CORRECTIVE ACTION PLAN
(COST PROPOSAL NO. 14)

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

FACILITY I.D. NO. 25156-125-012503
INCIDENT NO. UST22-06-01

PPM PROJECT NO. 40166601-CAP

NOVEMBER 25, 2025

PPM CONSULTANTS

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(COST PROPOSAL NO. 14)

FOR

LAKELAND GROCERY
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NORTHPORT, ALABAMA

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INCIDENT NO. UST22-06-01

PREPARED FOR:

PINNACLE CAPITAL, LLC
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA 35475

PPM PROJECT NO. 40166601-CAP

NOVEMBER 25, 2025

PREPARED BY:

CHUCK GOODEN
PROJECT MANAGER

REVIEWED BY:

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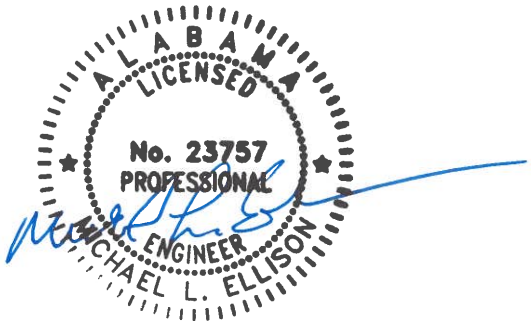
CERTIFICATION PAGE

I certify under penalty of law that this Corrective Action Plan (CAP) for the Lakeland Grocery Convenience Store facility located at 12389 Lary Lake Road, in Northport, Alabama, and the plans, specifications, and technical data submitted within were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiring of the person or persons who directly gathered the enclosed information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.



Michael L. Ellison, P. E.
AL No. 23757

11/25/25
Date

UST RELEASE FACT SHEET

GENERAL INFORMATION:

SITE NAME: Lakeland Grocery

ADDRESS: 12389 Lary Lake Road, Northport, Alabama

FACILITY I.D. NO. : 25156-125-012503

INCIDENT NO. : UST22-06-01

RESULTS OF EXPOSURE ASSESSMENT:

How many private drinking water wells are located within 1,000 ft. of site?	1
How many public water supply wells are located within 1 mile of the site?	0
Have any drinking water supply wells been impacted by contamination from this release?	{ } Yes { X } No
Is there an imminent threat of contamination to any drinking water wells?	{ } Yes {X } No
Have vapors or contaminated groundwater posed a threat to the public?	{ } Yes { X } No
Are any underground utilities impacted or imminently threatened by the release?	{ } Yes { X } No
Have surface waters been impacted by the release?	{ } Yes { X } No
Is there an imminent threat of contamination to surface waters?	{ } Yes { X } No
What is the type of surrounding population?	Commercial/Industrial/ Residential/Daycare

CONTAMINATION DESCRIPTION:

Type of contamination at site: {X} Gasoline, { } Diesel, { } Waste Oil { } Kerosene, { } Other __

Free product present in wells? {X} Yes { } No

Maximum BTEX or PAH concentration measured in soil:	Benzene 2.15 mg/kg (SB-4-4-6) BTEX 91.75 mg/kg (SB-4-4-6) MTBE 0.291J mg/kg (SB-4-4-6) Naph 7.79 mg/kg (SB-4-4-6)
Current maximum COC concentrations measured in groundwater: (8/25/25)	Benzene 6.720 mg/L (MW-3) BTEX 21.880 mg/L (MW-4) MTBE 0.925 mg/L (MW-4) Naphthalene 1.520 mg/L (MW-2)

ADEM Form 479 8/02

ADEM GROUNDWATER BRANCH
UST SITE CLASSIFICATION SYSTEM CHECKLIST

Please read all of the following statements and mark either yes or no if the statement applies to your site. If you have conducted a Preliminary or Secondary Investigation, all questions should be answered. Closure site assessment reports may not provide you with all the necessary information, but answer the statements with the knowledge obtained during the closure site assessment.

SITE NAME: Lakeland Grocery
SITE ADDRESS: 12389 Lary Lake Road, Northport, Alabama

FACILITY I.D. NO. : 25156-125-012503
INCIDENT NO. : UST22-06-01

OWNER NAME: Pinnacle Capital, LLC
OWNER ADDRESS: 12389 Larry Lake Road, Northport, Alabama 35475

NAME & ADDRESS OF PERSON COMPLETING THIS FORM: Chuck Gooden, PPM Consultants, Inc. 5555 Bankhead Highway, Birmingham, Alabama 35210

CLASSIFICATION	*DESCRIPTION*	*YES*	*NO*
CLASS A	IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR		
A.1	Vapor concentrations at or approaching explosive levels that could cause health effects, are present in a residence or building.	☐	☒
A.2	Vapor concentrations at or approaching explosive levels are present in subsurface utility system(s), but no buildings or residences are impacted.	☐	☒
CLASS B	IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR		
B.1	An active public water supply well, public water supply line, or public surface water intake is impacted or immediately threatened.	☐	☒
B.2	An active domestic water supply well, domestic water supply line or domestic surface water intake is impacted or immediately threatened.	☐	☒
B.3	The release is located within a designated Wellhead Protection Area I.	☐	☒
CLASS C	IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR		
C.1	Ambient vapor/particulate concentrations exceed concentrations of concern from an acute exposure, or safety viewpoint.	☐	☒
C.2	Free product is present on the groundwater, at ground surface, on surface water bodies, in utilities other than water supply lines, or in surface water runoff.	☐	☒
CLASS D	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
D.1	There is a potential for explosive levels, or concentrations of vapors that could cause acute effects, to accumulate in a residence or other building.	☐	☒
D.2	A non-potable water supply well is impacted or immediately threatened.	☐	☒

ADEM GROUNDWATER BRANCH
UST SITE CLASSIFICATION SYSTEM
CHECKLIST (continued)

CLASSIFICATION	*DESCRIPTION*	*YES*	*NO*
D.3	Shallow contaminated surface soils are open to public access, and dwellings, parks, playgrounds, day care centers, schools or similar use facilities are within 500 feet of those soils.	☐	☒
CLASS E	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
E.1	A sensitive habitat or sensitive resources (sport fish, economically important species, threatened and endangered species, etc.) are impacted and affected.	☐	☒
CLASS F	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
F.1	Groundwater is impacted and a public well is located within 1 mile of the site.	☐	☒
F.2	Groundwater is impacted and a domestic well is located within 1,000 feet of the site.	☒	☐
F.3	Contaminated soils and/or groundwater are located within designated Wellhead Protection Areas (Areas II or III).	☐	☒
CLASS G	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
G.1	Contaminated soils and/or groundwater are located within areas vulnerable to contamination from surface sources.	☒	☐
GLASS H	SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
H.1	Impacted surface water, stormwater or groundwater discharges within 500 feet of a surface water body used for human drinking water, whole body water-contact sports, or habitat to a protected or listed endangered plant and animal species.	☐	☒
CLASS I	LONG TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS		
I.1.	Site has contaminated soils and/or groundwater but does not meet any of the above-mentioned criteria.	☐	☒

ADDITIONAL COMMENTS:

One private well is located approximately 700 feet east of the site at 12289 Lester Taylor Road. The owner, William McDonald, reported that the well is used for irrigation only and that the residence is supplied by a public source. The well is located across a branch of Lake Tuscaloosa from the site.

Complete the classification evaluation questions listed above. Upon completion, determine the highest rank of the site (A. 1 is the highest rank) based on the statements answered with a yes.

Enter the determined classification ranking:	**F.2**

ADEM GROUNDWATER BRANCH
SITE CLASSIFICATION CHECKLIST
(5/8/95)

1.0 INTRODUCTION

PPM Consultants, Inc. (PPM) was retained by Pinnacle Capital, LLC (Pinnacle) to prepare a Corrective Action Plan (CAP) to address free product and adsorbed and dissolved constituents of concern (COC) concentrations at the Lakeland Grocery facility located at 12389 Lary Lake Road in Northport, Alabama. The purpose of this CAP is to design a remediation system that will effectively decrease COC concentrations in soil and groundwater to below Site-Specific Corrective Action Levels (SSCAL) established for the site.

The COCs for the site include benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl-tertiary-butyl-ether (MTBE), and naphthalene. The preparation of the CAP was authorized by the Alabama Department of Environmental Management (ADEM) with their approval of Cost Proposal No. 14 via correspondence dated May 21, 2025. Corrective actions are in response to an accidental release of gasoline from the underground storage tank (UST) system at the site.

PPM recommends the installation of a fixed-based dual-phase vacuum extraction (DPVE) system designed to effectively and efficiently reduce adsorbed and dissolved COC impact in a timely manner.

This CAP provides a summary of pertinent environmental activities conducted to date at the facility as well as a detailed description of the selected approach for site remediation.

2.0 BACKGROUND

2.1 SITE LOCATION

The Lakeland Grocery facility is an active retail petroleum station located at 12389 Lary Lake Road in Northport, Alabama. The site is situated in the northwest ¼ of the northwest ¼ of Section 5, Township 20 South, Range 10 West of the Lake Tuscaloosa South, Alabama Quadrangle. More specifically, the site is positioned at 33° 20’ 45" north latitude and 87° 36' 33" west longitude. The site location is shown in **Figure 1, Site Location Map**, in **Figures**.

2.2 ADJACENT PROPERTIES

The property is located on the northeast corner of the intersection of U.S. Highway 43 and Lary Lake Road in a commercial/residential area of Northport, Alabama. The site is bordered to the north by Lake Tuscaloosa and then a boat landing and docks; to the northeast by Lake Tuscaloosa and then a boat dealer; to the east by a residential subdivision; to the south across Lary Lake Road by wooded vacant land; and to the southwest and west across Highway 43 by a residential subdivision.

2.3 SITE DESCRIPTION

The ground surface at the site slopes moderately to the northeast from the intersection of Lary Lake Road and Highway 43 toward the store building and then sharply to the northeast from the store to the shoreline of Lake Tuscaloosa. Current structures at the site include a canopy; the store building/bait shop; a pier and boat docks along the Lake Tuscaloosa shoreline; two dispenser islands with six dispenser hoses per island in front (south) of the store; one dispenser located near the pier; two 8,000-gallon steel USTs; and associated product transfer piping. The two USTs are present in a single tank pit located in front of the store building, including an 8,000-gallon regular-unleaded gasoline tank and an 8,000-gallon premium unleaded gasoline tank. The USTs were installed in 1976. Fuel transfer piping traverses from the USTs to the dispensers located adjacent to the west side of the tank pit and to a single dispenser located on the pier approximately 160 feet northeast of the tank pit.

Underground utilities likely located at the site include a septic tank and water lines, although neither were accurately located during the Preliminary Investigation. Overhead utilities include telephone and electric lines. Site features are shown in **Figure 2, Site Map**.

2.4 SITE HISTORY

On April 5, 1996, one 3,000-gallon gasoline UST was removed from the Lakeland Grocery site and free product was observed floating on water within the tank pit. On the same day, a petroleum release was reported to ADEM. Soil samples collected from the tank pit and piping trench associated with the closed tank were analyzed for total petroleum hydrocarbons (TPH) per Environmental Protection Agency (EPA) Method 418.1. TPH concentrations in soil ranged up to 342 parts per million (ppm) in the tank pit and 184 ppm in the piping trench. In response to the release report, ADEM issued Incident No. UST96

06-11 and required the owner, Dwight Bingham, to perform Preliminary and Secondary Investigations to determine the extent of impacted soil and groundwater at the site. ADEM also found the facility to be ineligible for coverage of the corrective action costs by the Alabama Tank Trust Fund (ATTF).

In August 1998, four apparently temporary monitoring wells (WW-1 through WW-4) were installed on the north, south, and northeast of the tank pit, and groundwater samples were collected. The groundwater samples were analyzed for BTEX and naphthalene. The highest dissolved benzene concentration [41.7 milligrams per liter (mg/L)] was found in the sample from monitoring well WW-3, which was located on the north side of the tank pit.

In April 1998, four soil borings were installed at the facility. Monitoring wells MW-2 through MW-4 (south of the tank pit, northeast of the tank pit, and north of the store building, respectively) were installed in three of the borings. Groundwater samples were collected from the monitoring wells and from the boring (B-1) in which a well was not installed. A report of the activities does not indicate that the wells sampled in 1996 (WW-1 through WW-4) were still present in 1998; however, they were not sampled at that time. The highest dissolved benzene concentration in monitoring wells MW-2 through MW-4 was only 0.009 mg/L. Correspondence from ADEM in December 1998 indicated the 1996 wells were no longer present and required them to be replaced. The letter also required the facility to install additional wells to determine the extent of the groundwater impacts and to analyze groundwater samples for MTBE and polynuclear aromatic hydrocarbons (PAH) in addition to BTEX.

In 1999 and 2000, eight soil borings were advanced and monitoring wells MW-1 (at the former location of boring B-1) and MW-5 (near the northeast corner of the tank pit) were installed in two of the borings. Groundwater samples were collected from monitoring wells MW-1 through MW-5 and from two soil borings (B-7A and B-8) advanced north-northeast of MW-3 and north of MW-4, respectively. Significant concentrations of dissolved benzene were detected in the groundwater samples from MW-5 (30.0 mg/L), MW-3 (2.9 mg/L), and B-7A (0.8 mg/L).

In 2004, a monitoring well was installed inside the tank pit where the UST was removed in 1996. A groundwater sample collected from the well on June 9, 2004, had a benzene concentration of 4.31 mg/L and a sample collected on June 18, 2004, after further purging, had a benzene concentration of 0.066 mg/L. The facility proposed to purge and sample the tank pit well several more times. If the dissolved concentrations remained above maximum

contaminant levels (MCL), the facility proposed to over-excavate the tank pit to remove impacted soil and groundwater. No additional wells were proposed outside the tank pit.

ADEM issued a Notice of Delinquency to the facility in September 2011 and a Notice of Violation in December 2011 for failure to complete the Secondary Investigation activities required by the Department. Based on a review of ADEM files, no further investigative or corrective action work was performed until 2022.

In 2017, ownership of the Lakeland Grocery was transferred to Pinnacle. In May 2022, Pinnacle retained PPM to complete a Closure Site Assessment of approximately 160 feet of product piping that was being upgraded. The piping extended from the tank pit to the fuel dispenser located near the boat pier northeast of the store building. Sixteen soil samples were collected from the base of the piping trench and analyzed for TPH per EPA Method 418.1. The highest TPH concentrations were found in the sample from nearest the tank pit 722 milligrams per kilogram (mg/kg) and under the former dispenser located near the boat pier (214 mg/kg). The remaining soil samples had TPH concentrations of less than 100 mg/kg. A release report was submitted to ADEM on June 1, 2022. In response, ADEM issued Incident No. UST22-06-01 and required a Preliminary Investigation. The incident was determined to be eligible for coverage by the ATTF. This report describes the activities conducted during the Preliminary Investigation.

Preliminary Investigation: PPM conducted a Preliminary Investigation at the site in October 2022. Four soil borings/monitoring wells (SB-1/MW-1 through SB-4/MW-4) were installed in proximity of the UST system. The analytical results from soil samples collected from the soil borings indicated benzene concentrations in the samples from SB-2 through SB-4 and MTBE concentrations in the samples from SB-2 through SB-4 exceeded the ADEM Initial Screening Levels (ISL). The toluene, ethylbenzene, total xylenes, and naphthalene concentrations in the SB-4 exceed the ADEM ISLs. The remaining COC concentrations were either below laboratory detection limits (BDL) or below the ISLs.

Free product was not observed on the groundwater surface within monitoring wells MW-1 through MW-4. Dissolved concentrations of benzene, toluene, ethylbenzene, MTBE, and naphthalene exceed the ISLs in the samples from MW-2 through MW-4. Additional delineation was required to the north and northeast of monitoring wells MW-3 and MW-4 and to the northeast and east of monitoring wells MW-2 and MW-3. Based on these findings, PPM recommended that a Secondary Investigation be completed at the site.

Secondary Investigation: PPM conducted a Secondary Investigation at the site in April 2023. Five soil borings/monitoring wells (SB-5 through SB-8 and SB-10) were installed to depths ranging from approximately 12.5 to 18.6 feet below ground surface (BGS) and four of the borings were converted to 2-inch inside diameter (I.D.), Type II groundwater monitoring wells (MW-5 through MW-8). A Type III groundwater monitoring well (MW-9) was installed to approximately 45.3 feet BGS. Free product was not observed in any of the soil borings advanced during the Secondary Investigation. COC concentrations were below detection limits in each of the soil samples collected during the Secondary Investigation. The horizontal extent of COC impact in soil was adequately defined in all directions.

Free product was not observed on the groundwater surface within monitoring wells MW-1 through MW-9, MW-98-1, and MW-98-2. The reported dissolved benzene concentrations exceeded the ADEM ISL in MW-2 through MW-5 and MW-8. The dissolved toluene concentrations exceeded the ISL in MW-2 and MW-3. Dissolved ethylbenzene concentrations exceeded the ISL in MW-2 through MW-4. The dissolved MTBE concentrations exceeded the ISL in MW-2 through MW-6 and MW-8 and the dissolved naphthalene concentrations exceeded the ISL in MW-2 through MW-4. Horizontal delineation was not complete north or west of MW-5 and MW-6 and to the southeast of MW-2 and MW-8; however, the dissolved benzene and MTBE concentrations reported for MW-8 only slightly exceeds the ISLs. Based on these findings, PPM recommended that an Additional Monitoring Well Installation be completed at the site.

Additional Monitoring Well Installation: PPM conducted Additional Monitoring Well Installation activities at the site in August 2023. Work included advancement of three soil borings (SB-11 through SB-13) and the installation of three Type II monitoring wells (MW-10 through MW-12). Free product was not observed in any of the soil borings advanced during the Additional Monitoring Well Installation. COC concentrations were below detection limits in each of the soil samples collected during the Additional Monitoring Well Installation activities. The horizontal extent of COC impact in soil was adequately defined in all directions.

Groundwater Monitoring: ADEM authorized four quarters of groundwater monitoring in correspondence dated July 21, 2023. The first quarterly monitoring event was conducted on September 15, 2023. Dissolved COC concentrations exceeded the ADEM ISLs in MW-2 through MW-5, MW-10, and MW-11.

The second quarterly monitoring event was conducted on December 14, 2023. Dissolved COC concentrations exceeded the ADEM ISLs in MW-2 through MW-6, MW-10, and MW-11.

The third quarterly monitoring event was conducted on March 15, 2024. Dissolved COC concentrations exceeded the ADEM ISLs in MW-2 through MW-5 and MW-11.

The fourth quarterly groundwater monitoring event was conducted on June 27, 2024. Dissolved COC concentrations exceeded the recently approved SSCALs in monitoring wells MW-2 through MW-5.

The fifth quarterly event was conducted on October 17, 2024. SSCALs were exceeded in monitoring wells MW-2 through MW-5. Eight-hour mobile enhanced multi-phase extraction (MEME) events were conducted during this period on September 10, 2024, and October 22, 2024. An estimated total of 724 gallons of petroleum contact water (PCW), and 114 pounds of hydrocarbons (19 equivalent gallons) were recovered during the two events.

The sixth quarterly groundwater monitoring event was conducted on February 19, 2025. As in previous sampling events, the SSCALs were exceeded in monitoring wells MW-2 through MW-4. MEME events were conducted during this period on December 4, 2024, and January 9, 2025. An estimated total of 1,010 gallons of PCW, and 106 pounds of hydrocarbons (17 equivalent gallons) were recovered during the two events.

ARBCA Evaluation: PPM completed an ARBCA Evaluation for the site in June 2024. Potential receptors evaluated included on-site and off-site commercial and construction workers. Groundwater Resource Protection (GRP) and Stream Protection (SP) were also evaluated. Based on the findings of the ARBCA Evaluation, the representative COC concentrations in soil and groundwater were below site-specific target levels (SSTL) for the identified receptors. Representative COC concentrations in soil were also below the Tier II GRP and SP values for the source area. However, the representative benzene concentration in groundwater at MW-1 through MW-4 (source area wells) exceeded the allowable Tier II GRP and SP values as well as the representative benzene concentration from point of compliance (POC) well MW-5. PPM recommended proceeding with the development of a CAP Evaluation. ADEM approved the SSCALs in correspondence dated June 28, 2024.

CAP Evaluation: ADEM approved the completion of a CAP Evaluation in correspondence dated July 19, 2024. PPM evaluated multiple remedial technologies for the site. Based on the extent of impact, the amount petroleum impact in soil and groundwater, site conditions, and geology, PPM recommended that a fix-based DPVE system be installed at the site to reduce COC impact in soil and groundwater. The CAP Evaluation was submitted to ADEM on May 2, 2025, and ADEM agreed with the recommendations in correspondence dated May 7, 2025.

2.5 SITE CONDITIONS

2.5.1 Soil

Subsurface geology was identified from visual inspection of soils encountered during advancement of the soil borings. The lithology of the site generally consists of homogenous, poorly graded, angular, orangish brown sand with some clay to gravelly sand to a depth of approximately 10 to 16 feet BGS which then transitions to a weathered sandstone then to shale bedrock. Auger refusal was observed at depths ranging from 14 to 20.5 feet BGS.

Representative cross-sections of the lithology encountered at the site are presented in **Figure 3A, Geologic Cross-Section A-A'**, and **Figure 3B, Geologic Cross-Section B-B'**. Soil boring logs and monitoring well construction logs are provided in **Appendix A, Soil Boring Logs/Monitoring Well Construction Logs**.

2.5.2 Groundwater

The initial zone of saturation was encountered at approximately 5 to 19 feet BGS in soil borings SB-5 through SB-8 and SB-10 through SB-13. Initial saturation in the bedrock was observed at approximately 40.5 feet BGS.

During the August 25, 2025, groundwater sampling event, depth to groundwater measured in each Type II monitoring wells ranged from 3.78 feet below top of casing (BTOC) in MW-11 to 9.86 feet BTOC in MW-12. The direction of groundwater flow was generally to the north-northeast across the site. The hydraulic gradient between monitoring wells MW-4 and MW-6 was 0.071 feet per foot (ft/ft). Groundwater elevation data are shown in **Table 1, Groundwater Elevation Survey Data**, in **Tables**. **Figure 4, Groundwater Elevation Map (August 25, 2025)**, depicts the groundwater flow direction and potentiometric surface.

2.5.3 COCs in Soil

Free product was not encountered in any of the soil borings advanced during the Preliminary and Secondary Investigation. Results from headspace analyses ranged from 0 parts per million by volume (ppmv) to 872.1 ppmv for each sample collected. Headspace concentrations are shown in the boring logs in **Appendix A** and **Table 2, Soil Analytical Summary**.

The highest benzene concentration was observed in boring B-4 (2.15 mg/kg) from a sample collected from 4 to 6 feet BGS, which exceeded the ISL. The remaining COC concentrations were below the ISLs in each of the samples collected from the borings. COC concentrations are summarized in **Table 2** and shown in **Figure 5, COC Concentrations in Soil**.

2.5.4 COCs in Groundwater

The analytical results from the most recent groundwater sampling event on August 25, 2025, were compared to the SSCALs that were approved by ADEM in June 2024. Dissolved benzene concentrations were reported above the SSCALs in monitoring wells MW-2 (2.980 mg/L), MW-3 (6.720 mg/L), MW-4 (6.650 mg/L), and MW-5 (0.021 mg/L). The dissolved toluene concentration was reported above the respective SSCAL in monitoring wells MW-4 (2.370 mg/L).

The area of groundwater containing COC concentrations greater than the SSCALs are located in and around the UST pit.

Groundwater analytical results are summarized in **Table 3, Groundwater Analytical Summary**. The apparent horizontal extent of dissolved COC impact is shown in the following figures:

- **Figure 6, Dissolved Benzene Isoconcentration Map (August 25, 2025)**;
- **Figure 7, Dissolved MTBE Isoconcentration Map (August 25, 2025)**; and
- **Figure 8, Dissolved Naphthalene Isoconcentration Map (August 25, 2025)**.

3.0 REMEDIAL APPROACH

This CAP has been prepared to achieve the following objectives:

- Remove free product;
- Reduce adsorbed and COC concentrations in soil;
- Reduce dissolved COC concentrations to below approved SSCALs; and
- Accomplish site objectives in a safe, timely, and cost-effective manner.

Based on the elevated and apparent extent of COC impact above SSCALs, a sustained remedial effort will be necessary to achieve project objectives.

4.0 PROPOSED CORRECTIVE ACTION

The following provides a description of the proposed corrective action efforts for the site including associated effectiveness monitoring.

4.1 CORRECTIVE ACTION OVERVIEW

The first phase of corrective action will consist of operation of a DPVE system and associated effectiveness monitoring. Operation of the DPVE system is intended to reduce adsorbed COC impact in soil and dissolved COC impact in groundwater. In addition, these efforts should reduce the potential for further migration of dissolved COC impact by creating groundwater drawdown within the zone of influence for the recovery wells.

The second phase of corrective action may consist of remediation by natural attenuation (RNA) monitoring and would be intended to address dissolved COC concentrations that may be at or near the SSCALs but do not warrant further DPVE system efforts.

A baseline groundwater sampling event will be conducted prior to DPVE system startup. Subsequent groundwater monitoring events will be conducted throughout corrective action activities to assess the overall effectiveness of the remedial approach and to aid in selecting the future course of actions at the site.

A description of the additional corrective actions and associated effectiveness monitoring is provided in the following sections.

