Technical Memorandum

To: Todd Vanek, Oregon DEQ Date: September 6, 2024

From: Bill Beadie, CIH, MFA Project No.: M2551.01.006

Re: Perimeter Air Monitoring Plan for JSC Gas N Grub, Inc. Site, Hillsboro, Oregon; LUST ID No. 34-23-0263

Introduction

On behalf of JCS Gas N Grub Inc. (the Client), Maul Foster & Alongi, Inc. (MFA), has prepared this perimeter air monitoring (PAM) plan for the decommissioning by removal and replacement of two underground storage tanks (USTs) and associated fuel lines at the 76 Hillsboro gas station located at 106 SW Oak Street in Hillsboro, Oregon (the site; see Figure 1). The PAM is being submitted to you in accordance with your August 29, 2024, email to MFA.

This PAM describes the air monitoring during the decommissioning activities and the criteria for modifying activities if results exceed action levels that indicate potential airborne overexposure to neighboring businesses or offsite receptors.

Site Description, Features, and History

The site description, features, and history, including the release from the UST system and geology/hydrogeology of the site are provided in MFA's Contaminated Media Management Plan (CMMP) dated September 6, 2024.

Constituents of Concern

Soil and groundwater assessment activities completed by MFA document that soil and groundwater at the site are contaminated with gasoline-range petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylene, and naphthalene. These are the constituents of concern (COCs) expected to be present in soil and groundwater generated during the decommissioning activities.

Monitoring Methods

The initial phase of the project that is most likely to result in volatilization of COCs to outdoor air is the removal and replacement of the two USTs. This phase will result in an approximately 1,200-square-foot excavation that will be 15 feet deep. Based on prior assessment activities at the site, the excavation is expected to encounter soils at depth impacted by the COCs. The Client's contractor, 4Cs, will remove the USTs, and expects this phase to take about 5 days to complete. Due to the short duration of the initial phase of work, MFA proposes to conduct real-time continuous air monitoring around the perimeter of the work area using photoionization detectors (PIDs).

A subsequent project phase will include removal and replacement of the fuel lines. This phase will result in small and shallow (2 to 3 feet deep) excavations that are not anticipated to result in significant volatilization of COCs to outdoor air. This phase of work is expected to take one or two days to complete. Continuous perimeter air monitoring is not proposed for this phase, but MFA will use a handheld PID during this phase to monitor outdoor air for volatile organic compounds (VOCs).

Perimeter VOC Monitoring

During the initial phase of work (removal of the USTs), MFA will install up to three site perimeter monitoring stations that will continuously measure the concentration of VOCs using a PID with a 10.6 electron volt lamp. The monitoring stations will be configured to automatically notify an MFA representative via text message if measurements exceed the preliminary action level in Attachment A. Proposed monitoring locations are provided on Figure 2. Specific locations will be selected based on work activities, weather conditions, wind direction, and offsite activities. The locations may be moved to account for actual wind conditions during the work.

During the subsequent phase of work (removal of the fuel lines), monitoring will be conducted around the site perimeter using a handheld PID.

Benzene Measurements

If a perimeter PID measurement exceeds the preliminary action level of 10 parts per million (ppm), MFA will use a RAE Systems UltraRAE 3000+ portable handheld benzene-specific PID to evaluate the benzene concentration. MFA will initially and periodically conduct measurements using the benzene-specific PID at the perimeter monitoring stations to determine that the preliminary VOC action level is sufficient to demonstrate adequate control of benzene concentrations.

Nuisance Odor Evaluation

In addition to real-time detection measurements, MFA will qualitatively evaluate the site perimeter for nuisance odors.

Pre-Construction Monitoring

MFA will conduct baseline monitoring before the start of construction activities to evaluate baseline concentrations of VOCs and benzene.

Action Levels

Action levels and corresponding response actions are documented in Attachment A. The action levels were selected with the objective of maintaining the perimeter benzene concentration below 0.5 ppm. Based on the relative concentrations of the COCs, the physical properties (e.g., vapor pressure, COC toxicological properties, and historical monitoring on similar sites), MFA concludes that maintaining the benzene concentration below 0.5 ppm will demonstrate that other COCs are also effectively controlled. The benzene action level of 0.5 ppm was selected consistent with the New Jersey perimeter air monitoring technical guidance calculator[1,2].

