of custody (COC) and sent to an accredited laboratory for petroleum constituent analysis as required by the Montana Risk-Based Corrective Action Guidance for Petroleum Releases, including extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH). Site maps showing site location and approximate well boring locations can be found in Appendix A.

Monitoring Well Construction

Four inch tooling will be used to construct bore holes that will be advanced to 20 feet bgs in the approximate locations shown on Figure 2 and the monitoring wells will beconstructed as follows:

- Slotted 2-inch flush-threaded sch 40 casing with 0.01 slot from 20 to 5 feet bgs.
- Solid flush-threaded casing from 5 to 1-foot bgs.
- 10/20 Colorado silica sand from bottom of borehole to 4 feet bgs or prepacked well casings.

- Bentonite from 4 to 3 feet bgs, sand to 1-foot bgs.
- 5" steel well box cemented in place.
- Locking caps will be placed on each well.
- The wellhead elevation survey for these new wells will be completed during the well development stage of this work, with wellhead elevations tied into current site benchmarks.

Monitoring wells will be developed after well construction to purge silt and sediment ensuring a viable sample can be sent to an accredited laboratory. A downhole 2-stage submersible pump will be used to develop the wells to remove silt and sands. This will include surging the tubing and removing both water and silt from the 2-inch diameter wells until water flow has cleared to less than 10 Nephelometric Turbidity Units (NTU). Purged groundwater may need to be stored in 55-gallon drums for appropriate disposal of water. It is predicted that 50 gallons of water will be purged from each well. The first groundwater sampling event will be conducted at least a week after the monitoring wells construction.

A Professional Land Survey (PLS) company will be contracted to conduct a survey of the area and tie-in well head elevations into a local USGS benchmark and the existing survey that was conducted in 2023. Street curbs along with both underground and overhead utilities, fuel system lines and buildings will also be incorporated into the PLS work. This will provide AJM with A-CAD figures so that groundwater flow direction and gradient can be calculated along with potential future work at the facility and prevent damage to underground utilities.

Groundwater Monitoring

During sample events, static water levels and field parameter data will be obtained from all wells listed. During well purging, the data collection will include temperature, pH, dissolved oxygen, conductivity, turbidity and ORP. Once the above parameters are stabilized within the ranges specified by Montana DEQ Groundwater Sampling Guidance document, a sample will be collected. Sampling will be conducted in the 2-inch wells with a peristaltic pump with low flow controller. When using the peristaltic pump, new 1/4-inch HDPE tubing will be used. Appropriate labeling, cooling, and chain of custody protocols will be followed. Samples will be delivered under chain of custody to an accredited laboratory for EPH and VPH analysis. Quarterly groundwater sampling from all monitoring wells will be collect for the first year under this work plan.

All water produced from this sampling process will be allowed to evaporate on the asphalt and no on-site storage is currently planned. Should significant sheen or free phase product be observed, the DEQ and PTRCB will be contacted to determine course of action. All non-dedicated equipment used for purging, sampling, or depth measurements will be decontaminated with an Alconox wash solution, followed by a distilled water triple rinse prior to each use.

Section 8: Scheduling and Reporting

REPORT WRITING

Following installation of soil borings and monitoring wells an Abbreviated Soil Boring and Monitoring Well Report (AR-03) will be completed and submitted to the DEQ. After each groundwater monitoring event an Interim Data Submittal (IDS) will be submitted including updated communitive data sheets, stabilization parameters, maps, results, and data validation summary forms (DVSFs). Following the lest groundwater monitoring event and the submittal of an IDS, a Remedial Investigation Report will be submitted with the following sections:

- Discussion of soil and groundwater investigative methods and results.

- Evaluation of the available soil and groundwater data to assess the need for intrusive investigation of potential exposure pathways (e.g., vapor intrusion, utility corridor, etc.).
- Conclusions and recommendations of remedial action(s) required to resolve the release.
- Cumulative soil and groundwater data tables.
- Append boring logs, well completion diagrams, groundwater field forms, laboratory analytical data, completed Data Validation Summary Forms, and the updated Release Closure Plan.
- The Report will follow all guidelines found on the Montana DEQ under the Guidance dropdown at the PTCS webpage.

A cost estimate for the soil boring, well installations and a unit cost work sheet for sampling and report writing have been completed for the above-described work and can be found in Appendix B. The drilling described in this work plan is estimated to begin Spring 2025. Groundwater sampling will first occur at least two weeks after well development and subsequent groundwater sampling events will occur quarterly until Spring 2026, four events total. This workplan should extend until October 2026 to account for any delays and time to produce all reports. Work at The Hysham Friendly Corner can begin upon written approval by the DEQ. Please do not hesitate to call if there are any questions or if we can provide any additional information.