4.2 DUAL-PHASE VACUUM EXTRACTION

4.2.1 Overview of DPVE

DPVE is a method of extracting vapor and liquid from the subsurface by applying high vacuum to recovery wells and trenches in the region where the COCs and free product are present. These high vacuums produce both vapor and liquid phase flow from the subsurface. The flow of air through the subsurface creates a concentration gradient that causes the volatilization of some contaminants that may be present in the vadose zone while delivering oxygen, which can increase microbial activity necessary to biodegrade other contaminants. Free product floating on the groundwater can also be removed at a higher rate in comparison to traditional pump and treat techniques.

The vacuum applied by the DPVE system to a recovery well source creates a low pressure head in the well casing, resulting in a low point in the hydraulic system increasing water flow to the well more readily. The flow of water from the subsurface results in the removal of substances dissolved or suspended in the water and can help to control or reverse the migration of dissolved COC impact. Therefore, DPVE enhances the recovery of COC in the subsurface by increasing the groundwater capture zone around the recovery well and affecting more of the vadose zone by depressing the water table.

Hydrocarbons in the liquid and vapor phase are brought to the surface where they are separated in a vapor-liquid separation vessel. The extracted liquid phase may include both water and hydrocarbons. Multiple liquid phases can be separated in secondary treatment systems. The free phase hydrocarbons are collected for off-site disposal or recycling, and the water is routed for treatment prior to discharging to a permitted location. The vapor phase can be treated by means of a thermal or catalytic oxidizer, through a carbon filter, or in some cases, discharged directly to the atmosphere depending on discharge limits established by ADEM.

Additional details on the installation and utilization of the technology at this site are presented in the following sections.

4.2.2 Design Considerations

A pilot test was not performed for this CAP, however, PPM utilized data from the MEME events that have been conducted, to aid in remedial system design. Nine recovery wells are proposed to extract fluids and vapors from the ground. Additional information relative to the overall number of proposed recovery wells required is provided in **Section 4.3, Recovery Well Construction**.

The proposed DPVE system and recovery well layout is anticipated to sufficiently recover soil vapors and impacted groundwater within the target area. The depths of the recovery wells/screened intervals should produce adequate influence across shallow and lower zones of impact.

4.2.3 DPVE System

PPM recommends that an oil-sealed liquid-ring vacuum pump (LRVP) with an operating capacity of at least 600 actual cubic feet per minute (acfm) at 20 inches of mercury (in Hg) be used at the site. The LRVP will be driven by a 50-hp totally enclosed fan cooled (TEFC) motor. The DPVE system will be enclosed in a skid-mounted building that has removable walls.

PPM submitted quotation requests to MK Environmental, Inc. (MK). PPM recommends the MK system as the equipment has proven to be more reliable over numerous projects that have been conducted under the ATTF.

The phase separation equipment will consist of a vacuum-rated knockout pot for separation of the extracted liquids (free product and groundwater) and vapor, two pressure rated separators on the discharge side of the LRVP, an oil/water separator (OWS), and an air stripper (AS) for groundwater treatment.

The aboveground transfer capacity of the unit is rated at 20 gallons per minute (gpm) on average in the liquid phase with a blower rated at 800 standard cubic feet per minute (scfm) for the air stripping process. Other components of the DPVE system are discussed in the following sections. Information regarding system components is provided in **Appendix B, Equipment Manufacturer's Specifications and Quotations**.

4.2.4 Air Treatment

Vapor emissions from the LRVP will initially be treated by means of granular activated carbon (GAC). Two 1,000-pound GAC vessels will be acquired with the purchase of the DPVE system. The ADEM Form 448 has been submitted to notify the Air Division of the upcoming remediation activities. The cover letter and ADEM Form 448 are included in **Appendix C, ADEM Remediation Approval Form**.

4.2.5 Water Treatment

Recovered fluids will be transferred from the primary air/water separator to the OWS by means of a 1.5-hp transfer pump. From the OWS, groundwater will gravity flow to the AS.

Once groundwater enters the AS, the dissolved COCs will be removed by means of an AS that will remove up to 99 percent of benzene, per MK. The design flow rate is 20 gpm. Once treated, the groundwater will gravity flow into a sump located within the AS with a blower rated at 800 scfm. When the groundwater in the sump reaches a pre-set level, a 1.5-hp transfer pump will be activated and the groundwater will be pumped through the effluent discharge line and subsequently to the planned outfall located in Lake Tuscaloosa, southeast of the proposed system location. PPM has applied for a National Pollutant Discharge Elimination System (NPDES) permit for the DPVE system effluent. The Notice of Intent (NOI) for the NPDES permit is included in **Appendix D,NPDES NOI**.

4.2.6 Electrical Components

The internal DPVE electrical equipment will meet or exceed Class I, Division 2 National Electrical Code (NEC) standards for explosion-proof apparatus. Three-phase power is available at the site through Alabama Power.

4.2.7 Fail-Safe and Telemetry Components

The DPVE unit will be equipped with a telemetry system to provide prompt notification of system shut down if the system cannot restart automatically. The telemetry system is programmed to automatically contact designated personnel in the event of an alarm condition. The telemetry system provides data on the cause of shutdowns and, under certain conditions, permits restart of the DPVE system from a remote location.

The telemetry system can also be accessed for remote monitoring of major system parameters. An hour meter wired to the electrical system of the LRVP will be installed which will provide the total runtime of the system over a given time period. A cellular based communication account will be established to facilitate communication with the telemetry system.

4.2.8 Monitoring Components

Monitoring ports will be installed at select locations for collection of vapor extraction and water discharge data. In addition, a flow totalizer meter will be installed to monitor total volume of water discharged from the system. Site glasses will be installed to visually assess the rate of liquid extraction from the subsurface and to make necessary adjustments to enhance liquid recovery rates.

4.3 RECOVERY WELL CONSTRUCTION

It is recommended that DPVE be applied to the subsurface by means of nine proposed recovery wells (PRW-1 through PRW-9). All recovery wells will be constructed of 4-inch I.D. recovery wells positioned at strategic locations where COC impact exceeds SSCALs in soil and groundwater. Proposed recovery wells will be drilled to approximately 15 to 20 feet BGS with 10.25-inch outside diameter (O.D.) hollow stem augers. Screens will be constructed of 0.01-slot polyvinyl chloride (PVC) and will be 10 to 15 feet in length.

Vacuum applied to the nine recovery wells should induce sufficient air flow, and capture groundwater throughout the target area. Air and groundwater flow from each recovery well will be controlled with gate valves in the manifold to be located adjacent to the DPVE unit. Existing monitoring wells will be used to monitor site response and to serve as locations for measuring induced vacuum and groundwater drawdown once the system is operational. Should the radius of influence from these extraction points be deemed insufficient to capture the majority of COC impact, additional extraction points may be added as needed. The placement of the proposed recovery wells is provided in **Figure 9, Proposed System Layout**.

4.4 REMEDIATION BY NATURAL ATTENUATION

Natural attenuation is a term applied to the natural processes that help reduce contaminant concentrations and, in some cases, reduce the potential for contaminant migration. There are multiple components that comprise natural attenuation including: biodegradation;

sorption; dispersion and dilution; and volatilization. Biodegradation is often considered the most important component of RNA as it results in chemical changes to the contaminant, often rendering it less harmful to the environment.

RNA is typically not considered for sites with elevated contaminant concentrations or free product, as it will not achieve site objectives within a reasonable time frame. However, RNA is often selected for sites with low to moderate impact that show indications that it may be effective. In addition, RNA may be used in conjunction with other remedial methods that address contaminant source control.

If dissolved COC concentrations appear to be stable and are at or just below SSCALs, an RNA monitoring program may be implemented at the site. It is anticipated that DPVE system operation will reduce free product thickness and decrease COC concentrations over time. Once this has been accomplished, an RNA monitoring program may be necessary once site conditions indicate active remediation is no longer warranted at the site.

There are multiple secondary approaches for monitoring RNA effectiveness including estimating a first order rate of attenuation and measuring select water quality parameters. PPM will use both methods to evaluate the overall effectiveness of RNA. However, the stable and/or decreasing trends of dissolved COC concentrations will be the primary gauge of RNA effectiveness.

Select water quality parameters [pH, temperature, specific conductance, oxidation reduction potential (ORP), and dissolved oxygen, etc.] will also be monitored during the potential RNA groundwater monitoring events. In addition, select wells may be sampled for nitrate, manganese, iron, and sulfate to further assess the aerobic condition of the aquifer.

4.5 ANTICIPATED SITE RESPONSE

4.5.1 Pneumatic Response

The EPA references a minimum level of 0.1 inches of water column (in. w. c.) to be indicative of induced vacuum at a given location. Additional eight-hour MEME events were conducted at the site from September 2024 through August 2025. During each event, induced vacuum was observed above this level at numerous monitoring wells in vicinity of the recovery points. PPM anticipates a much larger radius of influence during DPVE system operation as the groundwater table is lowered over time. The proposed layout of

recovery wells should produce a sufficient radius of influence during continual system operation.

4.5.2 Hydraulic Response

Groundwater recovery rates of approximately 0.31 to 1.92 gpm were noted during the eight MEME events completed in September 2024 through August 2025. Groundwater drawdown was observed in multiple monitoring wells within proximity of the extraction wells during the MEME events.

PPM anticipates that the DPVE system, utilizing 4-inch I.D. recovery wells, will recover an estimated 9 gpm (on average) during system operation if all wells are operating. The proposed layout of the recovery points should produce a notable drawdown of the groundwater table over time and aid in controlling migration of dissolved COC impact.

4.5.3 Remediation by Natural Attenuation

The final phase of effectiveness monitoring will be initiated once active remediation efforts have ceased at the site. Anticipated site response to RNA cannot be adequately predicted at this time, as it is unknown what site conditions will be upon completion of the active remediation efforts. However, efforts will be made to obtain site remedial objectives within four years of implementing corrective action activities outlined in this CAP.

4.6 PERMITS

The site is located in Northport, Alabama and building permits are required. Upon CAP approval by ADEM, PPM will submit system, building, and electrical plans to the City of Northport Permit and Inspection Department. The Permit and Inspection Department is expected to review the plans and provide approval or comments, revisions, or requests within approximately 20 business days from plan submittal. Following approval, PPM will apply for an Excavation Permit; a Fence and/or Wall Zoning Approval; and a Building Permit. At that time, the electrician and contractor can apply for an electrical permit with the City of Northport.

An NPDES permit will be required to discharge treated groundwater from the DPVE system. The system effluent outfall will discharge to Tuscaloosa Lake located approximately 250 feet east of the proposed DPVE system location.

4.6.1 Effluent Water

Operation of the DPVE system produces both liquid and vapor phase discharge. It is expected that the extraction process will vacuum-strip up to 80 percent of the COC constituents from the liquid stream. The AS is capable of removing up to 99 percent of COC constituents. The effluent water will receive a final stage of treatment by passing through a bag filter system to remove solids and finally through two 500-pound liquid phase carbon vessels for final polishing. PPM will discharge the effluent water to the permitted outfall per the parameters established by the NPDES permit. The NPDES NOI is included in **Appendix D**.

4.6.2 Effluent Air

The ADEM Air Division has been notified of the proposed remediation system and associated method of emissions treatment. The LRVP effluent vapor will be treated with GAC. The correspondence submitted to the Air Division is included in **Appendix C**.

4.7 DPVE SYSTEM INSTALLATION

4.7.1 General

The DPVE system will be located within a fenced enclosure once the system has been installed. The proposed location of the unit is shown in **Figure 9**.

Installation dates will be based on the approval date of this CAP by ADEM, equipment availability, and subcontractor scheduling. Initial installation activities will consist of the following:

- City of Northport permit applications;
- ADEM NPDES permit application;
- ADEM air discharge notice;
- Completion of a Solid Waste Profile;
- Installation of recovery wells;
- Installation of piping from each recovery well to the DPVE system location;
- Completion of a comprehensive baseline sampling event;

- Construction of a manifold to connect the recovery wells and trenches to the LRVP;
- Mobilization of the DPVE unit, GAC vessels, and liquid phase carbon vessels to the site;
- Installation of required electrical power supply equipment and lines;
- Connection to the local power service provided by Alabama Power;
- Site survey of new recovery wells and associated trenching;
- Connection of telemetry through a wireless cellular based service;
- Preliminary system testing and startup; and
- Reporting.

4.7.2 Recovery Well Construction

Nine proposed recovery wells will be utilized for groundwater remediation. The proposed recovery wells are strategically located such that remedial objectives can be obtained within a reasonable timeframe.

The borings for the proposed recovery wells will be advanced to approximately 15 to 20 feet BGS, with 4.25-inch I.D. hollow-stem augers. The borings will be reamed with 6.25-inch I.D./10.25-inch O.D. augers. Down-hole drilling equipment will be cleaned prior to use at each location with a high-pressure rinse. Rinse fluids will not be contained; however, they will be discharged to an impervious surface on site. Soil cuttings generated during boring advancement will be stockpiled for disposal during construction activities.

The recovery wells will be constructed with 10- to 15-foot lengths of 4-inch I.D., 0.01-inch slotted PVC screen, and appropriate length of riser pipe. Sand will be placed in the boring annulus for each of the proposed wells from the bottom of the boring to approximately 2 foot above the screen. A bentonite seal approximately 2 feet thick will be constructed above the sand pack and the remaining annular space will be completed in the well vault.

The site will be subsequently surveyed for horizontal and vertical control. Locations will be referenced to existing monitoring wells at the site. Typical construction details of the recovery wells are presented in **Figure 10, Details and Sections for 4-inch Recovery Wells and Piping Trench**. Typical construction details for the system manifold are

presented in **Figure 11, Profile/Plan View of Manifold**, and the location of the manifold is presented in **Figure 12, Proposed System Compound**.

Complete Environmental and Walker-Hill Environmental provided quotes for the system installation. A bid comparison and the subcontractor quotes are provided in **Appendix E, Subcontractor Specifications and Quotations**.

4.7.3 Utility Connections

Electrical

The DPVE system will be equipped with a main control panel mounted on the system enclosure. The DPVE system will be properly wired by a local electrician for safe system operation. The certified electrical subcontractor will install a temporary power pole, weather head and meter base, a fused main disconnect, and the proper wiring to the system control panel. Electrical work will be performed in general accordance with applicable state and local codes.

Telemetry

Remote communication to the telemetry system will be provided by a wireless cellular service provided by MK. The connectivity will provide remote communication through a secure log in.

Water Effluent

A 2-inch water effluent discharge lines will be installed from the DPVE system to a discharge point approximately 250 feet southeast of the system enclosure.

4.7.4 Recovery Well Configuration

Nine recovery wells (PRW-1 through PRW-9) and will be utilized for soil and groundwater remediation. Each recovery point will be strategically placed to recover vapors and impacted groundwater.

Wellhead specifications of the recovery wells will consist of the following:

- Installation of 24-inch by 24-inch by 24-inch deep, hinged well vaults at each of the nine recovery wells that will be utilized by the DPVE system;
- Installation of a 4-inch I.D. to 2-inch I.D. expandable well seal; 2-inch I.D., Schedule (SCH) 40, T-pipe connection; 1-foot piece of 2-inch I.D., SCH 40 pipe with 2-inch Fernco; and 2-inch by 4-inch SCH 40 PVC fitting; and
- Installation of a 2-inch I.D., SCH 40 PVC priming tube/drop tube into each recovery well.

Construction details of the recovery wells and trenching are shown in **Figure 10**.

4.7.5 Recovery Piping and Trenches

Vacuum will be applied to nine independent recovery lines consisting of 2-inch I.D. SCH 40 PVC piping within trenches extending from the system manifold to each individual recovery well. A 2-inch PVC I.D. SCH 40 drop tube will be installed in each recovery well and extended through a 4-inch by 2-inch well seal installed at the top of each recovery well casing. A 2-inch PVC tee will be connected to the top of each drop tube and connected to the recovery lines by 2-inch PVC couplings. The piping will be installed in open trenches. Trenches will be excavated to a depth of approximately 18 to 24 inches BGS. Efforts will be made to ensure that the piping does not interfere with existing underground utilities.

Trenches performed beneath asphalt will be backfilled with crusher-run gravel and completed at the surface with approximately 6 inches of concrete. Trenches performed below soil cover will be backfilled with the excavated soil as these will be outside of the area of impact. Excavated soils (from beneath pavement) and directional drilling fluids/solids generated during recovery well and trench installation will be transported to Black Warrior Solid Waste Facility, in Coker, Alabama, upon approval by ADEM.

4.7.6 System Manifold

The DPVE recovery line manifold will be installed on the western side of the DPVE system. A 4-inch brass gate valve will be installed on each recovery line to allow each recovery line to operate independently for liquid recovery optimization during system operation. A section of 4-inch I.D. clear PVC pipe will be installed on each recovery line at the manifold to verify liquid recovery at each location. The manifold configuration is shown in **Figure 11**.

4.7.7 System Placement and Security

A level crusher run gravel base will be installed across the system pad. A crane will be used to off-load and position the DPVE system on the gravel pad. The two 1,000-pound vapor GAC vessels and AWS-3/heat exchanger assembly will be offloaded and positioned at the locations designated in **Figure 9**. The system will be set-up and leveled on concrete block footings (1/8-inch over 4 feet). The system will be enclosed in an 8-foot-tall wooden privacy fence to prevent unauthorized access. Warning signs will be posted on each side of the privacy fence.

4.8 GROUNDWATER MONITORING

A baseline groundwater monitoring event will be conducted at the site prior to system start up. The following provides a detailed description of the fieldwork methodology for the baseline event and subsequent effectiveness monitoring events.

A groundwater elevation survey will be performed prior to sampling the wells. Depth to groundwater measurements will be accomplished at each well location with an oil/water interface probe capable of measuring the water depth to within +/- 0.01 feet. The interface probe will be cleaned prior to use at each well location by means of a phosphate free soap rinse, an isopropyl rinse, and a rinse of distilled water. Rinse fluids will be discharged to the land surface in areas that do not drain back to the respective well locations.

Select monitoring wells will then be sampled in general accordance with PPM's internal Quality Assurance/Quality Control (QA/QC) plan. Prior to sampling, each monitoring well will be purged of approximately three well-casing volumes (or to near dryness) utilizing single use, disposable PVC bailers and nylon rope. Purge water from monitoring wells will be transferred to the system AS for treatment and subsequent discharge to the permitted outfall. Grab samples will be collected from on-line recovery wells via single use, disposable bailers as groundwater is continuously removed from these locations during system operation.

Each sample for COC analysis will be transferred from the bailer into 40-milliliter (mL) glass vials containing hydrochloric acid (HCl) as a preservative. Each container will be filled with the sample, promptly capped, and appropriately labeled to indicate the sample origin. A duplicate sample from one well will be collected for QA/QC protocol. Containers will then be placed in an iced cooler for preservation during shipment to the laboratory.

PPM personnel will wear disposable nitrile gloves during well purge and sample collection activities in an effort to reduce the potential for cross-contamination and as part of personal protective equipment (PPE) for the project. Gloves will be changed and discarded between each sample acquisition.

Upon completion of sampling activities, sample coolers will be transported or shipped under standard chain-of-custody protocol to an independent testing laboratory for analyses.

4.9 DPVE STARTUP/INITIAL OPTIMIZATION

During the initial startup of the system, vacuum will not be applied to the recovery wells in order to allow adequate time to check system operation. System components will be monitored to ensure that the system is operating properly prior to applying the vacuum to the subsurface. During the first day of operation, the vacuum will gradually be applied to the recovery wells by slowly decreasing the percentage of ambient air introduced at the LRVP intake. Data will be collected to evaluate the initial VOC concentrations in the discharge air, the average groundwater removal rate, and the average airflow rate through the subsurface. This information will provide a comparison of the system performance during the optimization period. The initial startup period is anticipated to be completed in approximately two days.

Measurement of water table drawdown in the recovery wells will be used to evaluate the hydraulic radius of influence and will assist in estimating the capture zone. The vapor discharge rate and ambient airflow rates will be measured to assess if the system is effective in creating sufficient airflow in the subsurface. Adjustments which may optimize the air flow could include adjusting the level of applied vacuum to the recovery well in various combinations, installing passive venting wells, and cleaning of well screens due to clogging or biological fouling.

The volume of groundwater removed from the subsurface will be monitored to observe the groundwater recovery rate and volume. Modifications will be performed in the field to enhance the rate of groundwater recovery such as adjusting the level of applied vacuum to the recovery points in various combinations.

4.10 DPVE OPERATIONS AND MAINTENANCE

PPM will periodically visit the site to conduct operations and maintenance (O&M) and monitoring activities. These activities will be conducted by a PPM engineer, geologist, or technician experienced in DPVE O&M.

PPM anticipates visiting the site approximately two times per month. Additional visits may be required based on site-specific conditions encountered. O&M and monitoring activities to be conducted during these routine visits are discussed in the following sections.

Normal operations will include O&M of the system and continued optimization of system performance as needed. Scheduled visits will be made to maintain the system components and ensure the system is operating as intended. Minor system components will be regularly inspected and replaced or repaired as required. Pumps within the unit will be serviced on a routine basis. If a shutdown of the system occurs, PPM will attempt to provide personnel to restart/repair the system within 72 hours of receiving notification of shut down.

Typical O&M activities will include the following:

- Visual inspection of treatment system components and their condition (including pipe connections for potential leaks due to vibration);
- Inspection and testing of fluid level probes and cleaning as needed;
- Monitoring of vacuum levels at designated points in the DPVE system;
- Monitoring of pressure levels on the exhaust side of the LRVP;
- Monitoring of service water volumes used;
- Monitoring of vapor temperatures at designated points in the DPVE system;
- Removal of silt and sludge buildup from the knockout pot and other system components;
- Evaluation of free product separation effectiveness in the oil separator (if present); and
- Removal of AS foulants.

4.11 MONITORING

The progress of corrective action activities will be monitored to evaluate if the remedial objectives are being met. Soil analytical results obtained during the previous investigations at the site will be used for comparison purposes. Results from the baseline groundwater sampling will be used to gauge the progress of groundwater remediation efforts.

4.11.1 DPVE System Monitoring

System monitoring will include routine measurement of operational parameters and will coincide with O&M activities. Parameters to be measured, recorded, or calculated during the monthly activities are as follows:

- Date of each site visit;
- Measuring groundwater/free product elevation in select monitoring wells;
- Manual bailing of free product from monitoring and recovery wells (if observed);
- Hydraulic and pneumatic radius of influence and supporting calculations;
- Mass of hydrocarbons removed in vapor and liquid phase and supporting calculations;
- Volume of liquids removed and discharged;
- Air flow readings at pump discharge;
- Liquid flow totalizer readings at system effluent;
- Vapor concentrations at the LRVP discharge and carbon vessels;
- Effluent sampling results and permit compliance status;
- Total system runtime and explanations of unscheduled shutdowns; and
- O&M activities and system condition.

The information will be compiled into an on-going project database designed to automatically calculate information such as mass of hydrocarbons and volume of groundwater removed. This information is automatically calculated for both the monitoring period and life of the project. An example of a monitoring form to be used by PPM personnel is included in **Appendix F, DPVE Monitoring Forms**.

4.11.2 Monthly System Sampling

Effluent water samples will be collected on a monthly basis in accordance with the pending NPDES permit for the site. PPM will provide water effluent analytical results per the NPDES requirements in the Discharge Monitoring Reports (DMR) submitted to ADEM semi-annually. Water effluent samples will be analyzed for pH, oil and grease (EPA Method 1664A), BTEX, MTBE, and naphthalene (EPA Method 8260). Samples will be collected from a port installed on the discharge side of the AS and prior to entering the effluent discharge line that extends to the outfall. A field measurement of pH will be performed at the time samples are collected. The volume of water discharged, as indicated by the in-line flow meter, will also be recorded at this time.

A pollution control device will be utilized since free product has been present at the site in the past. PPM will collect effluent vapor samples from the LRVP emissions as required by ADEM.

4.11.3 Quarterly Groundwater Sampling

PPM will collect groundwater samples from each of the recovery wells and monitoring wells, at least once annually. Limited groundwater sampling events of the nine recovery wells (RW-1 through RW-9) are recommended during subsequent quarterly periods to monitor the effectiveness of the system at reducing dissolved COC concentrations. Sampling activities will be conducted in general accordance with PPM's **Technical Sampling and Analysis QA/QC Plan (Appendix G)**. Groundwater samples will be analyzed for BTEX, MTBE, and naphthalene per EPA Method 8260.

5.0 REPORTING

PPM will submit reports in accordance with ADEM requirements. These reports will include:

1. NPDES Permit Submittal
   Notification will be submitted to ADEM once the NPDES permit application has been submitted.

2. System Purchase and Delivery
   A system delivery letter will be submitted to ADEM within ten days of system delivery to the site.

3. Report of Corrective Action Implementation
   This report will include drawings of the system/layout and locations of recovery wells following installation.

4. Reporting of Corrective Action Effectiveness
   PPM proposes to submit quarterly progress reports, which summarize field activities and progress of the system toward reducing COC concentrations to below SSCALs. These reports will include an evaluation of the system effectiveness, and recommendations concerning any additional modifications or change in remedial approaches that may be necessary. ADEM Corrective Action System Effectiveness Monitoring Report (CASEMR) forms will be included with each report.

5. Site Closure Report/Monitoring Well Abandonment
   This report will describe in detail the closure of the site and removal of all remediation equipment. A separate cost proposal will be submitted for this work.

6.0 CLOSURE EVALUATION

The data collected during site monitoring will be evaluated on a regular basis. Criteria for considering termination of remedial activities will include reduction in COC concentrations to established cleanup levels, or determination that asymptotic levels have been reached. Analysis of the hydrocarbon mass removal data, and the latest results of quarterly groundwater sampling will be used to evaluate if site objectives have been met.