[1] Perimeter Air Monitoring Technical Guidance for Sites Undergoing Remediation, NJDEP, December, 2023. https://dep.nj.gov/wp-content/uploads/srp/perimeter_air_monitoring_guidance.pdf.
[2] Perimeter Air Monitoring Technical Guidance Calculator, NJDEP, December, 2023. https://dep.nj.gov/wp-content/uploads/srp/perimeter_air_monitoring_guidance_calculator.xlsm

MFA conservatively estimates that maintaining perimeter VOC concentrations below the preliminary action level of 10 ppm will maintain benzene concentrations below 0.5 ppm. MFA may adjust the preliminary VOC action level if supported by site-specific empirical data.

If pre-construction monitoring indicates that ambient concentrations of VOCs or benzene approach the action levels in this plan, MFA will coordinate with DEQ to modify the action levels as needed.

Exposure and Odor Controls

During active excavation to remove the USTs, excavated soils will be placed in stockpiles on site in accordance with the CMMP. When soil is not being actively excavated and placed in the stockpiles, the stockpiles will be covered under heavy plastic liners to control vapors and odor. When excavation work is not active (i.e., at the end of each workday), the excavation will also be covered under a heavy plastic liner.

To shorten the duration of exposed soils with the potential to emit VOCs, the stockpiles will be removed from the site as soon as soil stockpile sample data are available, and the waste profile is approved for off-site disposal of the soil per the CMMP. The new USTs will be installed in the excavation and the excavation will be backfilled as soon as possible.

If the preliminary action level of 10 ppm is exceeded at the perimeter monitoring stations, the first response action will be to monitor for benzene using the benzene-specific PID. If benzene is detected at a concentration 0.5 ppm or greater for more than one minute, additional response actions may include:

- Wetting the soil stockpiles or excavation.
- Temporarily stopping work, covering the stockpiles and excavation with plastic liners, and waiting for the benzene concentration to decrease.

If these response action cannot maintain the perimeter benzene concentration below 0.5 ppm, work will stop and DEQ will be contacted to discuss additional response actions.

Communications and Reporting

MFA will communicate benzene action level exceedances and follow-up actions to DEQ within 8 hours.

Attachments

Limitations

Figures

A—Air Monitoring Action Levels

Limitations

The services undertaken in completing this technical memorandum were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This technical memorandum is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this technical memorandum apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this technical memorandum.

