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ENVIRONMENTAL CONSULTANTS

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February 28, 2025

Eric Krueger
MT Department of Environmental Quality
Petroleum Tank Cleanup Section
Martel Building Ste 3B, 220 West Lamme St.
Bozeman, MT 59715
Eric.Krueger@mt.gov

Re: **Groundwater Monitoring Work Plan 35002** for the Petroleum Release at Newgard Oil Bulk Facility, 808 Main Street, Polson, MT; Facility ID# 24-04559, Release# 635, Work Plan# 35002.

Dear Mr. Krueger:

Enclosed for your review is the **Groundwater Monitoring Work Plan 35002** for the petroleum release at the Newgard Oil Bulk Facility located at 808 Main Street, Polson, Montana; Facility ID# 24-04559, Release# 635, Work Plan# 35002.

Thank you for your consideration of this work plan. If you have any questions or concerns, please call or contact me via e-mail mmorris@wcec.com.

Sincerely,

Myles Morris, PG
Senior Project Manager

Enclosure

ec: Shawna Conroy, CHS, Inc.; Shawna.Conrory@chsinc.com
Paul Haeder, CHS Mountain West Coop; Paul.Haeder@chsinc.com

Groundwater Monitoring
Work Plan 35002

Newgard Oil Bulk Facility

808 Main Street

Polson, MT 59860

Facility ID 24-04559, Release 635, Work Plan 35002

Prepared for:

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CHS, Inc.

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Prepared by:

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February 28, 2025

WCEC Project No. 2402-0943

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1.0 Introduction

West Central Environmental Consultants (WCEC) has prepared this Groundwater Monitoring Work Plan for the Newgard Oil Bulk Facility located at 808 Main Street in Polson, Montana [Figure 1]. Additional corrective actions were requested by the Montana Department of Environmental Quality (MTDEQ) in the letter dated January 27, 2025. The purpose of the scope of work included in this Work Plan is to continue compliance monitoring of petroleum hydrocarbons in groundwater and help determine a pathway to future remediation and resolution of the release.

1.1 Site Location

The Newgard Oil Bulk Facility is located at 808 Main Street in Polson, Montana. A site location map is included as Figure 1 and a site details map is included as Figure 2. The Public Land Survey System (PLSS) description for the site is the SE/4, NW/4, NE/4 of Section 09, T22N, R20W. The approximate geographic coordinates are N 47.687445°, W 114.163774°. Township, range, and section information was obtained using the United States Geological Survey (USGS) Polson, Montana 1:24,000 Quadrangle. The site is located within the Flathead Lake Hydrologic Unit.

1.2 Site Geology

The surficial geology in the vicinity of the site is dominated by varved glacio-lacustrine sequences deposited during the Pleistocene glaciation. These deposits consist primarily of very fine-grained silts and clays with relatively low permeability. The varved lake sediments in the area are approximately 30 feet thick and are generally characterized as being homogeneous. They are frequently interspersed with micro-fractures containing more coarse-grained silts and sands, which provide an element of heterogeneity to the overall clayey silt formation. Although the micro-fractures have a random orientation pattern, they appear to be semi-continuous laterally and are important preferential pathways for the transport of water and contaminants into the subsurface based on field observations and data collected throughout the remedial activities completed at the site and adjacent facilities. Sediments below 30 feet are typically interbedded sands and silts with higher transmissivity values than the upper clayey silt zone [Eide, 2003].

The uppermost bedrock units in the vicinity of Polson are Pre-Cambrian rocks of the Proterozoic Belt Supergroup. The Belt Supergroup exposures in the area are further classified as the Wallace Formation, the Ravalli Group, and the Pritchard Formation, all of which are dominated by argillites [Boettcher, 1982]. Most wells in the local area are completed near the contact between the overlaying glacial deposits and lower Belt rocks at approximately 80 feet below ground surface (bgs). Depth to shallow groundwater at the site varies

seasonally from near the surface during wet periods to approximately 15 feet bgs when the lake sediments dry out. The inferred groundwater flow direction is to the north-northwest towards Flathead Lake. Localized gradients are also present in the hydrogeologic framework of the clayey silt formation, with micro-fractures and other preferential pathways such as excavation backfill that may induce flow patterns that do not follow the overall north-northwest flow direction.