The DPVE system will be shutdown following approval from ADEM. The site will be monitored for potential increases in COC concentrations (rebound) following shutdown of the system prior to demobilization of the system and ancillary components. Recommendations will be provided to ADEM concerning further action should rebound occur.

7.0 SITE HEALTH AND SAFETY

A site-specific Health and Safety Plan (HASP) was developed for corrective action efforts at the facility and is included in **Appendix H, Site-Specific Health and Safety Plan**. The HASP was specifically designed to address the corrective actions and monitoring activities at the site. PPM project personnel will be familiar with the HASP prior to performing any work at the site. The HASP will be kept on site throughout the duration of the project.

8.0 PROJECT SCHEDULE

PPM will notify ADEM five days in advance of any planned trenching, system installation, or startup activities to allow department personnel the opportunity to visit the site during work activities if possible. If rescheduling is necessary, PPM will notify ADEM by telephone or electronic mail of the new date and reason for rescheduling.

8.1 NPDES AND BUILDING PERMIT SUBMITTAL

PPM will submit the NOI for the ADEM NPDES permit application under the CAP preparation. PPM anticipates the permit will take approximately 30 days for review and approval by ADEM. PPM will also apply for the required permits from the City of Northport.

8.2 ESTIMATED SCHEDULE FOR SYSTEM INSTALLATION

The equipment manufacturer (MK) estimates a lead time for building the system at eight to twelve weeks. PPM estimates that site preparation/system installation activities will require approximately three weeks to complete, pending site and weather conditions encountered. System placement and connection activities will likely require two to three days to complete.

System start-up activities will require approximately two days for adequate system monitoring prior to departing from the site. Based on this anticipated schedule, PPM estimates that system installation, start up, and initial optimization efforts can be completed within 120 days of CAP approval. A report can be submitted within 150 days of authorization.

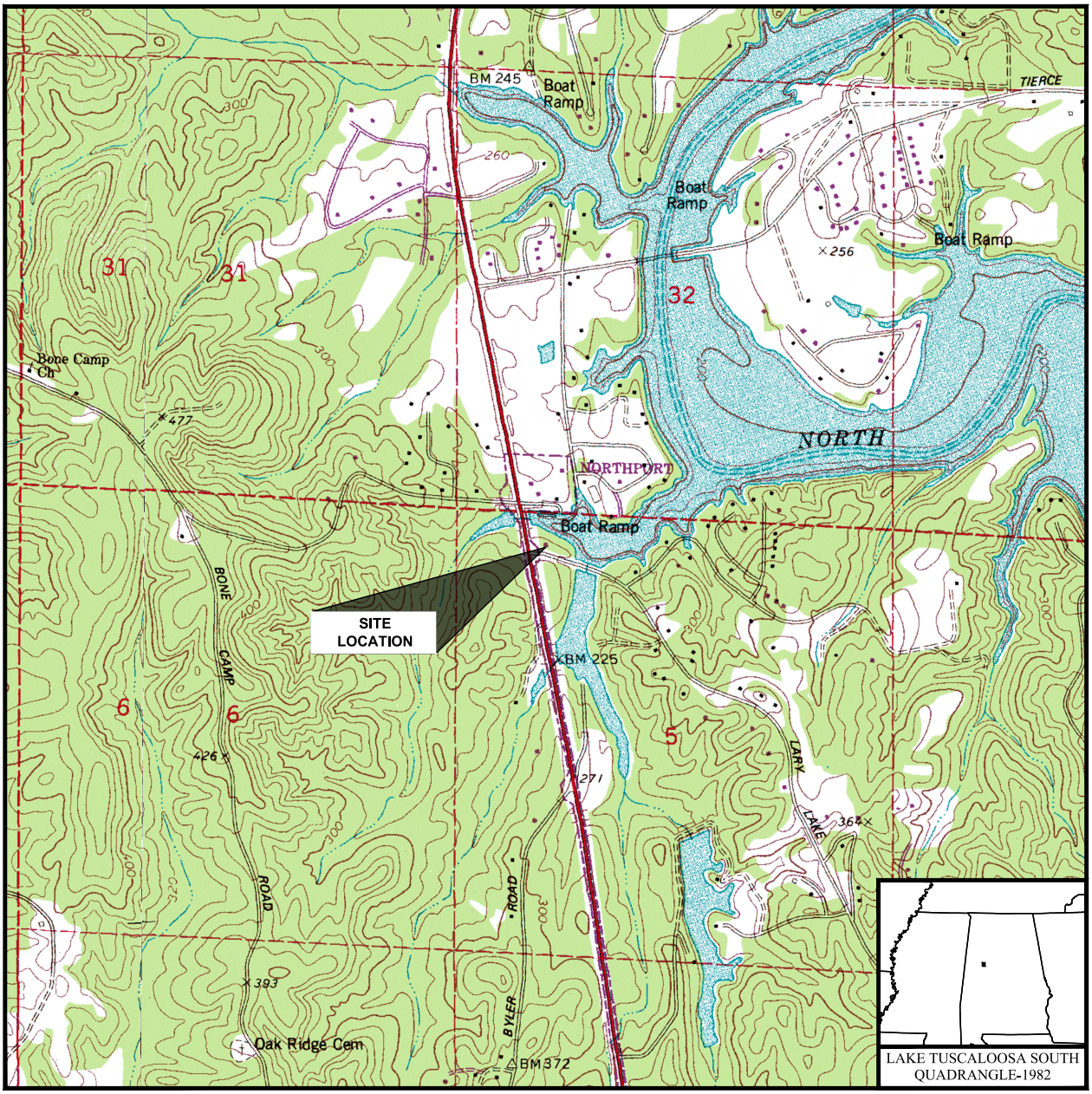
8.3 ESTIMATED CLEAN UP TIME

Although the length of time required to reach the cleanup objectives cannot be predicted precisely, PPM anticipates that the DPVE unit will be operated for approximately two to three years. A more accurate prediction of cleanup time will be provided once the system has been in operation long enough to establish trends in VOC mass removal rates, groundwater extraction rates, and hydraulic and pneumatic capture zones.

9.0 ESTIMATED COST

Cost proposals for completion of activities associated with purchase of the system (CP-15), implementation of the CAP (CP-16) and the first two quarters of O&M activities (CP-17 and CP-18) have been submitted through the Alabama Environmental Permitting and Compliance System (AEPACS).

FIGURES



SCALE: 1 : 24,000

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1000 0 1000 5000 10,000
FEET
1 0 KILOMETER 1 2
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N

PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 11/18/25
PROJECT NUMBER: 40166601	PHASE: CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

SITE LOCATION MAP

FIGURE NUMBER
1

N

0 15 30

SCALE: 1"=30'
(Approximate)

GUARDRAIL

13

43

DRAINAGE DITCH

SB-13/ MW-12

SB-5/ MW-5

SB-6/ MW-6

APPROXIMATE PROPERTY BOUNDARY

WATER METER

SB-12/ MW-11

SIGN

OVERHANG

STORE

BAIT SHOP

SEPTIC TANK

SB-10

COVERED BOAT DOCK

LAKE TUSCALOOSA

PIER

ABOVE-GROUND PIPING TO PIER

COVERED BOAT DOCK

REPLACED FUEL DISPENSER

REPLACED PRODUCT LINE

SB-7/ MW-7

GRAVEL

MW-98-1

SB-4/ MW-4

SB-8/ MW-8

FUEL DISPENSER (TYP. 2)

CANOPY

UST PIT

SB-3/ MW-3

SB-9/ MW-9

DUMPSTERS

CANOPY FOR FORMER PROPANE AST

SB-2/ MW-2

SB-1/ MW-1

GATE

SB-11/ MW-10

GRAVEL

MW-98-2

LARY LAKE ROAD

LEGEND:

- SOIL BORING / TYPE II MONITORING WELL LOCATION
- SOIL BORING / TYPE III MONITORING WELL LOCATION
- SOIL BORING LOCATION
- P — POWER LINE
- W — WATER LINE
- X — FENCE
- POWER POLE

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DRAWN BY: BWH	DRAWN DATE: 11/18/25
PROJECT NUMBER: 40166601	PHASE: CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

SITE MAP

FIGURE NUMBER
2

LEGEND:

- GRAVELLY SAND
- SAND
- CLAYEY SAND
- SHALE
- SANDSTONE
- TANK PIT BACKFILL
- ASPHALT
- CONCRETE
- TOP SOIL

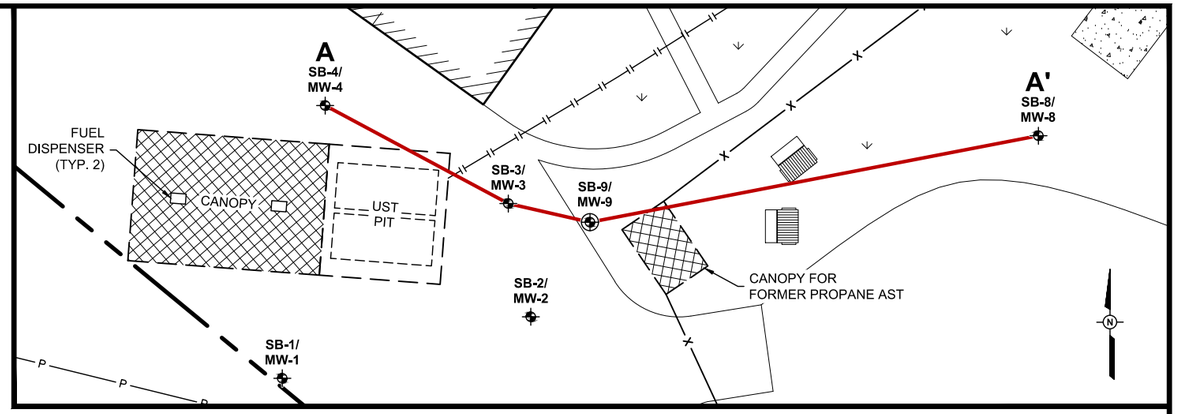
TOC=246.48 TOP OF CASING (ft.)

SE=246.7 SURFACE ELEVATION (ft.)

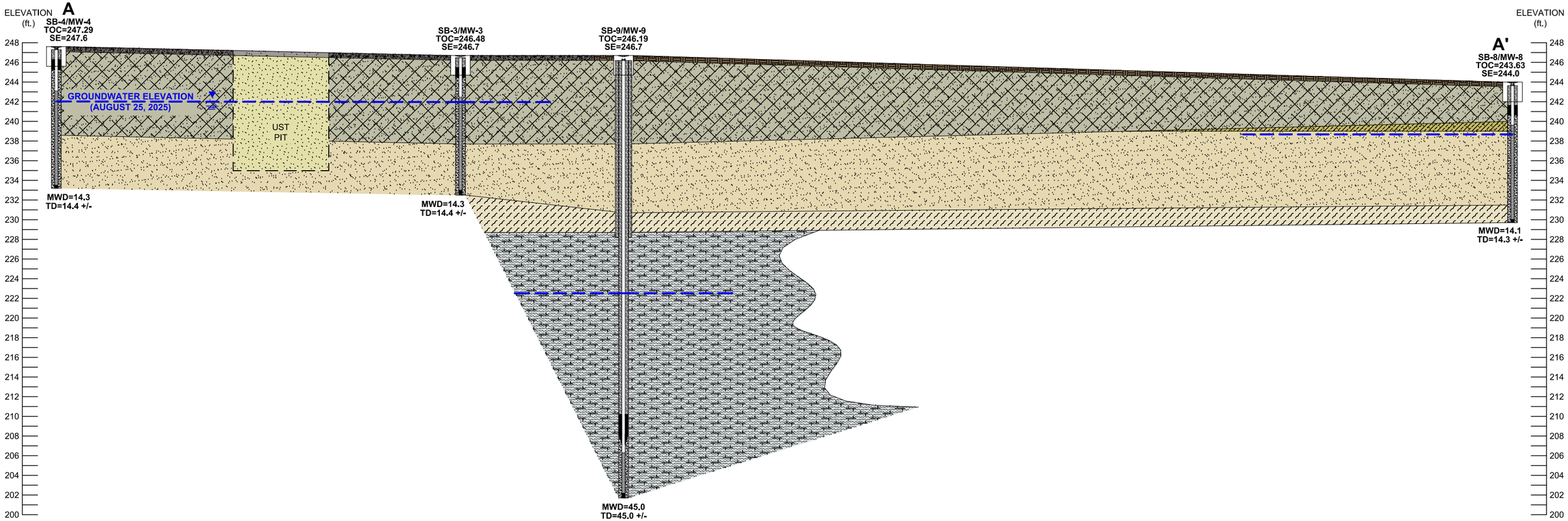
TD=14.4 +/- TOTAL DEPTH OF BORING (ft.)

MWD=14.3 MEASURED WELL DEPTH (ft.)

SCREENED INTERVAL W/SUMP



HORIZ. SCALE: 1"=10'
VERT. SCALE: 1"=10'



PPM CONSULTANTS, INC.
www.ppmco.com

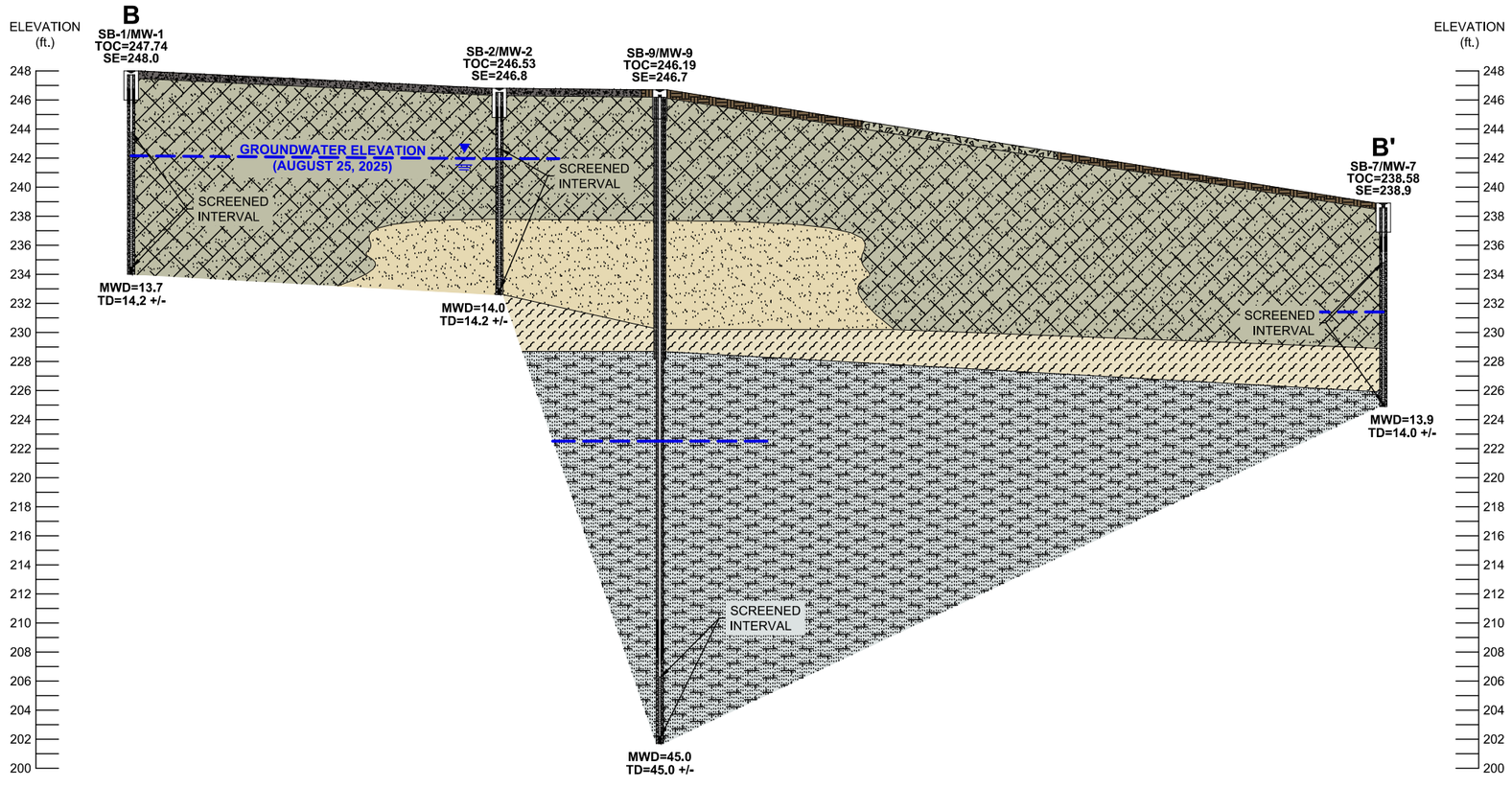
DRAWN BY:	DRAWN DATE:
BWH	11/18/25
PROJECT NUMBER:	PHASE:
40166601	CAP

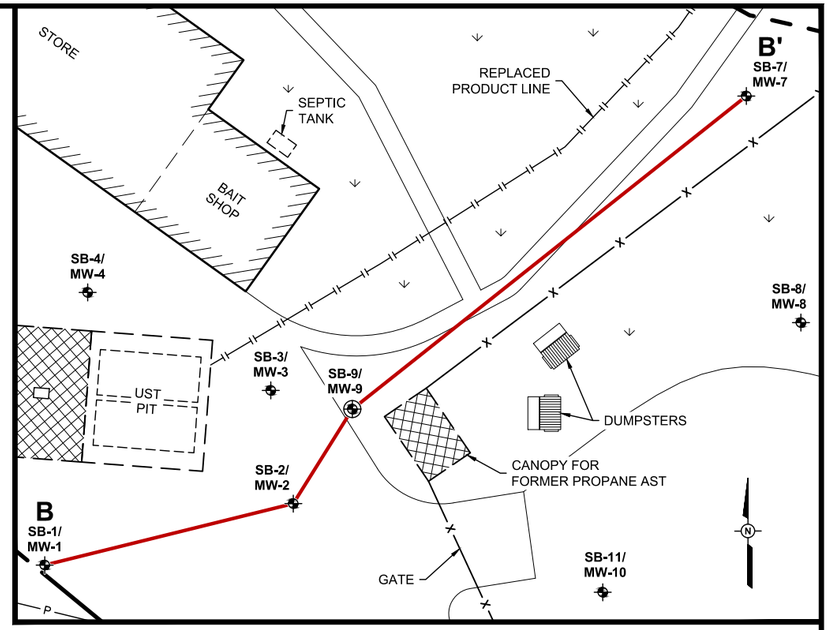
PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

GEOLOGIC CROSS-SECTION
A-A'

FIGURE NUMBER
3A

HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=10'





LEGEND:

- GRAVELLY SAND
- SAND
- SHALE
- SANDSTONE
- ASPHALT
- GRAVEL
- TOP SOIL

TOC=247.74 TOP OF CASING (ft.)

SE=248.0 SURFACE ELEVATION (ft.)

TD=14.2 +/- TOTAL DEPTH OF BORING (ft.)

MWD=13.7 MEASURED WELL DEPTH (ft.)

SCREENED INTERVAL W/SUMP

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LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

GEOLOGIC CROSS-SECTION
B-B'

FIGURE NUMBER
3B

N

0 15 30

SCALE: 1"=30'
(Approximate)

13

43

MW-12
226.12

MW-5
234.58

MW-6
234.55

239.00

240.00

MW-11
240.13

241.00

242.00

MW-98-1
242.01

MW-4
242.03

MW-3
241.97

MW-9
222.52

MW-2
241.96

MW-1
242.16

MW-98-2
242.12

MW-7
231.41

MW-8
238.68

MW-10
238.07

COVERED BOAT DOCK

PIER

COVERED BOAT DOCK

LAKE TUSCALOOSA

OVERHANG

STORE

BAIT SHOP

CANOPY

UST PIT

LARY LAKE ROAD

NOTE
MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

- TYPE II MONITORING WELL LOCATION
- TYPE III MONITORING WELL LOCATION
- 242.16 GROUNDWATER ELEVATION (ft.)
- 239.00 GROUNDWATER ELEVATION CONTOUR (ft.)
- GROUNDWATER FLOW DIRECTION

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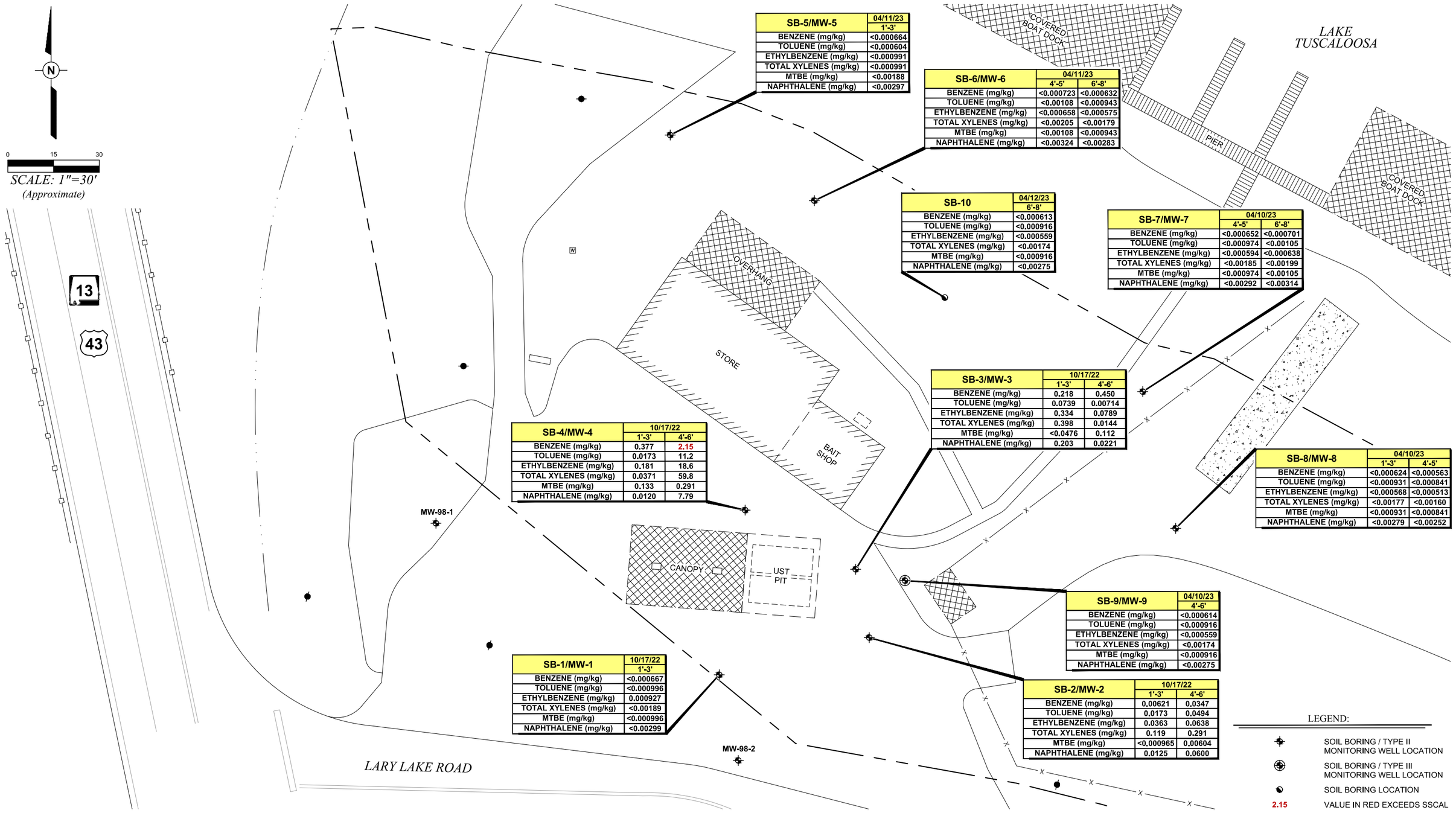
NORTHPORT, ALABAMA

GROUNDWATER ELEVATION MAP
(AUGUST 25, 2025)

FIGURE NUMBER
4



SB-5/MW-5	04/11/23
	1'-3'
BENZENE (mg/kg)	<0.000664
TOLUENE (mg/kg)	<0.000604
ETHYLBENZENE (mg/kg)	<0.000991
TOTAL XYLENES (mg/kg)	<0.000991
MTBE (mg/kg)	<0.00188
NAPHTHALENE (mg/kg)	<0.00297

SB-6/MW-6	04/11/23	
	4'-5'	6'-8'
BENZENE (mg/kg)	<0.000723	<0.000632
TOLUENE (mg/kg)	<0.00108	<0.000943
ETHYLBENZENE (mg/kg)	<0.000658	<0.000575
TOTAL XYLENES (mg/kg)	<0.00205	<0.00179
MTBE (mg/kg)	<0.00108	<0.000943
NAPHTHALENE (mg/kg)	<0.00324	<0.00283

SB-10	04/12/23
	6'-8'
BENZENE (mg/kg)	<0.000613
TOLUENE (mg/kg)	<0.000916
ETHYLBENZENE (mg/kg)	<0.000559
TOTAL XYLENES (mg/kg)	<0.00174
MTBE (mg/kg)	<0.000916
NAPHTHALENE (mg/kg)	<0.00275

SB-7/MW-7	04/10/23	
	4'-5'	6'-8'
BENZENE (mg/kg)	<0.000652	<0.000701
TOLUENE (mg/kg)	<0.000974	<0.00105
ETHYLBENZENE (mg/kg)	<0.000594	<0.000638
TOTAL XYLENES (mg/kg)	<0.00185	<0.00199
MTBE (mg/kg)	<0.000974	<0.00105
NAPHTHALENE (mg/kg)	<0.00292	<0.00314