Sincerely,

Lars Heinstedt

AJM Incorporated
Lars Heinstedt, Staff Scientist

Dennis Franks

AJM Incorporated
Dennis Franks, President

Section 9: Appendices for Work Plan

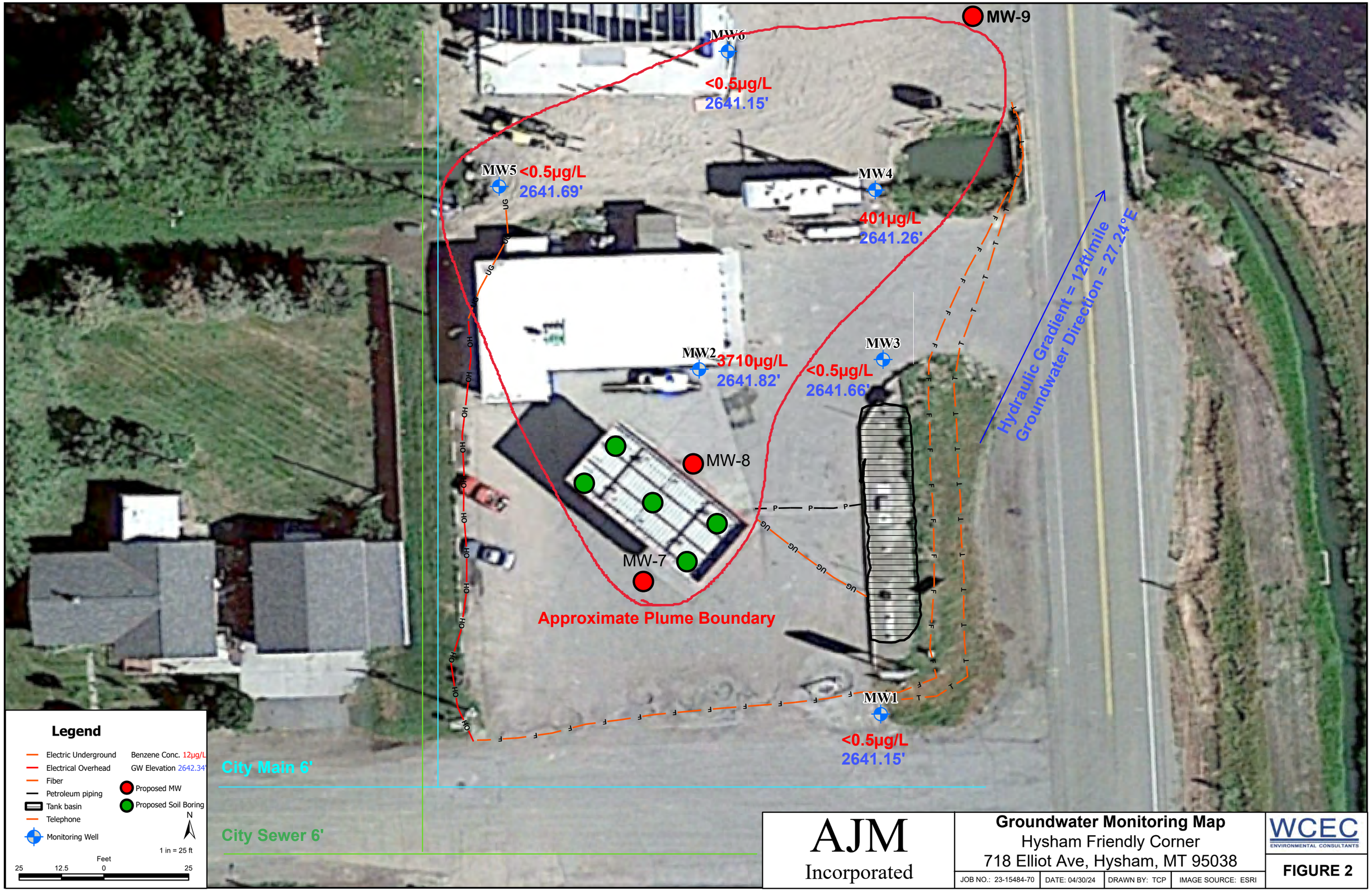
Appendix A

Site Location

Site Map

Figure 1 - Site Location
Friendly Corner, Hysham, MT

AJM INCORPORATED



AJM Incorporated

Groundwater Monitoring Map
Hysham Friendly Corner
718 Elliot Ave, Hysham, MT 95038

JOB NO.: 23-15484-70	DATE: 04/30/24	DRAWN BY: TCP	IMAGE SOURCE: ESRI

WCEC ENVIRONMENTAL CONSULTANTS

FIGURE 2