2.0 Site History

Section 2.1 includes information derived from numerous reports completed by various environmental consulting companies from 1988 through 2001. WCEC obtained and reviewed all available historical site information from the MTDEQ release file for the facility. Cumulative groundwater elevation data, a summary table including free product observations and sampling results for the former site monitoring wells, and other relevant historical site figures can be found in previous reports completed by WCEC [WCEC, 2015b].

2.1 Historical Releases, Investigation, & Corrective Actions

The first documented release at the Newgard Oil Bulk facility occurred during January 1988. On arrival to the facility on January 4, 1988, Newgard Oil personnel discovered that the diked area surrounding the above ground storage tanks (ASTs) was flooded with #1 diesel fuel originating from a 10,000 gallon AST. The total volume of the release was recorded as 6,772 gallons. Product recovery efforts were commenced immediately and approximately 4,650 gallons of product were recovered from the diked area. The remaining balance of the released product entered the soils underlying the AST containment area.

Investigative and recovery actions conducted in 1988 included excavation of three test pits and construction of wells within the backfilled test pits (TP-1, TP-2, TP-3), installation of 12 groundwater monitoring wells, and installation of an L-shaped product recovery trench [Figure 2]. Product recovery efforts were conducted on a routine basis until May 1989 when recovery was suspended due to declining product thickness at the recovery points. A total recorded volume of 1,485 gallons of product were recovered from the trench and wells at the facility during this time period.

During product recovery and monitoring events, on-site personnel noted that the recovered product exhibited a combined gasoline/diesel odor, suggesting that a release of gasoline had also occurred at some point in site history. Subsequent investigation and product line testing at the facility revealed a leaking underground gasoline product distribution line and gasoline range hydrocarbon impacts were noted in both soil and groundwater. The leaking lines were replaced in late summer 1989.

Sporadic groundwater monitoring was conducted at the facility through the mid 1990's. Free product was present in various monitoring wells throughout these events, with accumulations and/or high dissolved concentrations noted in monitoring wells NG-5, NG-7, NG-8, and NG-10.

In December 1999, WCEC was contracted to oversee the installation of two new underground storage tanks (USTs) at the facility which had recently been acquired by Cenex Harvest States (CHS). During the installation of the USTs, WCEC supervised the excavation of petroleum impacted soils from the site, primarily in the area

adjacent to the former AST containment. Approximately 450 cubic yards of impacted soil were removed from the site during the 1999 excavation. Residual concentrations in soils along the pit bottom and west sidewall of the excavation exceeded RBSLs for gasoline range constituents [WCEC, 2000].

In April 2001, an excavation was conducted at the facility for the purpose of connecting City of Polson sewer and water services prior to the construction of the office building on the property. The excavation was conducted in the area of the former AST containment and was overseen by CHS, MTDEQ, and City of Polson environmental professionals. No information regarding the exact location or dimensions of the excavation was included in the MTDEQ project file. Approximately 1,000 cubic yards of petroleum impacted soil were removed during the April 2001 excavation. Additionally, City of Polson personnel noted concern regarding the potential proximity of petroleum impacted soils to the PVC water line which is installed along the west side of Main Street adjacent to the facility.

In 2013, the MTDEQ performed a review of the information on file for the facility related to the historical petroleum releases. Subsequently, MTDEQ issued correspondence dated August 22, 2013, in which additional corrective actions were required including completion of an assessment of the current status of the site monitoring wells and a single groundwater monitoring event. WCEC conducted the associated assessment activities and well survey on March 26, 2014. During the assessment, free product was detected in monitoring well NG-7, and significant hydrocarbon impacts were noted in several of the other monitoring wells at the facility. WCEC also observed that all site monitoring wells had static groundwater elevations above the screened interval listed in the monitoring well installation logs. As a result, WCEC did not collect any groundwater samples during the event as requested by the MTDEQ.

Upon further evaluation of the site groundwater elevation data, WCEC determined that one monitoring well, NG-6R, was constructed in a manner which was generally suitable for routine groundwater monitoring, with a screened interval present from 3.0 to 13.5 feet bgs. The average depth to groundwater in NG-6R from historical groundwater monitoring events conducted at the site is 6.42 feet bgs. The remaining seven monitoring wells were screened at intervals deeper than the historical average depth to groundwater.