SB-4/MW-4	10/17/22	
	1'-3'	4'-6'
BENZENE (mg/kg)	0.377	2.15
TOLUENE (mg/kg)	0.0173	11.2
ETHYLBENZENE (mg/kg)	0.181	18.6
TOTAL XYLENES (mg/kg)	0.0371	59.8
MTBE (mg/kg)	0.133	0.291
NAPHTHALENE (mg/kg)	0.0120	7.79

SB-3/MW-3	10/17/22	
	1'-3'	4'-6'
BENZENE (mg/kg)	0.218	0.450
TOLUENE (mg/kg)	0.0739	0.00714
ETHYLBENZENE (mg/kg)	0.334	0.0789
TOTAL XYLENES (mg/kg)	0.398	0.0144
MTBE (mg/kg)	<0.0476	0.112
NAPHTHALENE (mg/kg)	0.203	0.0221

SB-8/MW-8	04/10/23	
	1'-3'	4'-5'
BENZENE (mg/kg)	<0.000624	<0.000563
TOLUENE (mg/kg)	<0.000931	<0.000841
ETHYLBENZENE (mg/kg)	<0.000568	<0.000513
TOTAL XYLENES (mg/kg)	<0.00177	<0.00160
MTBE (mg/kg)	<0.000931	<0.000841
NAPHTHALENE (mg/kg)	<0.00279	<0.00252

SB-9/MW-9	04/10/23
	4'-6'
BENZENE (mg/kg)	<0.000614
TOLUENE (mg/kg)	<0.000916
ETHYLBENZENE (mg/kg)	<0.000559
TOTAL XYLENES (mg/kg)	<0.00174
MTBE (mg/kg)	<0.000916
NAPHTHALENE (mg/kg)	<0.00275

SB-1/MW-1	10/17/22
	1'-3'
BENZENE (mg/kg)	<0.000667
TOLUENE (mg/kg)	<0.000996
ETHYLBENZENE (mg/kg)	0.000927
TOTAL XYLENES (mg/kg)	<0.00189
MTBE (mg/kg)	<0.000996
NAPHTHALENE (mg/kg)	<0.00299

SB-2/MW-2	10/17/22	
	1'-3'	4'-6'
BENZENE (mg/kg)	0.00621	0.0347
TOLUENE (mg/kg)	0.0173	0.0494
ETHYLBENZENE (mg/kg)	0.0363	0.0638
TOTAL XYLENES (mg/kg)	0.119	0.291
MTBE (mg/kg)	<0.000965	0.00604
NAPHTHALENE (mg/kg)	0.0125	0.0600

LEGEND:

- SOIL BORING / TYPE II MONITORING WELL LOCATION
- SOIL BORING / TYPE III MONITORING WELL LOCATION
- SOIL BORING LOCATION
- 2.15 VALUE IN RED EXCEEDS SSCAL

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NORTHPORT, ALABAMA

COC CONCENTRATIONS IN SOIL

FIGURE NUMBER
5

N

0 15 30

SCALE: 1"=30'
(Approximate)

13

43

MW-12
<0.001

MW-5
0.021

MW-6
<0.001

MW-11
0.008

MW-7
<0.001

MW-8
<0.001

MW-4
6.650

MW-98-1
<0.001

MW-3
6.720

MW-9
<0.001

MW-2
2.980

MW-1
0.002

MW-10
0.005

MW-98-2
<0.001

0.005

0.1

1.0

OVERHANG

STORE

BAIT SHOP

CANOPY

UST PIT

COVERED BOAT DOCK

PIER

COVERED BOAT DOCK

LAKE TUSCALOOSA

LARY LAKE ROAD

NOTE
MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

- TYPE II MONITORING WELL LOCATION
- TYPE III MONITORING WELL LOCATION
- 2.980 — BENZENE CONCENTRATION (mg/L) (VALUE IN RED EXCEEDS SSCAL)
- 0.005 — BENZENE CONCENTRATION CONTOUR (mg/L)

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DISSOLVED BENZENE ISOCONCENTRATION MAP
(AUGUST 25, 2025)

FIGURE NUMBER
6

N

0 15 30

SCALE: 1"=30'
(Approximate)

13

43

MW-12
<0.001

MW-5
0.024

MW-6
0.014

MW-11
0.027

MW-98-1
<0.001

MW-4
0.925

MW-3
0.305

MW-9
<0.001

MW-1
<0.001

MW-2
0.178

MW-98-2
<0.001

MW-10
0.127

MW-7
<0.001

MW-8
0.005

0.02

0.1

OVERHANG

STORE

BAIT SHOP

CANOPY

UST PIT

COVERED BOAT DOCK

PIER

COVERED BOAT DOCK

LAKE TUSCALOOSA

LARY LAKE ROAD

NOTE
MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

- TYPE II MONITORING WELL LOCATION
- TYPE III MONITORING WELL LOCATION
- 0.178 MTBE CONCENTRATION (mg/L)
- 0.02 MTBE CONCENTRATION CONTOUR (mg/L)

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DISSOLVED MTBE ISOCONCENTRATION MAP
(AUGUST 25, 2025)

FIGURE NUMBER
7

N

0 15 30

SCALE: 1"=30'
(Approximate)

13

43

MW-12
<0.005

MW-5
0.010

MW-6
<0.005

MW-11
<0.005

MW-98-1
<0.005

MW-4
0.960

MW-3
1.500

MW-9
<0.005

MW-2
1.520

MW-1
<0.005

MW-98-2
<0.005

MW-7
<0.005

MW-8
<0.005

MW-10
<0.005

OVERHANG

STORE

BAIT SHOP

CANOPY

UST PIT

0.02

0.1

1.0

COVERED BOAT DOCK

PIER

COVERED BOAT DOCK

LAKE TUSCALOOSA

LARY LAKE ROAD

NOTE
MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

- TYPE II MONITORING WELL LOCATION
- TYPE III MONITORING WELL LOCATION
- 1.520 — NAPHTHALENE CONCENTRATION (mg/L)
- 0.02 — NAPHTHALENE CONCENTRATION CONTOUR (mg/L)

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DISSOLVED NAPHTHALENE ISOCONCENTRATION MAP
(AUGUST 25, 2025)

FIGURE NUMBER
8

N

0 15 30

SCALE: 1"=30'
(Approximate)

13

43

LAKE TUSCALOOSA

COVERED BOAT DOCK

PIER

COVERED BOAT DOCK

MW-12 <0.001

MW-5 0.021

MW-6 <0.001

MW-11 0.008

OVERHANG

0.005

STORE

0.1

1.0

BAIT SHOP

PRW-7

PRW-8

MW-4 6.650

PRW-6

HAND DIG

PRW-5

MW-98-1 <0.001

PRW-9

CANOPY

UST PIT

MW-3 6.720

PRW-4

MW-9 <0.001

MW-2 2.980

PRW-3

PRW-2

PRW-1

PROPOSED TRENCHING

MW-1 0.002

MW-98-2 <0.001

LARY LAKE ROAD

PRODUCT LINE

MW-7 <0.001

MW-8 <0.001

MW-10 0.005

PROPOSED DPVE SYSTEM COMPOUND (SEE FIGURE 4 FOR DETAIL)

PROPOSED EFFLUENT DISCHARGE LINE

NOTE

MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

	TYPE II MONITORING WELL LOCATION
	TYPE III MONITORING WELL LOCATION
®	PROPOSED RECOVERY WELL LOCATION
2,980	BENZENE CONCENTRATION (mg/L) (VALUE IN RED EXCEEDS SSCAL)
0.005	BENZENE CONCENTRATION CONTOUR (mg/L)

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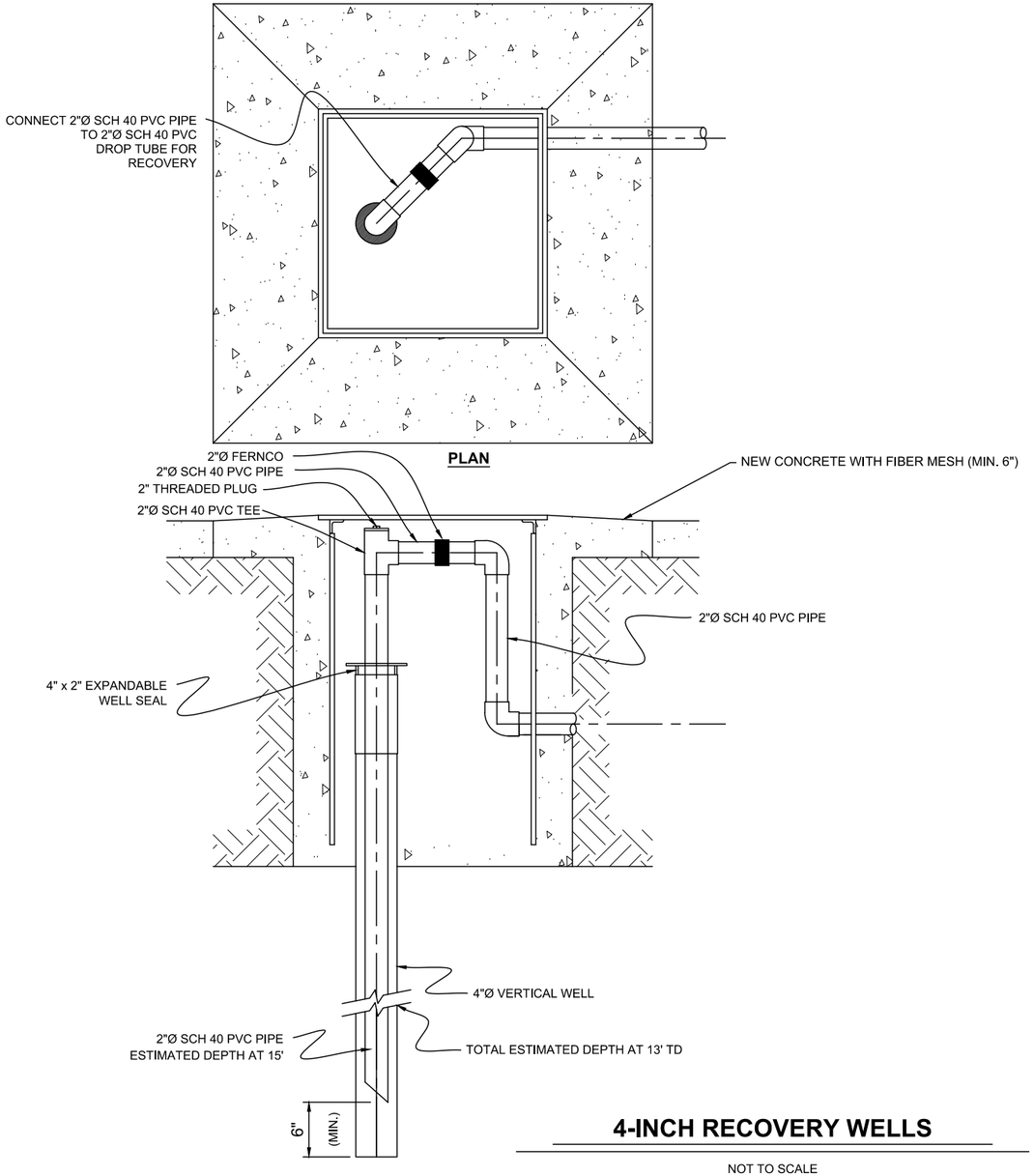
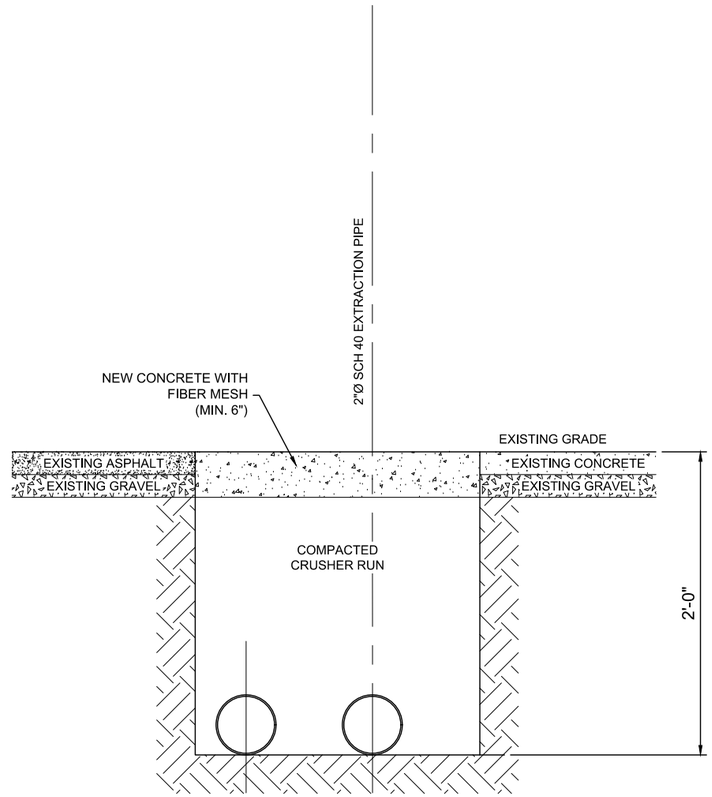
PROPOSED SYSTEM LAYOUT

FIGURE NUMBER
9



4-INCH RECOVERY WELLS

NOT TO SCALE



PIPING TRENCH

(TYPICAL TRENCHING)

NOT TO SCALE

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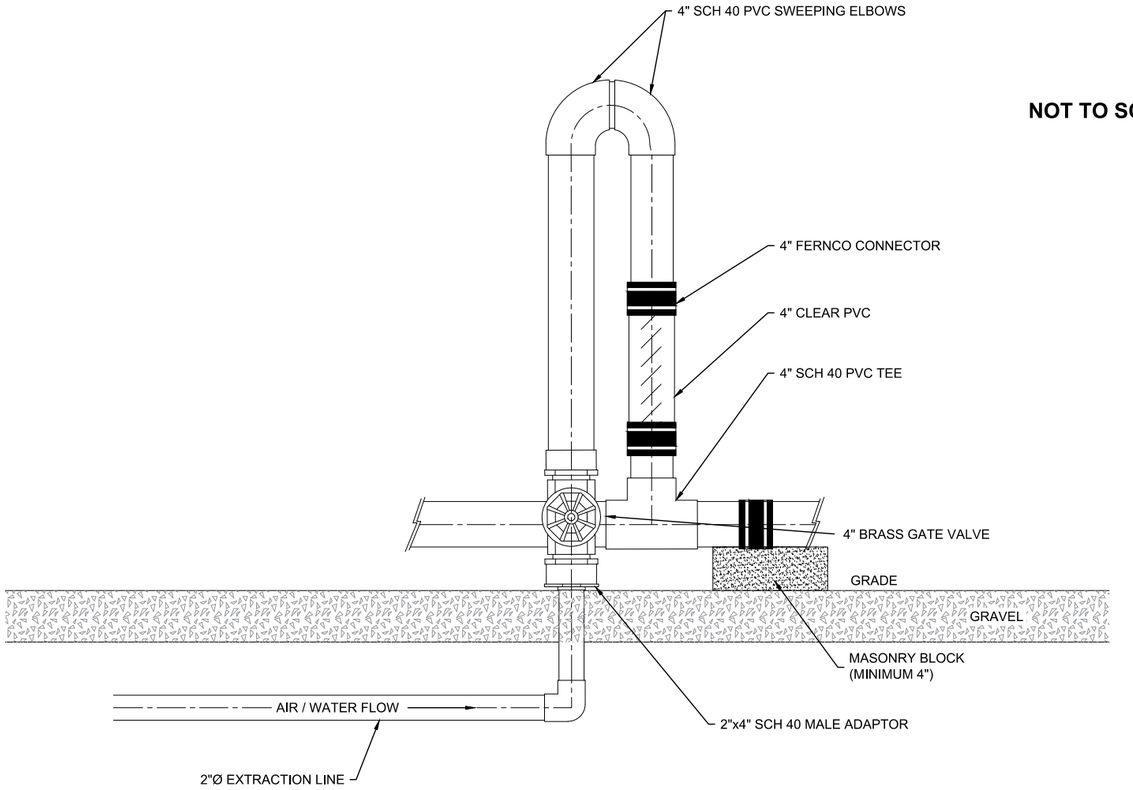
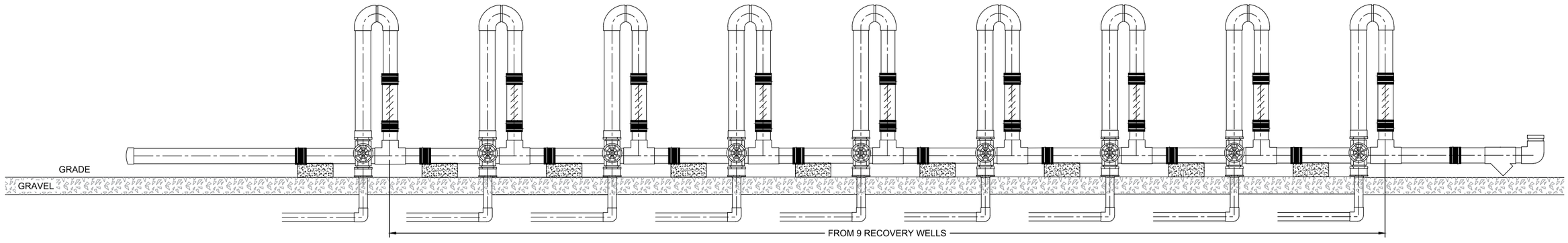
DETAILS AND SECTIONS FOR 4-INCH RECOVERY WELLS AND PIPING TRENCH

FIGURE NUMBER 10

MANIFOLD CONNECTION FROM RECOVERY WELLS TO SYSTEM (9 WELLS)



NOT TO SCALE



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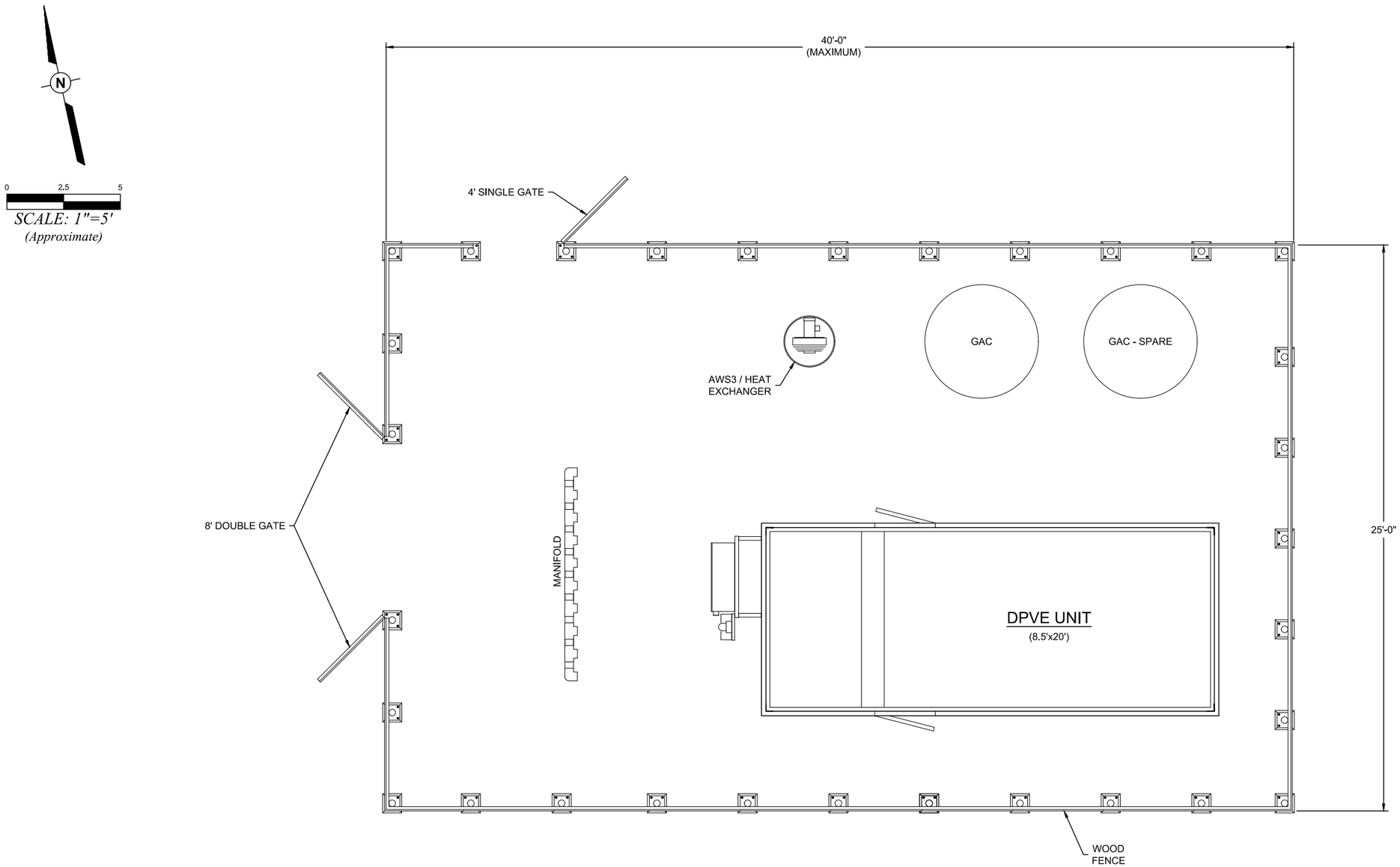
PROFILE / PLAN VIEW OF MANIFOLD

FIGURE NUMBER
11



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LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

PROPOSED SYSTEM COMPOUND

FIGURE NUMBER
12

TABLES

TABLE 1
GROUNDWATER ELEVATION SURVEY DATA
LAKELAND GROCERY
NORTHPORT, ALABAMA

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL (ft)	DEPTH TO FREE PRODUCT (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	FREE PRODUCT THICKNESS (ft)	GROUND-WATER ELEVATION (ft)
MW-1	10/26/22	248.0	247.74	13.7	234.5 - 244.1	--	6.05	--	241.69
	04/17/23			13.6		--	4.83	--	242.91
	09/15/23			13.5		--	6.19	--	241.55
	12/14/23			13.7		--	6.40	--	241.34
	03/15/24			13.5		--	5.46	--	242.28
	06/27/24			13.7		--	5.95	--	241.79
	10/17/24			13.5		--	6.37	--	241.37
	02/19/25			13.8		--	5.47	--	242.27
	05/15/25			13.7		--	4.63	--	243.11
	08/25/25			13.7		--	5.58	--	242.16
MW-2	10/26/22	246.8	246.53	14.1	233.0 - 242.6	--	4.96	--	241.57
	04/17/23			14.1		--	3.42	--	243.11
	09/15/23			14.0		--	4.80	--	241.73
	12/14/23			14.0		--	5.27	--	241.26
	03/15/24			14.0		--	3.90	--	242.63
	06/27/24			14.0		--	4.92	--	241.61
	10/17/24			13.7		--	5.22	--	241.31
	02/19/25			13.7		--	4.33	--	242.20
	05/15/25			13.7		--	3.03	--	243.50
	08/25/25			14.1		--	4.57	--	241.96
MW-3	10/26/22	246.7	246.48	14.1	232.7 - 242.3	--	4.91	--	241.57
	04/17/23			14.1		--	3.72	--	242.76
	09/15/23			14.3		--	4.88	--	241.60
	12/14/23			14.0		--	5.03	--	241.45
	03/15/24			14.0		--	4.09	--	242.39
	06/27/24			14.2		4.70	4.91	0.21	241.73
	10/17/24			14.0		--	5.10	--	241.38
	02/19/25			14.3		--	4.16	--	242.32
	05/15/25			14.3		--	3.41	--	243.07
	08/25/25			14.3		--	4.51	--	241.97
MW-4	10/26/22	247.6	247.29	14.3	233.5 - 243.1	--	5.68	--	241.61
	04/17/23			14.0		--	4.40	--	242.89
	09/15/23			14.3		--	5.60	--	241.69
	12/14/23			14.2		--	5.92	--	241.37
	03/15/24			14.2		--	4.83	--	242.46
	06/27/24			14.3		--	5.54	--	241.75
	10/17/24			14.3		--	5.88	--	241.41
	02/19/25			14.0		--	4.96	--	242.33
	05/15/25			14.0		--	3.93	--	243.36
	08/25/25			14.0		--	5.26	--	242.03
MW-5	04/17/23	240.1	239.88	13.5	227.6 - 237.2	--	4.70	--	235.18
	09/15/23			13.5		--	6.26	--	233.62
	12/14/23			13.4		--	5.59	--	234.29
	03/15/24			13.5		--	4.58	--	235.30
	06/27/24			13.5		--	5.23	--	234.65
	10/17/24			13.5		--	5.72	--	234.16
	02/19/25			13.5		--	4.03	--	235.85
	05/15/25			13.5		--	3.58	--	236.30
	08/25/25			13.5		--	5.30	--	234.58
MW-6	04/17/23	242.7	242.37	18.2	224.6 - 239.2	--	7.55	--	234.82
	09/15/23			18.1		--	7.55	--	234.82
	12/14/23			18.1		--	7.54	--	234.83
	03/15/24			18.2		--	7.39	--	234.98
	06/27/24			18.2		--	7.76	--	234.61
	10/17/24			18.2		--	7.88	--	234.49
	02/19/25			18.3		--	6.81	--	235.56
	05/15/25			18.2		--	6.63	--	235.74
	08/25/25			18.2		--	7.82	--	234.55