Figures

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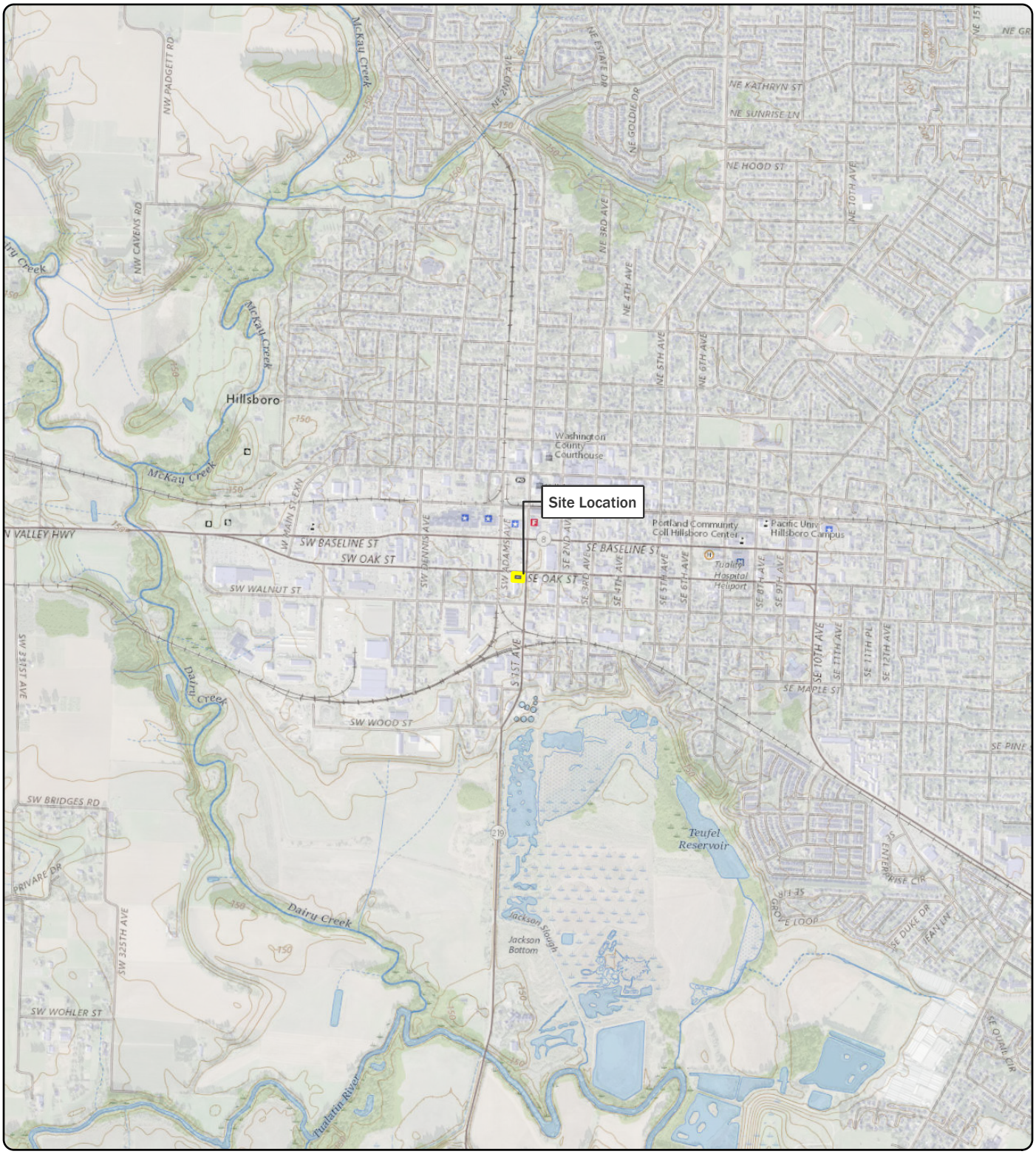

Notes
U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Hillsboro.
Township 1 south, range 2 west, section 6.

Data Source
Property boundary obtained from Oregon Metro.

Legend

Site Boundary

Figure 1
Site Location

JCS Gas N Grub
106 SW Oak Street
Hillsboro, OR

0 1,000 2,000
Feet

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Path: X:\O_MFA_Projects\M2551\01.002\Pro\M2551_01_002_Phase_1.aprx\Fig 1-1 Site Location
Print Date: 8/17/2023
Reviewed By: scolee
Produced By: jroberts
Project: M2551.01.002

Notes
UST = underground storage tank.

Data Sources
Aerial photograph obtained from City of Portland (2022); tax lot data obtained from Oregon Metro.

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Legend

- Perimeter Air Monitoring Station
- UST Observation Well
- Monitoring Well
- Fuel Line
- Proposed Stockpile Area
- Underground Storage Tank
- Site Boundary
- Tax Lot

Figure 2
Perimeter Air Monitoring Locations

JCS Gas N Grub
106 SW Oak Street
Hillsboro, OR

0 20
Feet

Attachment A

Air Monitoring Action Levels

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Air Monitoring Action Levels

Parameter	Monitoring Method	Action Level	Response Actions
Site Perimeter VOC	PID	10 ppm sustained for more than 1 minute (preliminary)	Reinforce site controls (see perimeter monitoring plan). Conduct measurement with UltraRAE 3000+ benzene-specific PID.
Site Perimeter benzene	UltraRAE 3000+ benzene-specific PID	0.5 ppm sustained for more than 1 minute	Reinforce site controls (see perimeter monitoring plan).
Nuisance odors	Qualitative	Objectionable odors at site perimeter sustained for more than 1 minute	Reinforce site controls (see perimeter monitoring plan).
Notes PID = photoionization detector ppm = parts per million VOC = volatile organic compound			