Based on the observations made during the March 2014 assessment event, WCEC recommended proper abandonment of all site monitoring wells with the exception of NG-6R and installation of an adequate number of replacement wells to evaluate the extent and magnitude of the hydrocarbon plume in groundwater at the facility.

2.2 Additional Monitoring Well Installation

On December 9 and 10, 2014, WCEC directed and supervised HazTech Drilling of Billings, Montana in the installation of eight groundwater monitoring wells designated as NG-5', NG-7', NG-8', NG-10', NG-12', NG-13,

NG-14, and NG-15. Five of the newly installed wells, labeled with the (') suffix, serve as replacements for historical wells and were placed in close proximity to former monitoring well locations [Figure 2]. Each monitoring well was screened from 2 to 17 feet bgs with solid riser extending from 2 feet bgs to near ground surface [WCEC, 2015a]. Monitoring well NG-14 was placed near the center of the former AST containment area to evaluate residual source area impacts. NG-13 is located in an area expected to be hydraulically downgradient of the known areas of impacts, and NG-15 was placed in a location intended to represent upgradient background conditions [Figure 2].

Split spoon soil sampling equipment was used to obtain and screen soil cores from each of the monitoring well borings completed during the December 2014 event. Soil cuttings from the monitoring well borings were screened for hydrocarbon presence by WCEC using a Rae Systems MiniRae™ 2000 photoionization detector (PID), as well as visual and olfactory evidence to determine which horizons were impacted. One sample was collected from each monitoring well boring from the interval exhibiting the highest PID reading, or from the interval representing the soil/groundwater interface if no elevated PID measurements were noted. Soil samples collected from monitoring well borings NG-7', NG-8', and NG-14 exceeded the MTDEQ Tier 1 Risk Based Screening Levels (RBSLs) for one or more VPH constituents including benzene. All soil samples collected from the monitoring well borings were below the RBSLs for EPH constituents [WCEC, 2015a].

Following installation, WCEC personnel developed the newly installed wells using a downhole electric pump. WCEC completed a survey of all well casing elevations and horizontal locations within the investigation relative to an existing survey control. Monitoring well casing elevations were surveyed according to WCEC's SOPs using an auto-level transit and rod set. Horizontal locations of the monitoring wells were recorded using a Trimble GeoXH sub-decimeter GPS.

2.3 Monitoring Well Abandonment

Monitoring wells NG-2, NG-3, NG-7, NG-8, NG-9, NG-10, and NG-12 [Figure 2] were abandoned on December 22, 2014 using the methods required in ARM 36.21.810 as set forth by the Montana Department of Natural Resources and Conservation (MT DNRC) and the Montana Board of Water Well Contractors. Each monitoring well was filled with bentonite from the bottom of the well to 0.5 feet bgs so that the well can no longer produce water and will not serve as a conduit for movement of surface penetrating water or groundwater. The monuments for each well were removed and the disturbed areas were restored to match the surrounding surface cover. Abandonment logs were submitted to the Montana Bureau of Mines & Geology to allow for updating of the GWIC database [WCEC, 2015a].

2.4 Groundwater Monitoring 2014/15

Quarterly groundwater monitoring activities were completed from December 2014 to October 2015 [WCEC 2015a, 2015b]. Benzene concentrations in samples from monitoring wells NG-5', NG-7', NG-8', NG-13, NG-14, and NG-15 exceeded the RBSLs during at least one of the quarterly monitoring events conducted in 2014/2015. The highest benzene concentration (250 µg/L) was found in the October 2015 sample collected from monitoring well NG-8'. No evidence of free product was observed during any of the quarterly monitoring events.

Monitoring well depth to groundwater measurements ranged from a minimum of 0.24 feet to a maximum of 12.98 feet during the 2014/2015 quarterly monitoring events. The calculated groundwater surfaces indicate the presence of a "mound" which is located in the footprint of the former excavation backfill. Areas exhibiting elevated dissolved hydrocarbon concentrations generally coincided with the mounded groundwater surface. The groundwater mound is most likely related to the more permeable excavation backfill becoming preferentially saturated with groundwater primarily derived from surface water infiltration. During periods of relatively high surface water infiltration into the gravel parking area and underlying excavation backfill (snow melt and precipitation events), groundwater appeared to flow in all directions away from this recharge source based on the data from the 2014/2015 quarterly monitoring events.