TABLE 1
GROUNDWATER ELEVATION SURVEY DATA
LAKELAND GROCERY
NORTHPORT, ALABAMA

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL (ft)	DEPTH TO FREE PRODUCT (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	FREE PRODUCT THICKNESS (ft)	GROUND-WATER ELEVATION (ft)
MW-7	04/17/23	238.9	238.58	13.7	225.2 - 234.8	--	6.21	--	232.37
	09/15/23			13.6		--	7.90	--	230.68
	12/14/23			13.5		--	5.72	--	232.86
	03/15/24			13.8		--	5.90	--	232.68
	06/27/24			13.8		--	7.32	--	231.26
	10/17/24			13.6		--	7.44	--	231.14
	02/19/25			13.6		--	5.64	--	232.94
	05/15/25			13.7		--	5.44	--	233.14
	08/25/25			13.8		--	7.17	--	231.41
MW-8	04/17/23	244.0	243.63	14.1	230.0 - 239.6	--	4.19	--	239.44
	09/15/23			14.1		--	5.26	--	238.37
	12/14/23			14.0		--	4.84	--	238.79
	03/15/24			14.1		--	3.55	--	240.08
	06/27/24			14.1		--	0.40	--	243.23
	10/17/24			14.1		--	6.15	--	237.48
	02/19/25			14.1		--	3.78	--	239.85
	05/15/25			14.1		--	3.95	--	239.68
	08/25/25			14.1		--	4.95	--	238.68
MW-9	04/17/23	246.7	246.19	45.0	201.7 - 206.3	--	23.60	--	222.59
	09/15/23			45.1		--	24.40	--	221.79
	12/14/23			45.4		--	25.91	--	220.28
	03/15/24			45.1		--	24.46	--	221.73
	06/27/24			45.2		--	23.84	--	222.35
	10/17/24			44.9		--	24.25	--	221.94
	02/19/25			45.5		--	22.92	--	223.27
	05/15/25			45.5		--	21.41	--	224.78
	08/25/25			45.1		--	23.67	--	222.52
MW-10	09/15/23	245.7	245.37	20.0	225.8 - 235.4	--	7.66	--	237.71
	12/14/23			20.0		--	7.58	--	237.79
	03/15/24			20.0		--	6.95	--	238.42
	06/27/24			20.1		--	7.39	--	237.98
	10/17/24			20.0		--	7.84	--	237.53
	02/19/25			20.0		--	6.92	--	238.45
	05/15/25			19.7		--	6.01	--	239.36
	08/25/25			19.9		--	7.30	--	238.07
MW-11	09/15/23	244.3	243.91	16.3	227.9 - 237.5	--	4.15	--	239.76
	12/14/23			15.8		--	4.05	--	239.86
	03/15/24			16.3		--	3.15	--	240.76
	06/27/24			16.5		--	4.03	--	239.88
	10/17/24			16.3		--	4.14	--	239.77
	02/19/25			16.4		--	2.67	--	241.24
	05/15/25			16.3		--	0.50	--	243.41
	08/25/25			16.3		--	3.78	--	240.13
MW-12	09/15/23	236.3	235.98	12.4	224.1 - 233.7	--	10.12	--	225.86
	12/14/23			12.2		--	9.45	--	226.53
	03/15/24			12.4		--	8.82	--	227.16
	06/27/24			12.4		--	9.39	--	226.59
	10/17/24			12.3		--	9.85	--	226.13
	02/19/25			12.4		--	8.06	--	227.92
	05/15/25			12.3		--	7.62	--	228.36
	08/25/25			12.4		--	9.86	--	226.12

TABLE 1
GROUNDWATER ELEVATION SURVEY DATA
LAKELAND GROCERY
NORTHPORT, ALABAMA

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL (ft)	DEPTH TO FREE PRODUCT (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	FREE PRODUCT THICKNESS (ft)	GROUND-WATER ELEVATION (ft)
MW-98-1	10/26/22	249.4	249.17	9.1	235.0 - 240.0*	--	7.62	--	241.55
	04/17/23			8.9		--	6.40	--	242.77
	09/15/23			9.2		--	7.72	--	241.45
	12/14/23			8.7		--	7.91	--	241.26
	03/15/24			9.1		--	6.91	--	242.26
	06/27/24			9.2		--	7.56	--	241.61
	10/17/24			9.1		--	7.91	--	241.26
	02/19/25			9.0		--	6.87	--	242.30
	05/15/25			9.0		--	5.94	--	243.23
	08/25/25			9.1		--	7.16	--	242.01
MW-98-2	10/26/22	248.8	248.41	9.7	233.7 - 238.7*	--	6.69	--	241.72
	04/17/23			9.7		--	5.46	--	242.95
	09/15/23			9.7		--	6.80	--	241.61
	12/14/23			9.6		--	7.04	--	241.37
	03/15/24			9.6		--	6.15	--	242.26
	06/27/24			9.5		--	6.65	--	241.76
	10/17/24			10.7		--	7.05	--	241.36
	02/19/25			9.8		--	6.20	--	242.21
	05/15/25			9.8		--	5.61	--	242.80
	08/25/25			9.8		--	6.29	--	242.12

Notes: *ft-BTOC - feet below top of casing*
Elevations based on approximate NGVD of 248 feet above mean sea level as referenced from Lake Tuscaloosa South, Alabama USGS 7.5-Minute Quadrangle Topographic Map
** - Screen interval estimated from measured base of well*

Source: *PPM Consultants, Inc.*
40166601-CAP

TABLE 2
SOIL ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DEPTH (ft BGS)	SAMPLE DATE	HEADSPACE READING (ppmv)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	MTBE (mg/kg)	NAPH-THALENE (mg/kg)
SB-1-1-3	1-3	10/17/22	15.0	<0.000667	<0.000996	*0.000927*	<0.00189	0.000927	<0.000996	<0.00299
SB-2-1-3	1-3	10/17/22	10.8	0.00621	0.0173	0.0363	0.119	0.17881	<0.000965	0.0125
SB-2-4-6	4-6	10/17/22	227.8	0.0347	0.0494	0.0638	0.291	0.4389	0.00604	0.0600
SB-3-1-3	1-3	10/17/22	23.2	*0.218*	*0.0739*	0.334	*0.398*	1.0239	<0.0476	*0.203*
SB-3-4-6	4-6	10/17/22	55.1	0.450	0.00714	0.0789	0.0144	0.55044	0.112	0.0221
SB-4-1-3	1-3	10/17/22	69.2	0.377	0.0173	0.181	0.0371	0.6124	0.133	0.0120
SB-4-4-6	4-6	10/17/22	872.1	**2.15**	11.2	18.6	59.8	91.75	*0.291*	7.79
SB-5 (1-3)	1-3	04/11/23	15	<0.000664	<0.000991	<0.000664	<0.00188	BDL	<0.000991	<0.00297
SB-6 (4-5)	4-5	04/11/23	45	<0.000723	<0.00108	<0.000658	<0.00205	BDL	<0.00108	<0.00324
SB-6 (6-8)	6-8	04/11/23	20	<0.000632	<0.000943	<0.000575	<0.00179	BDL	<0.000943	<0.00283
SB-7 (4-5)	4-5	04/10/23	45	<0.000652	<0.000974	<0.000594	<0.00185	BDL	<0.000974	<0.00292
SB-7 (6-8)	6-8	04/10/23	35	<0.000701	<0.00105	<0.000638	<0.00199	BDL	<0.00105	<0.00314
SB-8 (1-3)	1-3	04/10/23	20	<0.000624	<0.000931	<0.000568	<0.00177	BDL	<0.000931	<0.00279
SB-8 (4-5)	4-5	04/10/23	15	<0.000563	<0.000841	<0.000513	<0.00160	BDL	<0.000841	<0.00252
SB-9 (4-6)	4-6	04/10/23	15	<0.000614	<0.000916	<0.000559	<0.00174	BDL	<0.000916	<0.00275
SB-10 (6-8)	6-8	04/12/23	0	<0.000613	<0.000916	<0.000559	<0.00174	BDL	<0.000916	<0.00275
SB-11 (9-11)	9-11	08/29/23	25	<0.000673	<0.00100	<0.000612	<0.00191	BDL	<0.00100	<0.00301
SB-11 (14-16)	14-16	08/29/23	20	<0.000636	<0.000949	<0.000579	<0.00180	BDL	<0.000949	<0.00285
SB-12 (4-6)	4-6	08/29/23	25	<0.000643	<0.000960	<0.000585	<0.00182	BDL	<0.000960	<0.00288
SB-12 (9-11)	9-11	08/29/23	20	<0.000675	<0.00101	<0.000615	<0.00191	BDL	<0.00101	<0.00302
SB-13 (4-6)	4-6	08/29/23	20	<0.000749	<0.00112	<0.000682	<0.00212	BDL	<0.00112	<0.00335
SB-13 (9-11)	9-11	08/29/23	15	<0.000527	<0.000787	<0.000480	<0.00150	BDL	<0.000787	<0.00236
SSCALs - SP (SB-1 through SB-4)				**1.436**	**43.82**	**157.9**	**--**	**--**	**--**	**214.3**
SSCALs - GRP (SB-1 through SB-4)				**8.523**	**491.9**	**220.0**	**272.4**	**--**	**13.85**	**214.3**
SSCALs - On-Site Commercial Worker-Indoor Inhalation				**21.25**	**491.9**	**220.0**	**272.4**	**--**	**9,508**	**214.3**

Notes: *ft BGS - feet below ground surface (approximate)*
ppmv - parts per million by volume
mg/kg - milligrams per kilogram
Headspace analysis conducted with a photoionization detector (PID) calibrated to isobutylene or RKI Eagle calibrated to hexane
BTEX/MTBE/Naphthalene analyses conducted per EPA Method 8260/5035
Values in italics indicates result is less than reporting limit but greater than method detection limit and concentration is approximate
SSCALs - Site Specific Corrective Action Limits
SP- Stream Protection
GRP - Groundwater Resource Protection
Bold *indicates concentration exceeds SSCAL for Stream Protection*
Bold Italics *indicates concentration exceeds SSCAL for Groundwater Resource Protection*

Source: *PPM Consultants, Inc.*
PPM Project No. 40166601-CAP

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-1	10/26/22	0.00374	0.00104	*0.000543*	*0.00452*	0.009843	0.00721	<0.00300
	04/17/23	*0.000996*	<0.000410	<0.000500	<0.00160	0.000996	<0.000220	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	0.00217	<0.000900	<0.000500	<0.00160	0.00217	<0.000220	<0.00300
	10/17/24	*0.000362*	<0.000900	<0.000500	<0.00600	*0.000362*	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	0.002	<0.001	<0.001	<0.003	0.002	<0.001	<0.005
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	***--***	***2.887***	***2.887***
MW-2	10/26/22	**1.31**	1.16	1.88	5.45	9.80	0.0529	0.578
	04/17/23	**2.62**	0.644	3.48	5.06	11.804	0.122	0.803
	09/15/23	**2.03**	0.887	3.14	6.68	12.737	0.0665	0.843
	12/14/23	**1.51**	0.241	2.16	3.13	7.041	0.070	0.566
	03/15/24	**2.28**	0.172	2.45	2.08	6.982	0.0989	0.606
	06/27/24	**2.20**	0.196	2.56	3.96	8.916	0.106	0.691
	10/17/24	**2.52**	0.205	3.28	3.74	9.745	0.149	0.942
	02/19/25	**2.19**	0.0444	1.36	0.636	4.2304	0.197	0.461
	05/15/25	**2.470**	*0.024*	1.40	0.495	4.389	0.291	0.640
	08/25/25	**2.980**	*0.416*	4.680	4.560	12.636	0.178	1.520
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	***--***	***2.887***	***2.887***
MW-3	10/26/22	**5.29**	**2.14**	3.04	4.74	15.21	0.654	0.843
	04/17/23	**5.53**	**4.98**	2.87	8.14	21.52	0.678	0.696
	09/15/23	**7.05**	**1.93**	2.81	8.51	20.30	0.826	1.42
	12/14/23	**5.74**	1.43	1.98	3.13	12.28	0.635	0.949
	03/15/24	**6.11**	**7.40**	3.25	12.3	29.06	0.0843	0.775
	06/27/24	**5.62**	1.29	1.75	4.50	13.16	0.326	0.880
	10/17/24	**4.27**	0.669	1.39	2.33	8.659	0.245	0.714
	02/18/25	**2.54**	**2.96**	2.56	7.41	15.47	<0.011	1.16
	05/15/25	**3.570**	**3.210**	3.590	11.500	21.870	*0.016*	1.460
	08/25/25	**6.720**	0.836	1.860	2.360	11.776	0.305	1.500
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	***--***	***2.887***	***2.887***
MW-4	10/26/22	**4.86**	**3.97**	3.11	8.85	20.79	1.94	0.677
	04/17/23	**6.56**	**4.89**	2.71	8.15	22.31	2.56	0.597
	09/15/23	**2.83**	1.88	1.38	3.49	9.58	1.23	0.314
	12/14/23	**1.81**	0.980	1.01	2.37	6.17	0.905	0.198
	03/15/24	**2.97**	**2.25**	1.11	3.20	9.53	0.996	0.258
	06/27/24	**6.73**	**2.73**	2.49	5.34	17.29	1.81	0.456
	10/17/24	**1.84**	0.911	0.848	1.64	5.239	0.65	0.171
	02/19/25	**1.86**	**2.17**	1.62	4.69	10.34	0.307	0.339
	05/15/25	**0.740**	1.350	1.590	5.290	8.970	0.123	0.383
	08/25/25	**6.650**	**2.370**	4.460	8.400	21.880	0.925	0.960
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	***--***	***2.887***	***2.887***

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-5	04/17/23	**0.0321**	*0.000504*	0.00340	*0.00483*	0.040834	0.124	<0.00300
	09/15/23	**0.0595**	<0.000900	0.02270	*0.00288*	0.085080	0.083	0.0221
	12/14/23	**0.0209**	<0.000900	0.00217	<0.00160	0.02307	0.0894	<0.000300
	03/15/24	**0.0608**	0.00121	0.00565	*0.00957*	0.07723	0.0609	0.015
	06/27/24	**0.0322**	0.00180	0.00542	<0.00320	0.03942	0.0522	*0.00804*
	10/17/24	**0.0349**	<0.000900	0.00318	<0.00600	0.03808	0.0627	0.00775
	02/18/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	0.00715	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	0.005	<0.005
	08/25/25	**0.021**	<0.001	0.005	<0.003	0.026	0.024	0.010
SSCALs - GRP/SP - POC		***0.0160***	***0.2552***	***0.6607***	***175***	**--**	***0.3808***	***0.3808***
MW-6	04/17/23	0.00271	<0.000820	*0.00106*	<0.00320	0.00377	0.254	<0.00600
	09/15/23	<0.000500	<0.000900	*<0.000500*	<0.00160	BDL	0.015	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0231	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.000587*	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00763	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	0.00545	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	0.00217	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	0.002	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	0.014	<0.005
SSCALs - GRP/SP - POC		***0.0219***	***0.3477***	***0.9001***	***175***	**--**	***0.5189***	***0.5189***
MW-7	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	0.0105	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0003	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00112	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00109	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - GRP/SP - POC		***0.0219***	***0.3477***	***0.9001***	***175***	**--**	***0.5189***	***0.5189***
MW-8	04/17/23	0.00606	*0.000534*	*0.000899*	<0.00160	0.007493	0.0376	0.0151
	09/15/23	0.000729	<0.000900	<0.000500	<0.00160	0.000729	0.0170	0.00620
	12/14/23	0.00106	<0.000900	<0.000500	<0.00160	0.00106	0.0073	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0018	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0128	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	0.0104	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	0.000639	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	0.005	<0.005
SSCALs - GRP/SP - POC		***0.0219***	***0.3477***	***0.9001***	***175***	**--**	***0.5189***	***0.5189***

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-9	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	0.0073	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.000297	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.00029*	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	0.00286	0.00286	*0.000231*	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.000301*	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	*0.000346*	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.000273*	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	***--***	***2.887***	***2.887***
MW-10	09/15/23	0.00137	<0.000900	<0.000500	<0.00160	0.00137	*0.126*	<0.00300
	12/14/23	0.00134	<0.000900	<0.000500	<0.00160	0.00134	0.0909	<0.00300
	03/15/24	0.00169	<0.000900	0.00483	*0.00180*	0.00832	0.0773	<0.00300
	06/27/24	0.0205	<0.000900	0.0206	<0.00160	0.0411	0.107	<0.00300
	10/17/24	0.00385	<0.000900	<0.000500	<0.00600	0.0039	0.088	<0.00300
	02/18/25	0.00113	<0.000900	0.00241	<0.00600	0.00354	0.109	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	0.098	<0.005
	08/25/25	0.005	<0.001	<0.001	<0.003	0.005	0.127	<0.005
SSCALs - GRP - POC		***0.2157***	***43.14***	***30.20***	***175***	***--***	***0.8627***	***0.8627***
MW-11	09/15/23	0.0539	0.00157	0.00314	0.00607	0.06468	0.0133	0.0201
	12/14/23	0.0717	0.00177	0.0128	*0.0044*	0.09067	0.0225	0.0172
	03/15/24	0.0293	<0.000900	0.00259	*0.00184*	0.03373	0.00892	0.00705
	06/27/24	0.0350	<0.000900	0.00123	<0.00160	0.03623	0.0145	0.00574
	10/17/24	0.0166	<0.000900	0.00107	<0.00600	0.01767	0.0251	<0.00300
	02/19/25	0.0107	<0.000900	0.000723	<0.00600	0.011423	0.0368	0.00301
	05/15/25	0.005	<0.001	<0.001	<0.003	0.005	0.034	<0.005
	08/25/25	0.008	<0.001	<0.001	<0.003	0.008	0.027	<0.005
SSCALs - GRP - POC		***0.1164***	***23.29***	***16.30***	***175***	***--***	***0.4658***	***0.4658***
MW-12	09/15/23	<0.000500	<0.000900	<0.000500	*<0.00160*	BDL	0.00547	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00172	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.00250	<0.00450	<0.00250	<0.00800	BDL	<0.00110	<0.0150
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	*0.000788*	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - GRP/SP - POC		***0.0110***	***0.1750***	***0.4530***	***118***	***--***	***0.2360***	***0.2360***

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-98-1	10/26/22	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	10/17/24	<0.00024	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - Commercial Worker		**50.885**	**526**	**169**	**175**	**--**	**48,000**	**31.0**
MW-98-2	10/26/22	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.00100	<0.00180	<0.00100	<0.00320	BDL	<0.000440	<0.00600
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - Commercial Worker		**50.885**	**526**	**169**	**175**	**--**	**48,000**	**31.0**
DUPLICATE RESULTS								
DUP (MW-2)	10/26/22	1.13	0.924	1.36	4.12	7.534	0.0521	0.557
DUP (MW-2)	04/17/23	2.02	0.441	2.00	2.91	7.371	0.109	0.553
DUP (MW-2)	09/15/23	2.33	1.000	3.46	7.32	14.110	0.087	0.942
DUP (MW-5)	12/14/23	0.0149	<0.000900	0.00106	<0.00160	0.01596	0.0834	<0.00300
DUP (MW-5)	03/15/24	0.0528	0.00111	0.00389	*0.00622*	0.06402	0.0573	0.0115
DUP (MW-5)	06/27/24	0.0391	<0.000900	0.0118	*0.00222*	0.05312	0.0563	0.0123
DUP (MW-11)	10/17/24	0.0156	<0.000900	*0.000863*	<0.00600	0.01646	0.0235	<0.00300
DUP (MW-11)	02/19/25	0.0108	<0.000900	*0.000618*	<0.00600	0.011418	0.0385	<0.00300
DUP (MW-11)	08/25/25	0.007	<0.001	<0.001	<0.003	0.007	0.026	<0.005

Notes: *mg/L - milligrams per liter*
BDL - below detection limits
BTEX/MTBE/Naphthalene analyses conducted per EPA Method 8260
Values in italics indicates result is less than reporting limit but greater than method detection limit and concentration is approximate
SSCAL - Site Specific Corrective Action Limit
SP-POC - Stream Protection - Point of Compliance
GRP-POC - Groundwater Resource Protection - Point of Compliance
Bold *indicates concentration exceeds SSCAL*

Source: *PPM Consultants, Inc.*
40166601-CAP

APPENDICES

APPENDIX A – SOIL BORING LOGS/MONITORING WELL CONSTRUCTION LOGS

LOG OF BORING: SB-1 / MW-1

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-PI
Project Type:	Preliminary Investigation

Boring Information:

Date / Time:	10-17-22
Logged By:	AP
Drilling Company / Driller:	TDS
Drilling Method:	Hollow Stem Auger
Total Boring Depth:	14.2 ft BGS
Initial Saturation (ft)/Date:	6.0 ft BGS
Static GW level (ft)/Date:	5.96 ft BTOC / 10-17-22
Surface Elevation (ft):	248.0 ft
Sampling Interval:	Continuous

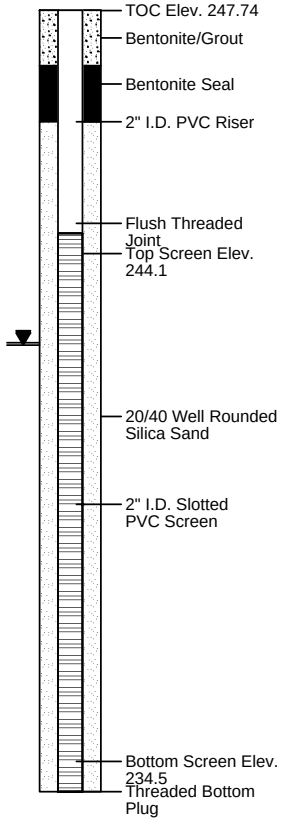
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	10-17-22
Total Well Depth:	13.7 ft
Screened Interval:	3.6 ft - 13.2 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	73 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 248.0	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	248				ASPHALT				
					GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, moist, tan, light brown, no odor, gravel is fine to coarse grained, rounded	1	N/A	15*	--
					GRAVELLY SAND - no recovery				
5	243	▼							
			SP		GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, saturated, light brown, no odor, gravel is fine to coarse grained, rounded, chert	2	N/A	0.4	50%
					GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, saturated, light brown, no odor, gravel is fine to coarse grained, rounded, chert	3	N/A	1.5	100%
10	238				GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, saturated, light brown, no odor, gravel is fine to coarse grained, rounded, chert	4	N/A	0.8	100%
					GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, saturated, light brown, no odor, gravel is fine to coarse grained, rounded, chert	5	N/A	2.0	100%
15	233				*(Boring terminated @ 14.2 ft BGS)*				
20									

Well Schematic: MW-1



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

11-17-2022 O:_Overhead_Boring Log Drafts\40166601-PI\SB-1.bor

LOG OF BORING: SB-2 / MW-2

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-PI
Project Type:	Preliminary Investigation

Boring Information:

Date / Time:	10-17-22
Logged By:	AP
Drilling Company / Driller:	TDS
Drilling Method:	Hollow Stem Auger
Total Boring Depth:	14.2 ft BGS
Initial Saturation (ft)/Date:	6.0 ft BGS
Static GW level (ft)/Date:	4.87 ft BTOC / 10-17-22
Surface Elevation (ft):	246.8 ft
Sampling Interval:	5-ft centers

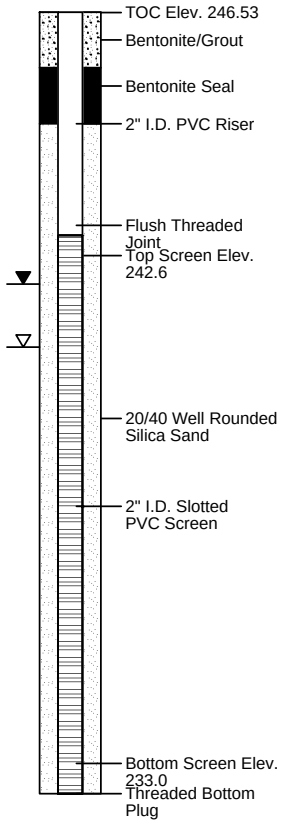
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	10-17-22
Total Well Depth:	14.0 ft
Screened Interval:	3.9 ft - 13.5 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	6 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 246.8	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0					ASPHALT				
	246		CL		GRAVELLY CLAY, low plasticity, firm, homogeneous, moist, dark red, mild petroleum-like odor, gravel is fine to coarse grained, rounded, chert	1	N/A	10.8*	--
					GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, moist, red/brown, mild petroleum-like odor, gravel is fine to coarse grained, rounded, chert				
5		▼	SP		GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, rounded, moist, red/brown, mild petroleum-like odor, gravel is fine to coarse grained, rounded, chert	2	N/A	227.8*	50%
	241	▽							
10					SAND, homogeneous, poorly graded, fine to medium grained, dense, angular, saturated, light brown, mild petroleum-like odor	3	N/A	298.2	50%
	236		SW						
					SAND, homogeneous, poorly graded, fine to medium grained, dense, angular, saturated, light brown, mild petroleum-like odor	4	N/A	241.5	50%
					(Boring terminated @ 14.2 ft BGS)				
15	231								
20									

Well Schematic: MW-2



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

11-17-2022 O:_Overhead_Boring Log Drafts\40166601-PI\SB-2.bor

LOG OF BORING: SB-3 / MW-3

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-PI
Project Type:	Preliminary Investigation

Boring Information:

Date / Time:	10-17-22 13:20-14:45
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	Hollow Stem Auger
Total Boring Depth:	14.4 ft BGS
Initial Saturation (ft)/Date:	6.0 ft BGS
Static GW level (ft)/Date:	4.80 ft BTOC / 10-17-22
Surface Elevation (ft):	246.7 ft
Sampling Interval:	5-ft centers

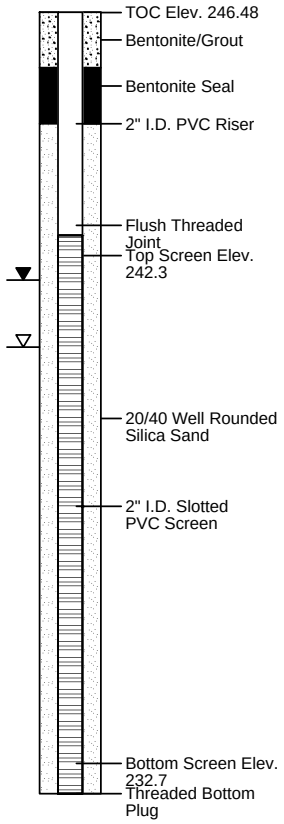
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	10-17-22
Total Well Depth:	14.3 ft
Screened Interval:	4.2 ft - 13.8 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	12 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 246.7	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0					ASPHALT				
	246				GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, moist, reddish brown, strong petroleum-like odor, gravel is fine to coarse grained, rounded, chert	1	N/A	23.2*	100%
5		▼	SP		GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, wet, reddish brown, strong petroleum-like odor, fine to coarse grained, rounded, chert	2	N/A	55.1*	25%
	241	▽							
10					SAND, homogeneous, poorly graded, fine to medium grained, dense, angular, saturated, light brown, mild petroleum-like odor	3	N/A	201.2	40%
	236		SW		SAND, homogeneous, poorly graded, fine to medium grained, dense, angular, saturated, light brown, mild petroleum-like odor	4	N/A	211.7	20%
					(Boring terminated @ 14.4 ft BGS)				
15	231								
20									

Well Schematic: MW-3



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

11-17-2022 O:_Overhead_Boring Log Drafts\40166601-PI\SB-3.bor

LOG OF BORING: SB-4 / MW-4

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-PI
Project Type:	Preliminary Investigation

Boring Information:

Date / Time:	10-17-22 14:50-16:15
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	Hollow Stem Auger
Total Boring Depth:	14.4 ft BGS
Initial Saturation (ft)/Date:	6.0 ft BGS
Static GW level (ft)/Date:	5.61 ft BTOC / 10-17-22
Surface Elevation (ft):	247.6 ft
Sampling Interval:	5-ft centers

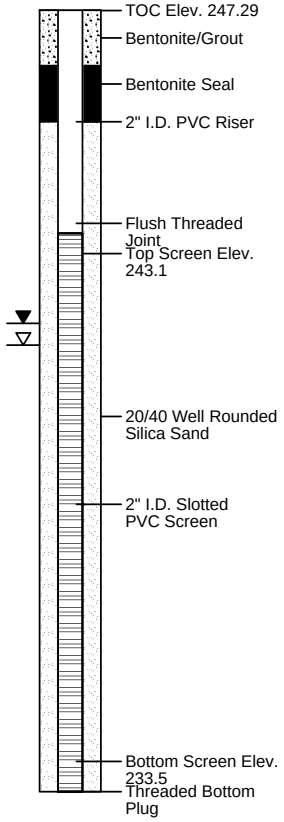
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	10-17-22
Total Well Depth:	14.3 ft
Screened Interval:	4.2 ft - 13.8 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	20 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 247.6	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	247				ASPHALT				
			SP		GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, moist, reddish brown, strong petroleum-like odor, gravel is fine to coarse grained, rounded, chert	1	N/A	69.2*	100%
5	242	▼▽			GRAVELLY SAND, homogeneous, poorly graded, medium grained, loose, angular, wet, reddish brown, strong petroleum-like odor, gravel is fine to coarse grained, rounded, chert	2	N/A	872.1*	25%
10	237		SW		SAND, homogeneous, poorly graded, fine to medium grained, dense, angular, saturated, light brown, mild petroleum-like odor	3	N/A	152.6	25%
					SAND, homogeneous, poorly graded, fine to medium grained, dense, angular, satuated, light brown, mild petroleum-like odor	4	N/A	148.1	35%
15	232				*(Boring terminated @ 14.4 ft BGS)*				
20									

Well Schematic: MW-4



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

11-17-2022 O:_Overhead_Boring Log Drafts\40166601-PI\SB-4.bor

LOG OF BORING: SB-5 / MW-5

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-SI
Project Type:	Secondary Investigation

Boring Information:

Date / Time:	04-11&12-23 / 14:40
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	Hollow Stem Auger
Total Boring Depth:	14.0 ft BGS
Initial Saturation (ft)/Date:	5.0 ft BGS
Static GW level (ft)/Date:	3.94 ft BTOC (04-13-23)
Surface Elevation (ft):	240.1 ft
Sampling Interval:	5-foot

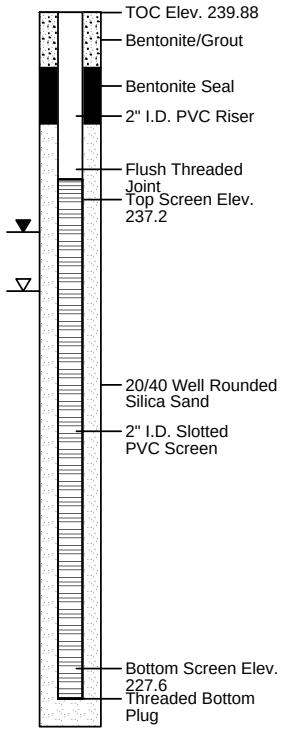
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	04-12-23
Total Well Depth:	12.8 ft
Screened Interval:	2.7 ft - 12.3 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	5 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 240.1	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	240				TOPSOIL				
					SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, moist, orange brown, no odor	1	N/A	15*	100%
		▼							
5	235	▽	SP		SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, saturated, orange brown, no odor	2	N/A	10	30%
					No recovery				
10	230								
			SH		SHALE, dry, no odor				
15	225				*(Boring terminated @ 14.4 ft BGS)*				
20									

Well Schematic: MW-5



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

06-26-2023 O:_Overhead_Boring Log Drafts\40166601-SI\SB-5.bor

LOG OF BORING: SB-6 / MW-6

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-SI
Project Type:	Secondary Investigation

Boring Information:

Date / Time:	04-11-23 / 13:00
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	DPT / HSA
Total Boring Depth:	18.6 ft BGS
Initial Saturation (ft)/Date:	10.5 ft BGS
Static GW level (ft)/Date:	15.01 ft BTOC (04-13-23)
Surface Elevation (ft):	242.7 ft
Sampling Interval:	Continuous

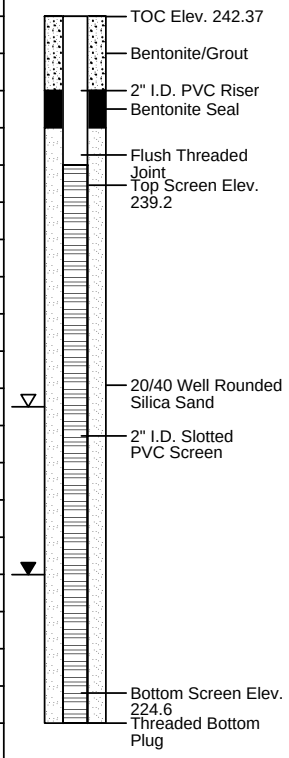
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	04-12-23
Total Well Depth:	18.3 ft
Screened Interval:	3.2 ft - 17.8 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	2 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 242.7	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	242				TOPSOIL				
					SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, moist, orange brown, no odor	1	N/A	60	100%
					SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, moist, orange brown, no odor	2	N/A	45*	100%
5	237		SP		SAND, homogeneous, poorly graded, medium, medium dense to dense, subangular, moist, orange brown, no odor	3	N/A	20*	100%
10	232	▽			SAND, homogeneous, poorly graded, medium, medium dense, subangular, wet to saturated, orange brown, no odor	4	N/A	10	20%
			SS		SANDSTONE, dry, no odor				
					SHALE, dry, no odor				
15	227	▼	SH						
					(Boring terminated @ 18.6 ft BGS)				
20	222								
25	217								
30									

Well Schematic: MW-6



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

06-26-2023 O:_Overhead_Boring Log Drafts\40166601-SI\SB-6.bor

LOG OF BORING: SB-7 / MW-7

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-SI
Project Type:	Secondary Investigation

Boring Information:

Date / Time:	04-10&11-23 / 07:00
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	DPT / HSA
Total Boring Depth:	14.0 ft BGS
Initial Saturation (ft)/Date:	9.5 ft BGS
Static GW level (ft)/Date:	6.63 ft BTOC (04-13-23)
Surface Elevation (ft):	238.9 ft
Sampling Interval:	Continuous

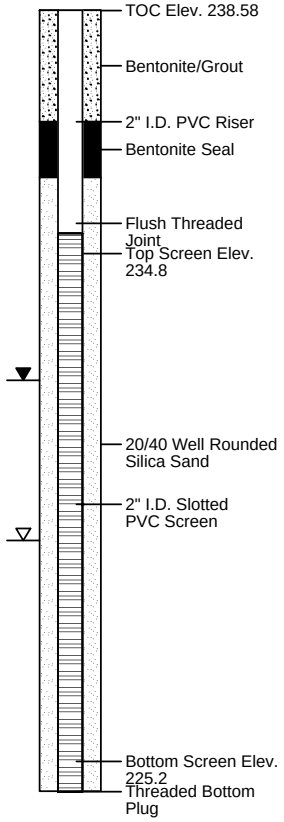
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	04-11-23
Total Well Depth:	13.9 ft
Screened Interval:	3.8 ft - 13.4 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	4 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 238.9	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0					TOPSOIL				
	238				GRAVELLY SAND, homogeneous, poorly graded, medium, loose, angular, moist, reddish brown, no odor, chert gravel	1	N/A	60	100%
					SAND, homogeneous, poorly graded, medium, medium dense, angular to subangular, moist to wet, reddish brown, no odor	2	N/A	45*	100%
5			SP		SAND, homogeneous, poorly graded, medium, medium dense, angular, to subangular, saturated, reddish brown, no odor				
	233	▼				3	N/A	35*	100%
		▽							
10					SANDSTONE, weathered, dry, light gray, no odor				
	228		SS						
			SH		SHALE, dry, blackish gray, no odor				
					(Boring terminated @ 14.0 ft BGS)				
15	223								
20									

Well Schematic: MW-7



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

06-26-2023 O:_Overhead_Boring Log Drafts\40166601-SI\SB-7.bor

LOG OF BORING: SB-8 / MW-8

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-SI
Project Type:	Secondary Investigation

Boring Information:

Date / Time:	04-10&11-23 / 12:52
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	DPT / HSA
Total Boring Depth:	14.3 ft BGS
Initial Saturation (ft)/Date:	5.0 ft BGS
Static GW level (ft)/Date:	4.04 ft BTOC (04-13-23)
Surface Elevation (ft):	244.0 ft
Sampling Interval:	Continuous

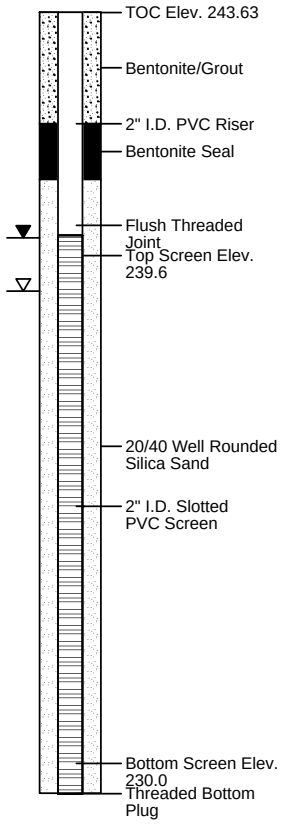
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	04-11-23
Total Well Depth:	14.1 ft
Screened Interval:	4.0 ft - 13.6 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	5 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 244.0	USCS	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery	DESCRIPTION
0	244						TOPSOIL
		SP	1	N/A	20*	100%	GRAVELLY SAND, homogeneous, poorly graded, medium, loose, angular, moist, reddish brown, no odor, chert gravel
		SC	2	N/A	15*	100%	CLAYEY SAND, homogeneous, poorly graded, medium, medium dense, angular to subangular, moist to wet, light gray, no odor
5	239	SP	3	N/A	15	100%	SAND, poorly graded, fine to medium, medium dense, subangular, saturated, light gray, no odor
10	234		4	N/A	10	100%	SAND, poorly graded, fine to medium, medium dense, subangular, saturated, orange brown, no odor
		SS					SANDSTONE, weathered, dry, no odor
15	229						*(Boring terminated @ 14.3 ft BGS)*
20							

Well Schematic: MW-8



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

06-26-2023 O:_Overhead_Boring Log Drafts\40166601-SI\SB-8.bor

LOG OF BORING: SB-9 / MW-9

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-SI
Project Type:	Secondary Investigation

Boring Information:

Date / Time:	04-11&12-23 / 09:50
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	DPT / HSA / Air Hammer
Total Boring Depth:	45.3 ft BGS
Initial Saturation (ft)/Date:	40.5 ft BGS
Static GW level (ft)/Date:	26.03 ft BTOC (04-13-23)
Surface Elevation (ft):	246.7 ft
Sampling Interval:	Continuous

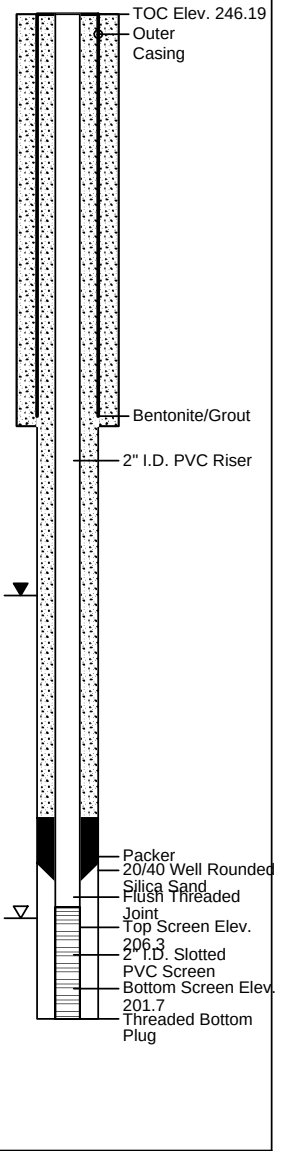
Well Information:

Well Type:	Type III
Well Purpose:	Sampling
Well Construction Date:	04-12-23
Total Well Depth:	45.0 ft
Screened Interval:	39.9 ft - 44.5 ft
Screen Slot Size:	0.01-in
Development Method:	Sub. Pump
Gallons Purged:	10 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 246.7	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0	246		SP		TOPSOIL	1	N/A	5	100%	0
					GRAVELLY SAND, homogeneous, poorly graded, medium, loose, angular, moist, reddish brown, slight petroleum-like odor, chert gravel	2	N/A	--	--	
5	241		SP		Shelby tube - no sample	3	N/A	15*	100%	5
					GRAVELLY SAND, homogeneous, poorly graded, medium, loose, angular, wet, reddish brown, mild petroleum-like odor, gravel is fine to coarse, rounded	4	N/A	--	--	
10	236				Shelby tube - no sample	5	N/A	45	100%	10
			SP		SAND, homogeneous, poorly graded, fine to medium, dense, angular, saturated, light brown, strong petroleum-like odor					
15	231				SAND, homogeneous, poorly graded, fine to medium, dense, angular, saturated, light brown, strong petroleum-like odor	6	N/A	45	100%	15
			SS		SANDSTONE, gray, no odor					
20	226				SHALE, gray, dry					20
25	221	▼								25
30	216		SH							30
35	211				SHALE with interbedded sandstone, saturated					35
40	206	▽								40
45	201				*(Boring terminated @ 45.0 ft BGS)*					45
50										50

Well Schematic: MW-9



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

06-26-2023 O:_Overhead_Boring Log Drafts\40166601-SI\SB-9.bor

LOG OF BORING: SB-10

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-SI
Project Type:	Secondary Investigation

Boring Information:

Date / Time:	04-12-23 / 09:30-10:30
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	DPT
Total Boring Depth:	12.5 ft BGS
Initial Saturation (ft)/Date:	9.5 ft BGS
Static GW level (ft)/Date:	NA
Surface Elevation (ft):	NA
Sampling Interval:	Continuous

Well Information:

Well Type:	NA
Well Purpose:	NA
Well Construction Date:	NA
Total Well Depth:	NA
Screened Interval:	NA
Screen Slot Size:	NA
Development Method:	NA
Gallons Purged:	NA

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev.	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery	Depth in Feet
0					TOPSOIL					0
			SP		SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, moist, orange brown, no odor	1	N/A	10	100%	
5			SC		CLAYEY SAND, homogeneous, poorly graded, medium, medium dense, angular, moist to wet, orange brown, no odor	2	N/A	5	100%	5
					CLAYEY SAND, homogeneous, poorly graded, medium, medium dense, angular, wet to saturated, orange brown, no odor	3	N/A	0*	100%	
10		▽			CLAYEY SAND, homogeneous, poorly graded, medium, medium dense, angular, saturated, orange brown, no odor	4	N/A	0	100%	10
					(Probe refusal @ 12.5 ft BGS)					
15										15
20										20

Well Schematic: NA

NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

06-26-2023 O:_Overhead_Boring Log Drafts\40166601-SI\SB-10.bor

LOG OF BORING: SB-11 / MW-10

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-AWI
Project Type:	Additional Well Investigation

Boring Information:

Date / Time:	08-29-23 / 08:40-09:45
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	HSA
Total Boring Depth:	20.5 ft BGS
Initial Saturation (ft)/Date:	19.0 ft BGS (08-29-23)
Static GW level (ft)/Date:	7.66 ft BTOC (09-15-23)
Surface Elevation (ft):	245.7 ft
Sampling Interval:	5 ft

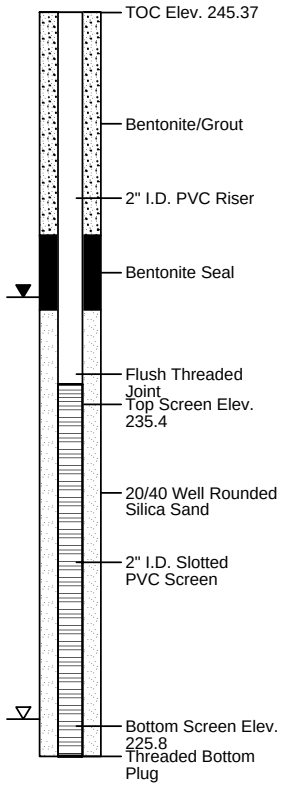
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	08-29-23
Total Well Depth:	20.1 ft
Screened Interval:	10.0 ft - 19.6 ft
Screen Slot Size:	0.01-in.
Development Method:	Sub pump
Gallons Purged:	10 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 245.7	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	245				ASPHALT				
					GRAVELLY SAND, homogeneous, poorly graded, medium, loose to medium dense, subangular, moist, orange brown, no odor, gravel is fine, subangular, chert	1	N/A	0	100%
5	240	▼	GP		GRAVELLY SAND, homogeneous, poorly graded, medium, loose to medium dense, subangular, moist, reddish brown, no odor	2	N/A	15	100%
10	235		SP		SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, moist, reddish brown, no odor	3	N/A	25*	100%
15	230				SAND, homogeneous, poorly graded, medium, loose to medium dense, angular, moist, reddish brown, no odor	4	N/A	20*	100%
20	225	▽			SAND, homogeneous, poorly graded, medium, medium dense, subangular, saturated, gray, no odor	5	N/A	10	60%
					(Boring terminated @ 20.5 ft BGS)				
25	220								
30									

Well Schematic: MW-10



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-18-2023 O:_Overhead_Boring Log Drafts\40166601-AWI\SB-11.bor

LOG OF BORING: SB-12 / MW-11

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-AWI
Project Type:	Additional Well Investigation

Boring Information:

Date / Time:	08-29-23 / 10:20-12:00
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	HSA
Total Boring Depth:	21.0 ft BGS
Initial Saturation (ft)/Date:	14.0 ft BGS (08-29-23)
Static GW level (ft)/Date:	4.15 ft BTOC (09-15-23)
Surface Elevation (ft):	244.3 ft
Sampling Interval:	5 ft

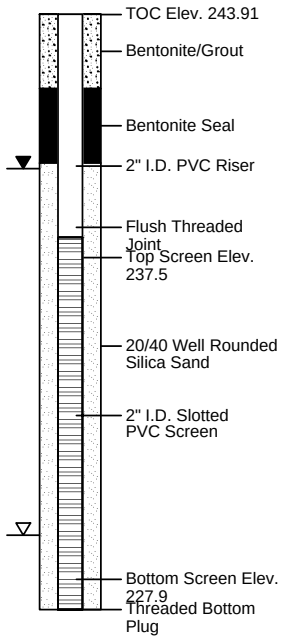
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	08-29-23
Total Well Depth:	16.5 ft
Screened Interval:	6.4 ft - 16.0 ft
Screen Slot Size:	0.01-in.
Development Method:	Sub pump
Gallons Purged:	13 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 244.3	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	244				TOP SOIL				
		▼	GP		GRAVELLY SAND, poorly graded, medium, loose to medium dense, subangular to sub-rounded, moist, orange brown, no odor, gravel is medium, sub-rounded, chert	1	N/A	0	100%
5	239		SP		SAND, homogeneous, poorly graded, medium, medium dense, subangular, moist, reddish brown, no odor	2	N/A	25*	30%
10	234				SAND, homogeneous, poorly graded, medium, medium dense to dense, subangular, moist to wet, pinkish orange brown, no odor	3	N/A	20*	100%
15	229	▽			SAND, homogeneous, poorly graded, medium, medium dense, subangular, saturated, pinkish orange brown, no odor	4	N/A	10	10%
20	224		SH		SHALE, dry, gray, no odor				
					(Boring terminated @ 21.0 ft BGS)				
25	219								
30									

Well Schematic: MW-11



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-18-2023 O:_Overhead_Boring Log Drafts\40166601-AWI\SB-12.bor

LOG OF BORING: SB-13 / MW-12

PPM CONSULTANTS

Client / Site Information:

Client:	Pinnacle Capital, LLC
Site:	Lakeside Grocery
Location:	Northport, AL
Agency Interest No.:	UST22-06-01
PPM Project No.:	40166601-AWI
Project Type:	Additional Well Investigation

Boring Information:

Date / Time:	08-29-23 / 13:15-15:00
Logged By:	SE
Drilling Company / Driller:	TDS
Drilling Method:	HSA
Total Boring Depth:	13.9 ft BGS
Initial Saturation (ft)/Date:	NA
Static GW level (ft)/Date:	10.12 ft BTOC (09-15-23)
Surface Elevation (ft):	236.3 ft
Sampling Interval:	5 ft

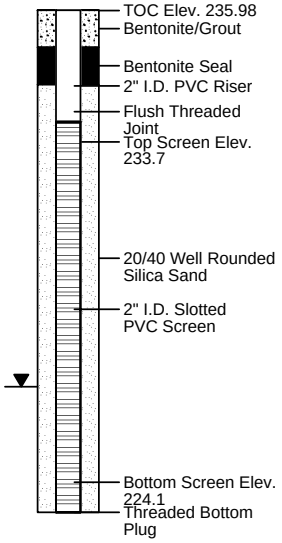
Well Information:

Well Type:	Type II
Well Purpose:	Sampling
Well Construction Date:	08-29-23
Total Well Depth:	12.4 ft
Screened Interval:	2.3 ft - 11.9 ft
Screen Slot Size:	0.01-in.
Development Method:	Sub pump
Gallons Purged:	1.5 gal

Water Levels
▼ Static GW level
▽ Initial Saturation

Depth in Feet	Surf. Elev. 236.3	Water Level	USCS	GRAPHIC	DESCRIPTION	Sample	Blow Count	Headspace Concentration (ppmv)	Percent Recovery
0	236				ASPHALT				
			GP		GRAVELLY SAND, homogeneous, poorly graded, medium, loose to medium dense, subangular, moist, orange and red, no odor, gravel is medium, subangular to sub-rounded, chert	1	N/A	15	100%
5	231		SP		SAND, homogeneous, poorly graded, medium, subangular, moist, reddish brown, no odor	2	N/A	20*	100%
10	226	▼			SAND, homogeneous, poorly graded, medium, subangular, moist, pinkish orange brown, no odor	3	N/A	15*	30%
					(Auger refusal @ 13.9 ft BGS)				
15	221								
20	216								
25	211								
30									

Well Schematic: MW-12



NOTES:

- Hand cleared to 4.0' BGS prior to drilling
-*Sample submitted for laboratory analysis

- Soil descriptions generally based on visual inspection/professional judgment as described in ASTM D2488-09a: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Laboratory testing not conducted, and the data should not be used for engineering purposes.

10-18-2023 O:_Overhead_Boring Log Drafts\40166601-AWI\SB-13.bor

APPENDIX B – EQUIPMENT MANUFACTURER'S SPECIFICATIONS AND QUOTATIONS

MK ENVIRONMENTAL INC.

765 Springer Drive
Lombard, IL. 60148-6412
615-392-7737

jgiltz@mkenv.com

QUOTATION

Date	10/24/2025
Quote No.	225080
Reference	Lakeland Grocery
Page No.	1 of 2
Freight	Included
Terms	PWP, Net 180
Ship Via	FLATBED
F.O.B.	Factory

SOLD TO:	SHIP TO:
Chuck Gooden PPM Consultants, Inc 5555 Bankhead Highway Birmingham, AL. 35210 205-836-5650	Lakeland Grocery 12389 Lary Lake Road Northport, AL.