2.5 UVOST Investigation 2016

WCEC supervised an Ultra-Violet Optical Screening Tool (UVOST®) investigation at the Newgard Oil Bulk Facility from September 20 to September 23, 2016 [WCEC, 2017]. A total of 36 UVOST boreholes were installed during the investigation. Three confirmation soil borings were advanced at selected UVOST locations using a DPT rig equipped with dual tube soil sample collection tooling. Correlative soil samples were obtained from the confirmation soil borings for laboratory analysis. The data from the UVOST boreholes and confirmation soil boring locations were integrated with GPS survey measurements to generate 2D and 3D depictions of the LNAPL plume at the site [WCEC, 2017].

In general, the UVOST data correlates with the cumulative soil and groundwater analytical dataset which exhibits moderate constituent concentrations that are primarily derived from a gasoline source. LNAPL distribution at the site appears to be intermittent and discontinuous, which may be a reflection of the hydrogeologic setting. With the exception of an isolated zone of continuous elevated fluorescence response noted south of NG-14 at LIF-13 and LIF-19, the majority of the LNAPL was found in lenses at sporadic elevations throughout the soil column. These lenses seem to be laterally discontinuous, but it is possible that they share some measure of connectivity via the network of micro-fractures that emanate obliquely through

the horizontal varve layers. Additional mechanisms for producing intermittent LNAPL stratification include capillary forces which most likely have a broad range of influence in the fine-grained clayey silt formation.

3.0 Scope of Work

The scope of work requested by the MTDEQ consists of:

- Use the standardized Work Plan and Report formats found under the Guidance dropdown at the Petroleum Tank Cleanup Section (PTCS) webpage.

- Properly abandon groundwater monitoring well NG-6R according to Montana Department of Natural Resources and Conservation (DNRC) regulations.

- Propose a plan to monitor, gauge, and sample groundwater at Facility monitoring wells. Collect groundwater samples using low-flow sampling methodology according to DEQ's Groundwater Sampling Guidance found under the Guidance dropdown at the PTCS webpage.

- Analyze groundwater samples for petroleum constituents as required by the Montana Risk-Based Corrective Action Guidance for Petroleum Releases.

- Dispose of purge water according to the Disposal of Untreated Purge Water from Monitoring Wells flowchart found under the Guidance dropdown at the PTCS webpage.

- Validate laboratory analytical data using DEQ's Data Validation Summary Form (DVSF) found under the Guidance dropdown at the PTCS webpage.

- 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 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 webpage.

- Prepare and submit one Groundwater Monitoring Report detailing the method and results of all groundwater monitoring events completed under this WP. The Groundwater Monitoring Report is expected to include all content, figures, tables, and appendices described in the Groundwater Monitoring Work Plan and Report Guidance for Petroleum releases found under the Guidance dropdown at the PTCS webpage and the following:
    - An updated Release Closure Plan (RCP).
    - Method and description of monitoring well abandonment.

  - Append a copy of the well abandonment form, groundwater monitoring field forms, laboratory analytical data, completed DVSFs, and the updated RCP.

- Submit WP and reports electronically following the PTCS submittal requirements found under the Guidance dropdown at the PTCS webpage.

3.1 Monitoring Well Abandonment

Monitoring well NG-6R will be abandoned according to DNRC regulations. Monitoring well NG-6R is currently difficult to access since the school yard where it is located has been enclosed by a fence with a locked gate. Groundwater samples from NG-6R have consistently been below MRLs for the duration of the release and it is no longer needed as a data collection point. The well abandonment event will be coordinated with school personnel to be completed in the summer months when school is not in session. Well abandonment activities will be supervised by a Montana licensed monitoring well constructor. A well abandonment log will be submitted to the Montana Bureau of Mines and Geology (MBMG) to update the Groundwater Information Center (GWIC) database.

3.2 Groundwater Monitoring

Groundwater monitoring will be performed on an annual basis during low groundwater conditions when groundwater concentrations are expected to be worst-case. Depth to water measurements will be recorded from all site wells to provide an accurate potentiometric surface plot, flow direction, and gradient. Groundwater samples will be collected from monitoring wells NG-5', NG-7', NG-8', NG-14, and NG-15 for laboratory analysis. Based on estimated restoration timeframe calculations, annual groundwater monitoring will be completed for a period of 3 years.