Quotation valid for 30 days

QUANTITY		UNIT PRICE	AMOUNT
	250 amp 3/60/230 volt 4 wire plus ground electrical service Brought to NEMA 3R control Panel Interior electrical will comply with NEC requirements for Class 1, Division 2, Group D Hazardous locations Motors will be TEFC construction		
1	50 HP single stage oil sealed liquid ring blower or equal ~600 ACFM @ 20"Hg. Capacity 3/60/230-460 volt, 50 HP TEFC motor Direct drive motor Oil Scavenge line Backpressure gauge Air/Oil Separator Temperature gauge Y strainer with clean out plug High temperature switch low and high oil level switches inlet filter inlet check valve (1) extra 5-gallon bucket of seal oil for top off	178,182.00	$178,182.00
1	~200 gallon Air/water separator with conductivity probe level switches AWS-1 separator will be stainless steel or alumimum 10" diameter clean out ports with vacuum rated quick release lid Liquid filled vacuum gauge Vacuum assist hose tank drain valve Vacuum relief valve Dilution valve with filter/silencer Inlet screen		
1	1.5 hp transfer pump, 3450 rpm, TEFC motor Cast Iron housing with bronze impeller, anti air lock design manual "Pump ON" button inside building for sampling Totalizing AWS-1 flow meter		
1	MKE Model SA20 Stripperator or equal 20 GPM capacity Oil/Water Separator and air stripper treatment system Coalescing separator with product skimming weir Polyethylene coalescing pack with reduced spacing for efficient oil removal Low profile air stripper with 3 hp AMCA Type B spark resistant aluminum blower Nylon tube aeration air stripper for high mass removal rates with low maintenance Low, high, and high-high sump conductivity probes 12" clean out hatch Low blower pressure alarm Blower silencer		
1	1.5 hp transfer pump, 3450 rpm, TEFC motor Cast Iron housing with composite impeller, anti air lock design manual "Pump ON" button inside building for sampling Groundwater flow totalizer with pulse output for remote totalization. Flow calibration button.		
2	Bag filters housing, size 2, 304 stainless steel piped in parallel. Includes (10) 25-micron bag filters.		
2	500 LB liquid phase carbon filters to polish the final effluent stream (refurbished) Sample ports and pressure gauges Piped in series		
1	Groundwater flow totalizer with pulse output for remote totalization		

MK ENVIRONMENTAL INC.

PPM Consultants, Inc.
5555 Bankhead Highway

Date 10/24/2025
Quote No. 225080
Reference Lakeland Grocery

QUANTITY		UNIT PRICE	AMOUNT
1	Master Control Panel System, Including: NEMA 3R control panel with blank front cover Swing out sub panel for gauges, control operators, and switches IEC Magnetic motor starters, safety switches, H-O-A controls Control transformer (8) intrinsically safe relays, (8) alarm indicator LED's, (16) output channels Hard wired relay logic (1) exterior GFCI utility outlet System run time totalizing hour meter Blower low pressure alarm Anti-falsing alarm circuit to prevent nuisance tripping Auto-release restart timer for remote restarts via telemetry Three phase voltage and phase monitor Emergency E-stop LED red indicator light located on swing out sub panel		
1	Fused Main Disconnect Includes: 400 amp disconnect box mounted to the system building (1) Weatherhead with extension pole and bracket support (1) 400 amp Electric meter socket base installed		
1	MK Site Optimization Software (SOS) - Wireless Monitoring Unit. MK Cloud based monitoring capabilities with Email & SMS alarming notification Includes: Cellular antenna, wiring diagrams, setup forms. Digital Inputs, Analog inputs, and Digital Outputs for remote operation capabilities Flow and Vacuum graphing and data export capabilities Alarm counters for increased troublshooting efficiency Wireless service will be supported and billed through MKE @ $135+tax/mo plus tax (subject to change) Billed monthly on the first of the month following successful factory wet testing.		
1	Vacuum transducer integrated into telemetry system for real time monitoring, 4-20mA		
1	System building (refurbished) 8.5'W x 20'L x 9.5'H aluminum/steel enclosure, fully insulated with Removable sliding wall panels for ease of maintenance Exterior grade plywood floor, structural steel frame Includes 100 watt XP interior light, and removable center grate for ease of maintenanc The breaker panel and control panel will be mounted on a vertical steel bracket attached to platform end. The bracket, panels and all conduits will allow for the removal of the enclosure panels by one person 10" structural steel base with 4" steel cross members Steel corner posts and roof frame Continuous sheet aluminum roof for superior protection 12,000 BTU XP heater with XP thermostat. All components fully piped, wired and factory tested		
1	Equipment Electrical Installation Includes XP wiring, XP seal off connectors, liquid tight flexible conduit		
1	Equipment Mechanical Installation Includes mounting, piping and connectors		
1	AWS3 knock out tank prior to carbon to minimize condensed liquids from entering vapor phase carbon bed. Located outside the system building and piped by others		
2	1,000 LB vapor phase carbon vessel to treat the dual phase exhaust stream 1,000 LBS of vapor react media fill each 4" plain pipe connections and drain valves Located outside the system building and piped by others		
1	Air to air heat exchanger (dual phase exhaust stream) for the offgas treatment prior to the carbon drums. To reduce the outlet temperature of the dual phase offgas stream to help knockout the condensate in the air. Includes an elevated stand to mount the heat exchanger and fit over the AWS-3 knockout drum. Includes starter controls for the heat exchanger motor in the master control panel. Located outside the system building and piped by others		

EQUIP. SUB TOTAL		$178,182.00
START UP/TRAINING		$2,500.00
FREIGHT		$3,000.00
NET TOTAL		$183,682.00

(1-day, 2-week notice)

Does not include permits, fees, etc…
Offloading & placement by others.

Jerry Giltz
MK ENVIRONMENTAL, INC.

Request for Proposal
Lakeland Grocery
12389 Lary Lake Road, Northport, Alabama

PPM is requesting proposals for a dual-phase vacuum extraction (DPVE) system to remediate gasoline impacted soil and groundwater at the referenced facility within the city limits of Northport, Alabama. **Quotes are due Friday, October 24, 2025**, and the contract is anticipated to be awarded by December 30, 2025.

The equipment list should cover the majority of all necessary equipment but if found to be insufficient by Vendor; Vendor should clearly identify any oversight and provide pricing to ensure a functioning and capable remediation system.

For the purpose of evaluating each proposal, Vendors cost estimate package should include, at a minimum, the following:

- List of manufacturer and model number of all major system components
- Pump curve for all pumps and blowers
- Electrical loading table, showing all electrical equipment, horsepower (where applicable), maximum amperes, kilovolt-amps (KVA), etc.
- A description of any proposed changes as options to the cost estimate and summary cost for each line-itemed option. Any optional equipment shall not be included in the final cost of the equipment
- Diagram of the proposed equipment layouts

This specification is for delivery of an integrated, enclosed, pre-piped, pre-wired, fully equipped remediation system. The remediation system shall be capable of providing a continuous vacuum for the collection and treatment of subsurface vapors and liquids, which will contain petroleum hydrocarbons (including free-phase petroleum hydrocarbons). The system and system's components shall be fully contained within a weatherproof enclosure. The interior of the enclosure shall contain sufficient lighting and light switches to adequately illuminate the interiors. Vendor is required to provide equipment, as specified herein, that will be fully functional and capable of continuous operation once the power and site piping connections are completed.

The enclosure and all equipment shall meet the National Electric Code (NEC) and the National Fire Protection Association (NFPA) Lighting Protection Code. Available power supply is 3-phase, 480 volt. The equipment shall be capable of operation within a Class 1, Division 2, Group D Hazardous Locations; and all the equipment shall be Underwriter's Laboratories (UL) or MET Laboratories listed. All motors and blowers in the hazardous areas shall be Totally Enclosed Fan-Cooled (TEFC). At a minimum, the electrical requirements are as follows:

- Include a maintained emergency stop button inside the building to shut down all motors simultaneously
- All conduit piping inside the building shall be positioned out of the main traffic areas to prevent slip/trip hazards
- All conduits entering or passing through areas that are classified as hazardous as defined by the NEC and/or NFPA shall be sealed using appropriate fittings and sealing compound as specified by code
- All wiring shall be in rigid conduit. NEC code limitations will apply to number and size of wires in conduits and junction boxes

- Provide flexible conduit from rigid conduit to all motors, solenoid valves, and devices for ease of maintenance. Flexible conduit shall not exceed 6 feet
- All switches and contacts inside building shall be UL or MET rated for Class 1, Division 2, Group D hazardous locations
- All switches inside tanks will be Class 1, Division 2, Group D hazardous locations
- Provide local disconnects as per NEC code for all motors
- At least one lighting fixture inside the building shall be 100-watt (or equivalent lumens) explosion-proof with a switch inside the building
- Junction boxes shall be suitable for the designated area and will comply with NEC guidelines
- Rigid conduit couplings, piping, and terminals shall be threaded
- There shall be no splices in any conduits or flex connectors. Splices are only permitted in junction or outlet boxes
- Wire nuts shall not be used for main motor or ground connections
- All wiring shall be permanently and legibly marked at each end
- Wire colors shall comply with NEC guidelines.

The enclosure containing the system should be built on a structural steel frame and skid-mounted (**cargo boxes are not permitted**). Optional enclosure can be submitted, but a skid-mounted enclosure is preferred. The unit shall have all components fully mounted, piped, wired, and equipped for transportation. The building shall consist of, but is not limited to, the following:

- **Maximum dimensions of enclosure** (not including electrical panel) shall be **20 feet in length and 10 feet width**
- Wind rated for 120 miles per hour (mph) wind load
- Professional stamped drawings of the building and details
- All metal frame construction. No wood load bearing members
- Structural steel base, roof frame, and vertical posts. Steel frame base to be painted for weather protection.
- Exterior shall be aluminum with outdoor rated finish
- System shall be suitable for pick up and placement with an overhead crane
- Exterior wall panels shall be track mounted and capable of being removed to allow access for servicing
- Walls, ceiling, and access doors shall be insulated with an R-10 value
- Furnish at least one lockable personnel door
- Flooring will consist of a water-resistant marine-grade wood, thoroughly painted with decking paint. An 18-inch center expanded metal grate will be located in the floor center to function as a drain and provide additional ventilation
- Provide 18 inches of clearance around all sides of major equipment located with the building structure for maintenance access
- The selected manufacturer shall provide a floor plan prior to approval of equipment layout.

The openings for influent piping shall be as follows:

- One 4-inch polyvinyl chloride (PVC) for air/water separator (AWS) influent

The DPVE system shall consist of one oil-sealed Liquid-Ring Vacuum Pump (LRVP) capable of delivering the specified airflow rate at the designated vacuum. Other pumps will be considered, but an oil-sealed LRVP is preferred. The vapor extraction system shall be installed and mounted in the enclosure in accordance with the manufacturer's specifications and arrive at the site pre-piped with all ancillary equipment associated with the LRVP, piping, components, valves, fittings, and appurtenances as specified below.

1.0 DPVE SYSTEM

1.1 DPVE Unit

- The remediation system will contain a LRVP that contains gauges, telemetry readings, and alarms
- LRVP capable of a flow rate of approximately 550 actual cubic feet per minute (ACFM) @ 19.0 inches of mercury (in Hg)
- 3-phase, TEFC motor, standard National Electrical Manufacturers Association (NEMA) frame designation. Minimum 1.15 service factor, for higher starting torque. Must meet NFPA Class 1, Division 2, Group D hazardous locations.
- Structural steel base frame
- Vacuum transducer integrated with telemetry system programmed to alarm at loss of vacuum or at a preset value
- Include seal oil temperature transducer, integrated with telemetry system
- Inlet piping shall be connected to the LRVP using 4-inch diameter Schedule 40 PVC
- Discharge piping shall be connected to the LRVP using 4-inch diameter Schedule 40 PVC complete with a sampling port and gauges/instruments that will accurately measure airflow, pressure, and temperature.

1.2 Primary Air/Water Separation Vessels (AWS-1)

- Stainless steel or aluminum vacuum-rated AWS-1 vessel
- Separation capacity of AWS-1 should be 30 gallons per minute (gpm) on average, with surge flow rates up to 35 gpm
- Liquid removal efficiency of 99.9 percent
- Vapor flow capacity should be greater than or equal to the associated LRVP capacity at any operating conditions
- Clean out port, 6-inch diameter or larger, and designed to allow for easy opening. Flanged openings shall not be utilized
- Minimum 2-inch gate valve bottom drain/cleanout
- Stilling well installed on outside of tank and constructed of 3-inch (minimum) clear acrylic pipe for housing liquid level switches rated for Class 1, Division 1, Group D hazardous locations.
  - Level switch low (LSL) and Level switch high (LSH)
  - Level switch high high (LSHH)
  - Level probes shall be mounted on top of and protrude into the stilling well.
  - Sufficient flexible conduit and connections shall be provided to facilitate removal of the switch/connection box without disassembly
- Automatic vacuum relief valves sized for full flow
- One (1) 0-30 in. Hg vacuum gauge per vessel, easily accessible and at a visible location above knee level
- 2-inch air dilution valve with filter, complete with flow meter for measuring flow, ball valve, and silencer/filter
- Vacuum transducers integrated with telemetry system.

1.3 AWS-1 Transfer Pumps

- The AWS-1 pump shall discharge water from the AWS-1 tank into the oil water separator system. The pump shall meet the following criteria:
- Self-priming pump with rated for 30 gpm under 26-in. Hg vacuum
- TEFC motor with a minimum 1.15 service factor, for higher starting torque. Must meet NFPA Class 1, Division 2, Group D hazardous locations

- Pump shall handle silt, sand, and small grit without fouling or prematurely wearing out
- Pump fluid-end shall be designed with large passages to minimize seizing due to calcium or iron buildup
- Cast iron housing with bronze or stainless impeller, direct-driven
- Schedule 40 pipe and fittings
- Check valves installed both on the suction inlet and on discharge piping
- Suction pipe shall be constructed of Schedule 40 galvanized pipe cut and connected with a FerncoÓ for easy installation and removal
- Throttling valve, check valve, sample port and pressure gauge
- Push-button switch to activate pump, mounted inside building, within 18-inches of pump sampling ports
- Hand-Off-Auto Controls mounted in main electrical panel.

2.0 LIQUID TREATMENT

The liquid treatment system shall be constructed to receive water gravity fed from the external 1,500-gallon polyethylene tank. The system shall be composed of an oil/water separator (OWS), bag filters, low profile air stripper, and transfer pump.

- Minimum 30-gpm capacity
- Design Air/Water Ratio must range between 100 and 200
- Use 50 percent air stripper tray efficiency, unless Vendor can provide documentation that the proposed air stripper efficiency is higher
- Base number of trays on the following influent concentrations and discharge requirements:

Constituent	**Influent Concentration* (mg/L)**	**Discharge Limit (mg/L)**
Benzene	0.50 – 10.0	0.0155
Toluene	0.50 – 33	8.723
Ethylbenzene	0.050 – 10	1.244
Xylenes	0.050 – 50	NA
MTBE	0.010 – 1.1	NA
Naphthalene	0.075 – 7.0	0.620
Oil & Grease	Unknown	15

** - Concentrations may be higher when additional recovery wells are installed.*

2.1 Oil/Water Separator

Provide one (1) stainless steel or aluminum OWS. The OWS shall be located inside the enclosure prior to the Air Stripper, and shall include the following:

- Minimum capacity shall be 30-gpm with 5 percent or higher removal efficiency
- Coalescing type with corrugated plate media designed to remove 60 micron oil droplets
- OWS shall be constructed of epoxy-coated carbon steel, fiberglass or reinforced plastic
- Lid must be sealed and gasketed to prevent vapors from entering the building and shall be suitably hinged to allow access
- Must be vented to the outside
- Top of OWS shall not be higher than 48 inches from the floor for ease of maintenance
- The OWS may gravity feed to the air stripper or utilize a sump and liquid transfer pump with LSL, LSH, and LSHH logic. Minimum 50-gallon capacity on sump. Lid must be gasketed and vented to outside.

2.2 Low Profile Air Stripper

Provide one (1) stainless steel or aluminum Low-Profile Air Stripper. Design shall be based on the performance criteria presented previously. The OWS shall be located inside the enclosure, and shall include the following:

- Minimum capacity of 30-gpm
- Provide sufficient quantity of trays to meet the effluent criteria (provided above)
- Air/Water flow ratio shall range between 100 and 200. Larger ratios can be used as long as Vendor can guarantee “No Blow By”
- Sieve tray air stripper designs shall not be used, no exceptions
- Effluent sump with sight glass/tube
- Include 10-inch minimum clean out port on sump and minimum 1-inch bottom mounted drain valve
- Aluminum AMCA rated spark resistant blower
- TEFC motor with a minimum 1.15 service factor, for higher starting torque. Must meet NFPA Class 1, Division 2, Group D hazardous locations
- Provide 8-inch flexible aluminum sound absorbing intake ducting
- Low air pressure switch in control panel
- Bypass switch for low air pressure alarm in control panel
- LSL, LSH, and LSHH sump level switches/probes
- Two (2) adjustable blast gate-type dampers to draw air from inside or outside the building
- Adjustable damper to control air flow set for previously specified flow rate
- Backpressure gauge
- Include minimum 8-inch single-wall galvanized discharge stack with exterior 90-degree sheet metal elbow or equivalent
- Include two 2-inch diameter inlet ports for connection of submersible pump discharge lines.

2.3 Air Stripper and OWS Transfer Pump

- Self-priming or progressing cavity pump with Viton Stator, or equivalent, rated for 30 gpm @ 75-ft discharge capacity
- TEFC motor with a minimum 1.15 service factor, for higher starting torque. Must meet NFPA Class 1, Division 2, Group D hazardous locations
- Pump shall handle silt, sand and small grit without fouling or prematurely wearing out Pump fluid-end shall be designed with large passages to minimize seizing due to calcium buildup
- Cast iron housing with bronze or stainless impeller, direct-driven
- Schedule 40 pipe and fittings, no exceptions

- Check valve installed both on the suction inlet and on discharge piping
- Suction pipe shall be constructed of Schedule 40 galvanized pipe cut and connected with a FerncoÓ for easy installation and removal
- Throttling valve, check valve, sample port and pressure gauge
- Vacuum relief valve, suitable for low pressure steam and water service
- Push-button switch to activate pump, mounted inside building, within 18-inches of pump sampling port
- Hand-Off-Auto Control mounted in main electrical panel.

2.4 Bag Filters

Provide two in-line bag filters constructed of stainless steel or aluminum with quick release bolts. Include ten 25-micron filter bags.

2.5 Granular Activiated CArbon

Provide two granular activated carbon(GAC) vessel capable of treating effluent water prior to final discharge at a maximum flow rate of 30 gallons per minute.

3.0 VAPOR TREATMENT

3.1 AWS-3

The vapor treatment system shall be composed of one tertiary air/water separator (AWS-3). The tertiary AWS-3 is the pre-air treatment tank that separates any condensate from the soil vapors with the following features:

- Epoxy-coated carbon-steel, stainless steel, or aluminum
- Plastic tank is not permitted
- 6-inch cleanout port
- One (1) 1/4-inch scavenger hose for condensate removal
- 4-inch diameter inlet and outlet
- Demister mounted to the top of AWS-3, to aid in the removal of condensate from the air stream.

3.2 Granular Activated Carbon Vessels

Provide two 1,000-pound GAC vessels and new GAC designed to treat gasoline from the air stream. One vessel should be designed to accommodate the airflow of the LRVP and the second will serve as a backup for the first carbon change out.

4.0 CONTROL PANEL

Vendor shall provide a single control panel for all equipment, sized for the proposed equipment, and based on electrical loading table provided by the Vendor. The remediation system control panel will be mounted on the outside of the remediation enclosure (along the front-end) at a minimum of 40 inches above the ground surface. The control panel housing will be a NEMA Type 4 enclosure with a single point connection containing all of the appropriate electrical components, disconnect, primary circuit protection, control voltage transformers, motor starters, thermal overloads, surge protection, programmable timer, 120 VAC duplex receptacle, and controls. The interior controls will be constructed to meet the NEC and applicable local electrical standards. The control panel for the system shall include, but is not limited to, the following:

- **Electrical meter glass opening shall be exactly 4 feet 6 inches above base of skid**
- Complete control panel must be built by a UL or MET certified panel shop, UL or MET certified, and labeled accordingly

- Main fused disconnect is external to control panel
- All control circuits shall operate on 120 volt, 60 Hz current.
- Symcom brand motor saver, model no. 102, 3-Phase surge protector or equal
- NEMA 4 enclosure utilized for the main control panel and MSP style breakers
- Magnetic starters shall be utilized for all motor loads, properly sized and rated for the intended load
- Integral and adjustable thermal overloads with trip indicator for each motor load
- Power surge and lightning protection for all components
- Interior swing out sub panel for control switches, gauges, indicator lights, etc.
- Locking, blank front door panel
- Indicator lights for alarm conditions for each individual alarm
- All indicator lights must be LED type. No incandescent bulbs
- Control circuit power light
- Provide minimum of one spare N.O. auxiliary contact per contactor
- Include one 15-amp GFCI outdoor convenience outlet, with its own circuit breaker
- Padlock hasps on control panel door
- Motor circuit wiring shall conform to NEC Table 310-16, with a 0.87 wire size correction factor
- 2 ½-inch opening for electrical conduit pipe
- A system schematic shall be laminated and permanently affixed inside the electrical panel door.

4.1 Control Panel Switches and Gauges

The following are the minimum switches and gauges located on the front swing out panel:

- Liquid ring hour meter, non-re-settable
- Liquid ring, off/run/start
- AWS-1 pump, hand/off/auto
- Stripper pump, hand/off/auto
- OWS pump, hand/off/auto
- Stripper blower, on/off
- Low pressure alarm By-pass switch, On/Off, SPDT
- Magnehelic gauge, range 0-20 in-W.C., labeled stripper blower.

4.1.1 The Dual-Phase Vacuum Extraction system requirements shall include the following:

- The motors shall be controlled by a separate selector switch labeled HAND-OFF-AUTO and shall have an amber status indicator light. When the selector switch is in the AUTO position, the system sensors shall control operation. When the selector switch is in the HAND position, the system shall operate regardless of system sensors. The system shall cease operation when both selector switches are in the OFF position
- The system shall be wired to automatically shut down under high water level conditions. When this fault condition occurs, a labeled alarm light will illuminate on the control panel and the LRVP motor will stop
- The system shall be wired to shut down due to loss of vacuum or a preset value. The condition must be cleared to restart the system
- They system shall be wired to shut down due to loss of power of the oxidizer unit (to be provided by another vendor). The condition must be cleared to restart the system
- The control panel shall be equipped with separate hour meters to track operation of each LRVP
- The panel should clearly show the operator why the system shut down.

4.1.3 The OWS system requirements shall include the following:

- The system shall be wired to automatically shut down under high water level conditions. When this fault condition occurs, a labeled alarm light will illuminate on the control panel and the LRVP motor will stop
- The system shall be wired to automatically shut down under high oil level conditions. When this fault condition occurs, a labeled alarm light will illuminate on the control panel and the LRVP motor will stop.

4.1.4 The Air Stripper system requirements shall include the following:

- The blower motor shall be controlled by a separate selector switch labeled HAND-OFF-AUTO and shall have an amber status indicator light. When the selector switch is in the AUTO position, the system sensors shall control operation. When the selector switch is in the HAND position, the system shall operate regardless of system sensors. The system shall cease operation when the selector switch is in the OFF position
- The system shall be wired to automatically shut down under high water level conditions. When this fault condition occurs, a labeled alarm light will illuminate on the control panel and the LRVP motor will stop
- The LRVP system shall be wired to shut down due to loss of blower pressure or a preset value. The condition must be cleared to restart the LRVP system.

4.1.5 The Transfer Pumps (AWS-1, OWS, and Air Stripper Sump) requirements shall include the following:

- The motors shall be controlled by a separate selector switch labeled HAND-OFF-AUTO and shall have an amber status indicator light.
- The transfer pumps shall be wired to continue to run under high water level conditions in the Primary Air/Water Separator and Air Stripper Sump.

4.2 LED Indicator Lights

The following are the minimum indicator lights located on the front swing out panel:

- LRVP running
- AWS-1 Transfer pump running
- OWS Transfer pump running (if required)
- Sump Transfer pump running
- Air Stripper Blower running.

4.3 Disconnect

Include a service disconnect to be installed and looped out by others. The requirements of the service disconnect are as follows:

- Sized to meet the load requirements of the proposed system
- Fused main disconnect, NEMA 4
- Meter base (Note: center of glass opening shall be 4 feet 6 inches above the base of the skid
- Weather head for electrical inlet installed a minimum of 12 feet above grade. Weather head shall be shipped loose. Loop out supplied by others.

5.0 CONTROL AND TELEMETRY SYSTEM

The DPVE unit is to be equipped with a programmable logic controller (PLC) and telecommunication alarm system to provide immediate phone and email notification should system shutdown occur. The alarm system will be programmed to automatically contact specific addresses on a designated time interval until the alarm is acknowledged. The telemetry system will provide information on the causes of shutdown and will provide the capability to restart or shutdown the systems from a remote location via a web link. A PLC shall control system operation. All control signals shall be routed through the PLC, except for the hand side of the HOA switch, which may be hardwired to the motor starter. All motor starters shall be controlled via PLC outputs and supply a "running" feedback signal to the PLC via the starter auxiliary contacts. All fault lights shall be controlled via PLC outputs. The system shall also have a system reset button wired into the PLC. The telemetry system shall show runtime statistics and counters as well as diagnostic indicators on the causes of shutdown and provides the capability to restart the remediation system from a remote location. The telemetry system must send alarms and daily reports in the form of email via wireless service.