Well sampling will be conducted according to WCEC Standard Operating Procedures (SOPs) and MTDEQ Guidance for low-flow sampling using a peristaltic pump for purging and sample collection [MTDEQ, 2018a]. Groundwater quality parameter data (conductivity, pH, salinity, dissolved oxygen, temperature, turbidity, and ORP) will be acquired during well purging using a flow through cell attached to the peristaltic pump. Purge water will be handled according to the MTDEQ Purge Water Disposal Flowchart.

Groundwater sample collection will be completed following stabilization of groundwater quality parameters. Groundwater quality parameter, purge, and stabilization data for each well are recorded in the field using WCEC's Well Sampling Form. If present, any accumulations of free product (FP) in the monitoring wells will be noted and FP thicknesses will be recorded. Groundwater samples will not be collected from any wells that contain a measurable thickness of FP.

Groundwater samples will be preserved with hydrochloric acid, packed on ice, and delivered to Energy Laboratories in Helena, Montana under chain of custody. All groundwater samples will be submitted for analysis of VPH constituents as outlined in MTDEQ guidance [MTDEQ, 2018b].

3.3 Report Preparation

WCEC will prepare an Interim Data Submittal (IDS) after each of the first two annual groundwater monitoring events completed in 2025 and 2026. At the conclusion of third annual groundwater monitoring in 2027, WCEC will submit a Groundwater Monitoring Report detailing the cumulative results of all three annual groundwater monitoring events. Laboratory analytical data will be validated using the MTDEQ Data Validation Summary Form (DVSF) with a completed DVSF appended to each laboratory analytical report. The report will include the content, figures, cumulative data tables for soil and groundwater, and appendices outlined in the Groundwater Monitoring Report format guidance, which includes preparing a Release Closure Plan (RCP). A thorough discussion regarding the groundwater analytical results with recommendations for further corrective actions will be presented in the RCP and the Groundwater Monitoring Report. Documentation of the NG-6R well abandonment will also be provided.

4.0 Estimated Costs & Project Timeline

The scope of work outlined in this work plan is tentatively scheduled to begin in Summer 2025, pending approval from the MTDEQ. The attached *Estimated Costs – Additional Corrective Action Work Plan 35002* spreadsheet details anticipated project costs to complete the MTDEQ required scope of work.

4.1 Planned Workflow & Cost Explanations

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

Event 1 – Planned completion by August 30, 2025: Abandonment of monitoring well NG-6R during the summer months when school is not in session.

Event 2 – Planned completion by October 31, 2025: First annual groundwater monitoring and sampling event.

Interim Data Submittal (IDS) – Planned completion by January 31, 2026: IDS for review by CHS and MTDEQ.

Event 3 – Planned completion by October 31, 2025: Second annual groundwater monitoring and sampling event.

Interim Data Submittal (IDS) – Planned completion by January 31, 2027: IDS for review by CHS and MTDEQ.

Event 4 – Planned completion by October 31, 2027: Third annual groundwater monitoring and sampling event.

Groundwater Monitoring Report – Planned submittal by January 31, 2028: Final report submittal to CHS and MTDEQ.

In consultation with the MTDEQ, the planned workflow may be adjusted as necessary based on updated analytical results. WCEC will recommend closure for the release following two consecutive annual groundwater monitoring events with all samples below RBSLs.

5.0 References

Boettcher, A. J. (Boettcher, 1982). *Ground-water resources in the central part of the Flathead Indian Reservation, northwestern Montana*. Montana Bureau of Mines and Geology.

Eide, J. (Eide, 2003). *Monitoring and Well Installation Report for Pacific Pride Bulk Facility in Polson, MT*.

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West Central Environmental Consultants. (WCEC, 2015a). *Monitoring Well Installation & Quarterly Groundwater Monitoring Report*. March 19, 2015.

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West Central Environmental Consultants. (WCEC, 2017). *September 2016 UVOST® Investigation Report*. January 5, 2017.

West Central Environmental Consultants. (WCEC, 2024). *2024 Semiannual Groundwater Monitoring Report*. January 3, 2024.

Figures

LEGEND

SITE LOCATION

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Site Location Maps

Newgard Oil Bulk Facility
808 Main Street
Polson, MT

DRAWN BY: MM
DATE: 12/12/16
SCALE: 1:12,000

PROJECT NUMBER: 13-9809-70

IMAGE SOURCE: ESRI BASEMAPS

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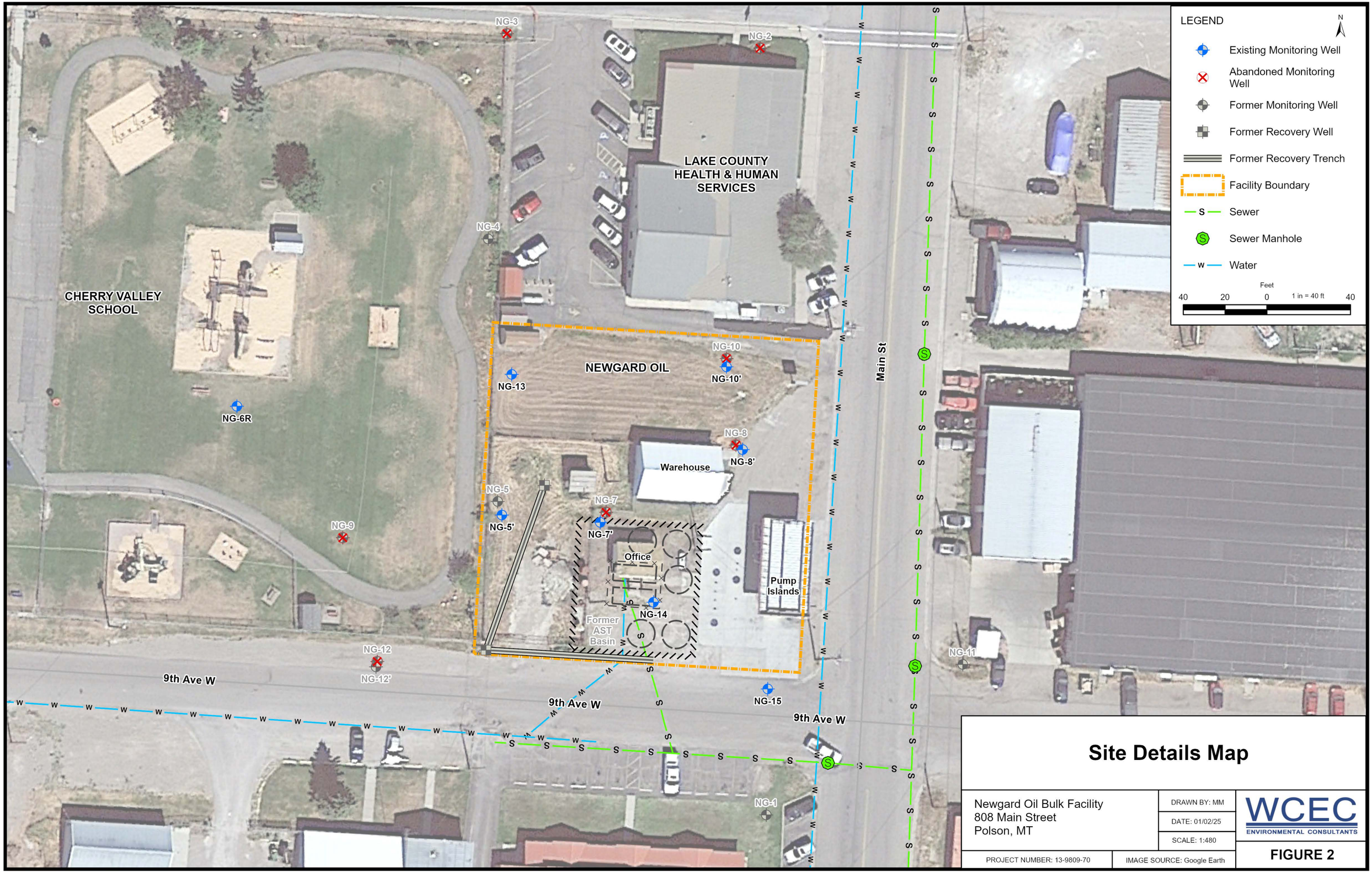
FIGURE 1



Site Details Map

Newgard Oil Bulk Facility 808 Main Street Polson, MT	DRAWN BY: MM DATE: 01/02/25 SCALE: 1:480	WCEC ENVIRONMENTAL CONSULTANTS
PROJECT NUMBER: 13-9809-70	IMAGE SOURCE: Google Earth	FIGURE 2

Estimated Costs

Estimated Costs – Groundwater Monitoring Work Plan 35002