- Minimum 24-hour battery back-up system
- UL or MET listed surge suppressor
- Internet access to telemetry should be provided through a cellular modem
- System must provide reports by email
- Built-in hour meters to monitor uptime, downtime and accumulated duration of each alarm
- Built-in cycle counters
- Include a copy of any software required to remotely access the system.

The system inputs shall consist of, but is not limited to, the following:

- LRVP pump state (on/off)
- AWS-1 high level
- Low air stripper blower pressure
- High level air stripper sump
- Groundwater totalizer (pulse)
- Vacuum (analog)
- Vacuum pump electric motor amperage (analog)
- Vacuum pump discharge air temperature (analog)
- Electricity on/off
- Electrical phase monitor condition
- Poly Tank high level
- OWS high level (unless otherwise specified)
- Interlock capability of existing on site equipment with notification of interlocked device failure.

The system outputs shall consist of, but is not limited to, the following:

- Restart for LRVP
- Shutdown for LRVP
- Automatic/Remote control option (programmed to meet design needs).

6.0 MISCELLANEOUS

6.1 Noise

The maximum noise level shall be no greater than 85 decibels inside the unit and 70 decibels 20-feet outside the unit. Any noise reducing components shall be properly ventilated and should not limit access to the mechanical or electrical components.

6.2 Building Heaters

Furnish one building heater with the following provisions:

- Internally floor-mounted
- 3,000/3,500-watt rating, resistance type
- Suitable for Class 1, Division 2, Group D hazardous location
- Integral XP thermostat.

6.3 Ventilation

Furnish a building ventilation fan(s) that is explosion-proof.

6.4 Water Meters

Flow totalizing water meters will be required to perform the following:

- AWS-1 discharge meters shall be minimum 1-inch, compatible with the flow rates specified. Totalizers must be mechanical and require no internal or external power source to operate. Meter bodies shall be of brass construction with Viton seals and be compatible with hydrocarbons. Must have inlet screens
- Air Stripper Sump discharge meter shall be minimum 1-inch, compatible with the flow rates specified. Totalizer must be mechanical and require no internal or external power source to operate. Meter must be equipped with an XP remote output for connection to the telemetry system. Include the necessary hardware/software to synchronize the readings should the two differ. Meter body shall be of brass construction with Viton seals and be compatible with hydrocarbons. Must have inlet screen
- All meters shall be mounted to facilitate ease of removal for routine inspection and cleaning.

6.5 System Drawings

Within 14 days of notice to proceed, the Vendor shall submit for review and approval all of the drawings and documentations necessary for PPM to obtain a permit for the system and its contents, including, but not limited to the following items:

- Scaled shop drawings including the following: Electrical Schematic; Control Panel Layout Process and Instrumentation Diagram; System Layout; and Power Distribution
- Manufacturer’s names, model/part numbers, and performance data on all major equipment components.

6.6 The Operations and Maintenance (O&M) Manuals

Vendor shall provide two hard copies and an electronic copy of the system Operations and Maintenance (O&M) Manual at the time of system delivery. The O&M manual shall include, at a minimum, the following: list of equipment items; shop drawings; list of description of alarm conditions; copy of all major equipment manufactures literature (major components), performance specifications, and recommended O&M; equipment warranties; startup and shutdown procedures; maintenance schedule according to the manufacturer's recommendation for major components; troubleshooting guide; and customer service and technical support contacts for major pieces of equipment.

6.7 Technical Support

Vendor must provide the PPM, via the telephone, technical support for troubleshooting, equipment repair and replacement consulting, programming, or any other expertise in order to maintain and successfully operate the proposed equipment as long as the equipment remains the property of the Royce Carson Village LLC. During the one-year warranty period, Vendor must provide free onsite trouble shooting once it has been determined that the problem cannot be solved via the telephone.

6.8 Start-up and Training

The equipment supplier shall provide adequate training on proper use and maintenance of the remediation system to the technical personnel on an approved startup date. PPM will provide a minimum of 14-day notice to the manufacturer to allow scheduling of an on-site start-up/technical assistance event.

6.9 General System Requirements

All system components shall comply with the guidelines established by the Occupational Health and Safety Administration (OSHA), National Electrical Code (NEC, 2014 Edition), and all applicable American Society of Testing and Materials (ASTM) standards. It is the sole responsibility of the equipment manufacturer to ensure substantial compliance of the system.

All system components shall be constructed of modular assembly to allow easy access for repair. System components shall be separately removable from the system through the use of unions, quick connects, flexible connectors, etc. All system components (i.e., manifolds, control panels, piping, etc.) shall be constructed to be easily disassembled, inspected, repaired, or replaced in the field.

Equipment supplier shall test each system thoroughly for proper operation. Testing shall be done at operating pressures, temperatures, and flow rates at the minimum and maximum conditions specified for the system. Testing shall be done at the supplier's facility for a minimum of eight hours. Testing shall verify all high temperature, high level, low level, loss of phase, and all related system safety devices are functioning properly. The telemetry system shall be tested ensuring that each designated channel is properly integrated and configured to call all assigned phone numbers. Testing should reveal liquids, air, or gaseous leaks within the system and all appropriate repairs shall be conducted at the equipment manufacturer's facility prior to delivery to the site. A copy of the test results and changes made, if any, must be provided to the PPM, upon request.

Equipment supplier shall warrant all equipment against faulty design, defective or improper materials, and poor workmanship for a period of **one year** after the PPM accepts delivery of the equipment. If any defects, failures, or substandard performance occur during that period, the supplier shall make all necessary or desirable alterations, repairs, and replacements at no cost to Royce Carson Village LLC nor PPM. When a problem arises, PPM will make the determination as to the cause of the problem and promptly notify the equipment supplier. Equipment supplier shall have 24 hours to respond and develop a resolution and/or submit a plan/schedule to repair the problem. Non-submittal of response shall constitute equipment supplier's acknowledgment of responsibility.

7.0 EXTENDED WARRANTY

PPM requests a separate line item price for an extended 3-year warranty for the system to cover parts and labor for the system and components. Details and requirements of the warranties shall be attached to the proposal. This may or may not be included with the system purchase.

APPENDIX C – ADEM REMEDIATION APPROVAL FORM

November 19, 2025

Ms. Rebecca Arthur
Alabama Department of Environmental Management
Air Division
1400 Coliseum Boulevard
Montgomery, Alabama 36110

Re: ADEM Remediation Approval Form
Lakeland Grocery
12389 Lary Lake Road
Northport, Alabama
Facility I.D. No. 25156-125-012503
Incident No. UST22-06-01
PPM Project No. 40166601-CAP

Dear Ms. Arthur:

On behalf of Pinnacle Capital, LLC, PPM Consultants, Inc. (PPM) is proposing to install a soil and groundwater remediation system for the referenced UST Incident Number. The remediation system will be located near the southeast portion of the store building in an area used for boat storage. Remedial activities are in response to an accidental release of petroleum products from an underground storage tank (UST) system.

The proposed remediation system will consist of a dual-phase vacuum extraction (DPVE) unit, which uses the application of high vacuum to recover free product, soil vapor, and groundwater from recovery wells. Volatile organic compounds (VOCs) will be removed from the groundwater by means of an air-stripper, and groundwater will be subsequently discharged to Lake Tuscaloosa via National Pollutant Discharge Elimination System (NPDES) permit.

Regarding vapor emissions, there will be two points of discharge: the air stripper and the liquid-ring vacuum pump (LRVP). The following conservative assumptions were used to estimate the atmospheric mass loading from the air-stripper:

1) An estimated groundwater recovery rate of 10 gallons per minute (gpm)
2) The most recent maximum dissolved concentration of constituents of concern (COCs) measured in the groundwater during the last two years.

As directed by Alabama Department of Environmental Management (ADEM) Form 448, the dimensional analysis used to derive the atmospheric mass loading in pounds per hour (lbs/hour) is as follows:

Concentration (mg/L) x flow (10 gallons/minute) x conversion (5.01 x 10^{-4}) = emission (lbs/hour)

Following is a summary of the estimated atmospheric mass loading for the air stripper:

Constituent	Recent Max Concentration (mg/L)	Sample I.D.	Sample Date	Atmospheric Mass Loading (lbs/hour)
Benzene	6.72	MW-3	8/25/25	0.0337
Toluene	7.40	MW-3	3/15/24	0.0371
Ethylbenzene	4.68	MW-2	8/25/25	0.0234
Xylenes	12.3	MW-3	3/15/24	0.062
MTBE	1.81	MW-4	6/27/24	0.0091
Naphthalene	1.52	MW-2	8/25/25	0.008

Note: Recent Maximum Concentration was the maximum concentrations from the March and June 2024 sampling events and the August 2025 sampling event.

PPM requests that ADEM establish site-specific emission thresholds (SSETs) for the air stripper. If SSET levels are greater than the numbers presented above (worst-case scenario), then emissions from this air stream will not be treated prior to discharge. If the numbers above exceed the SSETs for the air stripper, vapor emissions will be treated by means of granular activated carbon (GAC).

As directed by ADEM Form 448, the dimensional analysis used to derive the atmospheric mass loading in pounds per hour (lbs/hour) for the LRVP is as follows:

Recent max concentration (mg/kg) x soil density (1.355 g/cm^3) x conversion (1,000) = Concentration (mg/m^3)

Concentration (mg/m^3) x flow (7.1 m^3/minute) x conversion (1.32 x 10^{-4}) = emission (lbs/hour)

Constituent	Recent Max Concentration (mg/kg)	Sample I.D.	Sample Date	Atmospheric Mass Loading (lbs/hour)
Benzene	2.15	MW-4	10/17/22	3.0059
Toluene	11.2	MW-4	10/17/22	15.6587
Ethylbenzene	18.6	MW-4	10/17/22	26.0047
Xylenes	59.8	MW-4	10/17/22	83.6065
MTBE	0.291	MW-4	10/17/22	0.4068
Naphthalene	7.79	MW-4	10/17/22	10.8912

Notes: The air flow rate is based on the anticipated operating capacity of the proposed LRVP.

PPM also requests that ADEM establish SSETs for the LRVP. Vapor phase concentrations at the site will not likely exceed the SSETs for the LRVP air stream. However, free product has been present on the groundwater, PPM recommends to initially utilize a GAC (1,000 pounds) vessel to treat LRVP vapor emissions.

Air samples will be collected from the LRVP discharge at system start-up and on a quarterly basis thereafter for analysis of total VOCs. Airflow rates will be measured using pitot tubes and a gauge will be installed to estimate the temperature of the vapors. The data collected will be used to estimate the atmospheric mass loading using the ideal gas law. In addition, groundwater samples will be collected on a quarterly basis to gauge site response to remediation efforts. Semi-annual reports will be submitted to the ADEM Air Division documenting sampling results, estimated airflow rates, and estimated mass loading.

The **ADEM Remediation Approval Form 448** is included in **Attachment A**. The **Proposed System Layout** is included as **Attachment B**. Historical soil and groundwater tables are included in **Attachment C**.

We appreciate your consideration of this request and look forward to your response. If you have any questions regarding these matters, please feel free to contact me at (205) 836-5650.

Sincerely,
PPM Consultants, Inc.

Chuck Gooden
Project Manager

Attachments: Attachment A – ADEM Remediation Approval Form 448
Attachment B – Figures
Attachment C – Tables

c: Mr. Randy Albritton, Pinnacle Capital, LLC

ATTACHMENT A – ADEM REMEDIATION APPROVAL FORM 448

REMEDIATION APPROVAL

This form should be submitted to the Department to obtain Air Division approval prior to operating any type of remediation system. Depending on the type of remediation system being proposed, some of the following questions may not apply:

TYPE REMEDIATION SYSTEM: (Check One)

- ☐ **Soil-Vapor Extraction (SVE) – soil only remediation**
- ☐ **Pump & Treat (PT) – groundwater only remediation**
- ☑ **Multi-Phase Vapor Extraction (MPVE) – soil & groundwater remediation**

  ___ SVE (w/PT) ___ SVE (w/Air Sparging) ✔ Dual-Phase

- ☐ **Mobile Enhanced Multi-Phase Extraction (MEME) – a short term remediation of soils and/or groundwater.**

Is Free Product Present? Yes ☑ No ☐ **Is This a Pilot Study?** Yes ☐ No ☑

OWNER: Name Pinnacle Capital, LLC **Phone No.: (** 251 **)** 253-2882

Mailing Address 12389 Lary Lake Road

City Northport **State** AL **Zip** 35475

SITE: Facility Name: Lakeland Grocery

Facility Address: 12389 Lary Lake Road

Location: (City) Northport **(County)** Tuscaloosa

Facility ID No.: 25156 - 125 - 012503 **UST Incident No.:** 22 - 06 - 01

CONTAMINANTS: On a separate page please list <u>all</u> contaminants along with the most recent sample data from all wells: groundwater and/or soil.

CALCULATIONS: Utilize the highest, most recent concentrations (not historical highs or averages) for each contaminant, the highest anticipated flow rate and it should be expressed in lbs/hr.

<u>Groundwater Calculations:</u>

Concentration (mg/L) X flow (gal/min) X Conversion (5.01×10^{-4}) = emissions (lbs/hr)

***<u>Soil Calculations:</u>**

Concentration (mg/m^3) X flow (m^3/min) X Conversion (1.32×10^{-4}) = emissions (lbs/hr)

Please note that most soil sample concentrations are expressed in mg/kg and must be converted to mg/m^3 prior to using the above formula.

REMEDIATION SYSTEM: Please provide a brief description along with a flow diagram of the remediation system. The information should include but not be limited to the following: maximum blower speed (ft^3/min) and maximum groundwater recovery rate (gal/min) of the liquid ring pump(s).

Proposed date of implementation: March 2026

Anticipated groundwater recovery rate: 10 **gal/min**

Anticipated soil vapor extraction rate: 200 **ft^3/min**

Dry soil bulk density: 1.87 **g/cm^3**

Proposed Air Pollution Control Device (APCD) if system does not pass modeling:

Granular Activated Carbon

Please include the following information for all sites (excluding MEME events):

Distances (ft) from emission point to fence: N: 20 **S:** 20 **E:** 20 **W:** 20

(*Note: distance should reflect accessibility by the public, not necessarily property lines*)

Emission Points- Should reflect the stack parameters without a APCD

From the Blower

Stack 1: **Height above ground** 15 **ft** **Inside diameter** 0.33 **ft**

Exit Velocity 61 **ft/s** **Exit Temperature** 175 **°F**

From the Air Stripper

Stack 2: **Height above ground** 12 **ft** **Inside diameter** 0.5 **ft**

Exit Velocity 61 **ft/s** **Exit Temperature** 70 **°F**

ADEM Project Manager: Chris Krafcheck

Subcontractor: NA

Consultant Project Manager: Chuck Gooden

Consulting Firm: PPM Consultants, Inc.

Mailing Address: 5555 Bankhead Highway

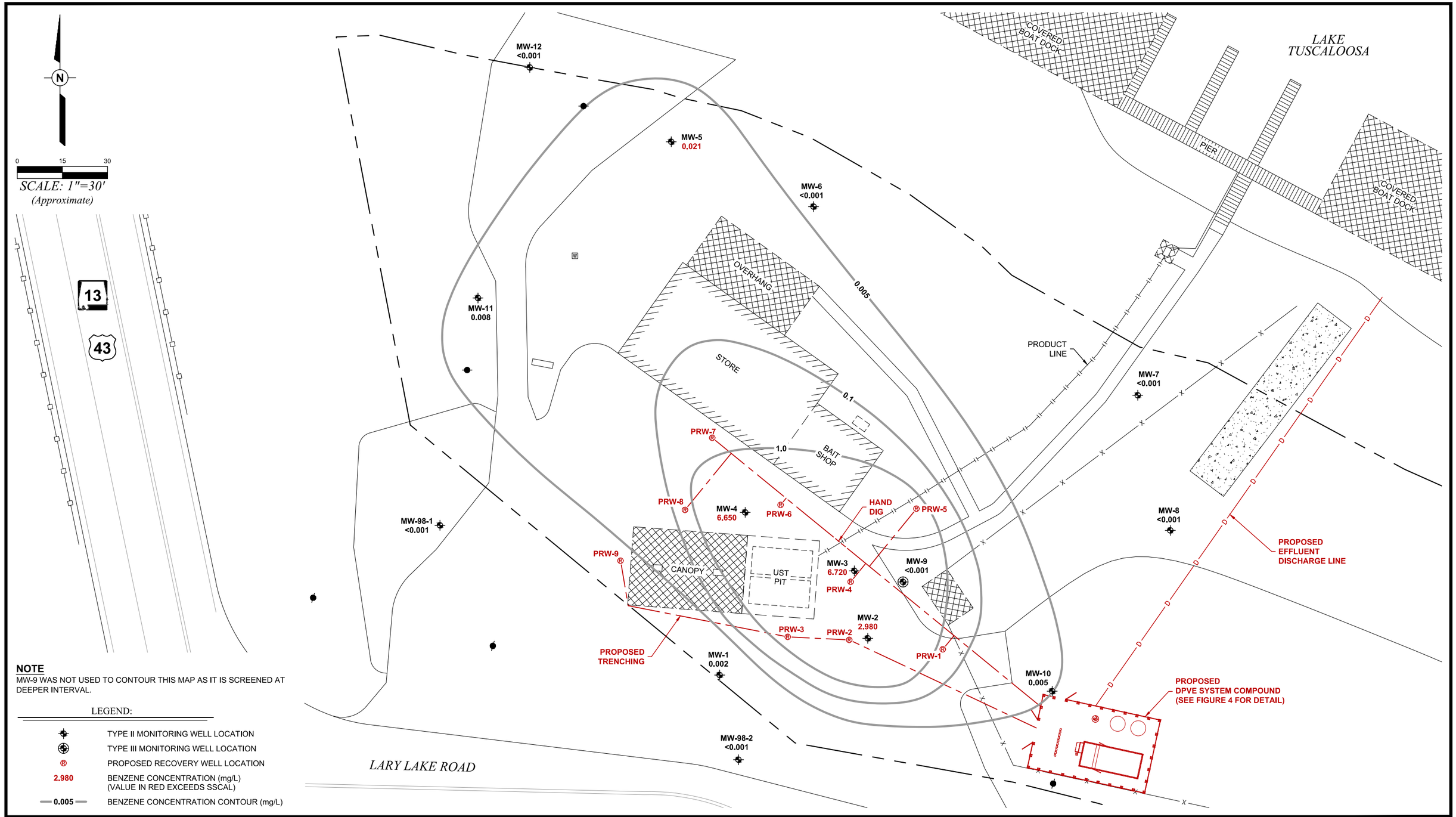
City Birmingham **State** AL **Zip** 35210

Consultant E-mail address (optional): chuck.gooden@ppmco.com

Consultant Phone No.: (205) 836-5650

Consultant Signature: Chuck Gooden **Date:** 11/19/25

ATTACHMENT B – FIGURES



NOTE
MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

- TYPE II MONITORING WELL LOCATION
- TYPE III MONITORING WELL LOCATION
- ® PROPOSED RECOVERY WELL LOCATION
- 2.980 BENZENE CONCENTRATION (mg/L) (VALUE IN RED EXCEEDS SSCAL)
- 0.005 BENZENE CONCENTRATION CONTOUR (mg/L)

PPM CONSULTANTS, INC.
www.ppmco.com

DRAWN BY:	DRAWN DATE:
BWH	11/18/25
PROJECT NUMBER:	PHASE:
40166601	CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

PROPOSED SYSTEM LAYOUT

FIGURE NUMBER
9

ATTACHMENT C – TABLES

TABLE 1
GROUNDWATER ELEVATION SURVEY DATA
LAKELAND GROCERY
NORTHPORT, ALABAMA

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL (ft)	DEPTH TO FREE PRODUCT (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	FREE PRODUCT THICKNESS (ft)	GROUND-WATER ELEVATION (ft)
MW-1	10/26/22	248.0	247.74	13.7	234.5 - 244.1	--	6.05	--	241.69
	04/17/23			13.6		--	4.83	--	242.91
	09/15/23			13.5		--	6.19	--	241.55
	12/14/23			13.7		--	6.40	--	241.34
	03/15/24			13.5		--	5.46	--	242.28
	06/27/24			13.7		--	5.95	--	241.79
	10/17/24			13.5		--	6.37	--	241.37
	02/19/25			13.8		--	5.47	--	242.27
	05/15/25			13.7		--	4.63	--	243.11
	08/25/25			13.7		--	5.58	--	242.16
MW-2	10/26/22	246.8	246.53	14.1	233.0 - 242.6	--	4.96	--	241.57
	04/17/23			14.1		--	3.42	--	243.11
	09/15/23			14.0		--	4.80	--	241.73
	12/14/23			14.0		--	5.27	--	241.26
	03/15/24			14.0		--	3.90	--	242.63
	06/27/24			14.0		--	4.92	--	241.61
	10/17/24			13.7		--	5.22	--	241.31
	02/19/25			13.7		--	4.33	--	242.20
	05/15/25			13.7		--	3.03	--	243.50
	08/25/25			14.1		--	4.57	--	241.96
MW-3	10/26/22	246.7	246.48	14.1	232.7 - 242.3	--	4.91	--	241.57
	04/17/23			14.1		--	3.72	--	242.76
	09/15/23			14.3		--	4.88	--	241.60
	12/14/23			14.0		--	5.03	--	241.45
	03/15/24			14.0		--	4.09	--	242.39
	06/27/24			14.2		4.70	4.91	0.21	241.73
	10/17/24			14.0		--	5.10	--	241.38
	02/19/25			14.3		--	4.16	--	242.32
	05/15/25			14.3		--	3.41	--	243.07
	08/25/25			14.3		--	4.51	--	241.97
MW-4	10/26/22	247.6	247.29	14.3	233.5 - 243.1	--	5.68	--	241.61
	04/17/23			14.0		--	4.40	--	242.89
	09/15/23			14.3		--	5.60	--	241.69
	12/14/23			14.2		--	5.92	--	241.37
	03/15/24			14.2		--	4.83	--	242.46
	06/27/24			14.3		--	5.54	--	241.75
	10/17/24			14.3		--	5.88	--	241.41
	02/19/25			14.0		--	4.96	--	242.33
	05/15/25			14.0		--	3.93	--	243.36
	08/25/25			14.0		--	5.26	--	242.03
MW-5	04/17/23	240.1	239.88	13.5	227.6 - 237.2	--	4.70	--	235.18
	09/15/23			13.5		--	6.26	--	233.62
	12/14/23			13.4		--	5.59	--	234.29
	03/15/24			13.5		--	4.58	--	235.30
	06/27/24			13.5		--	5.23	--	234.65
	10/17/24			13.5		--	5.72	--	234.16
	02/19/25			13.5		--	4.03	--	235.85
	05/15/25			13.5		--	3.58	--	236.30
	08/25/25			13.5		--	5.30	--	234.58
MW-6	04/17/23	242.7	242.37	18.2	224.6 - 239.2	--	7.55	--	234.82
	09/15/23			18.1		--	7.55	--	234.82
	12/14/23			18.1		--	7.54	--	234.83
	03/15/24			18.2		--	7.39	--	234.98
	06/27/24			18.2		--	7.76	--	234.61
	10/17/24			18.2		--	7.88	--	234.49
	02/19/25			18.3		--	6.81	--	235.56
	05/15/25			18.2		--	6.63	--	235.74
	08/25/25			18.2		--	7.82	--	234.55

TABLE 1
GROUNDWATER ELEVATION SURVEY DATA
LAKELAND GROCERY
NORTHPORT, ALABAMA

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL (ft)	DEPTH TO FREE PRODUCT (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	FREE PRODUCT THICKNESS (ft)	GROUND-WATER ELEVATION (ft)
MW-7	04/17/23	238.9	238.58	13.7	225.2 - 234.8	--	6.21	--	232.37
	09/15/23			13.6		--	7.90	--	230.68
	12/14/23			13.5		--	5.72	--	232.86
	03/15/24			13.8		--	5.90	--	232.68
	06/27/24			13.8		--	7.32	--	231.26
	10/17/24			13.6		--	7.44	--	231.14
	02/19/25			13.6		--	5.64	--	232.94
	05/15/25			13.7		--	5.44	--	233.14
	08/25/25			13.8		--	7.17	--	231.41
MW-8	04/17/23	244.0	243.63	14.1	230.0 - 239.6	--	4.19	--	239.44
	09/15/23			14.1		--	5.26	--	238.37
	12/14/23			14.0		--	4.84	--	238.79
	03/15/24			14.1		--	3.55	--	240.08
	06/27/24			14.1		--	0.40	--	243.23
	10/17/24			14.1		--	6.15	--	237.48
	02/19/25			14.1		--	3.78	--	239.85
	05/15/25			14.1		--	3.95	--	239.68
	08/25/25			14.1		--	4.95	--	238.68
MW-9	04/17/23	246.7	246.19	45.0	201.7 - 206.3	--	23.60	--	222.59
	09/15/23			45.1		--	24.40	--	221.79
	12/14/23			45.4		--	25.91	--	220.28
	03/15/24			45.1		--	24.46	--	221.73
	06/27/24			45.2		--	23.84	--	222.35
	10/17/24			44.9		--	24.25	--	221.94
	02/19/25			45.5		--	22.92	--	223.27
	05/15/25			45.5		--	21.41	--	224.78
	08/25/25			45.1		--	23.67	--	222.52
MW-10	09/15/23	245.7	245.37	20.0	225.8 - 235.4	--	7.66	--	237.71
	12/14/23			20.0		--	7.58	--	237.79
	03/15/24			20.0		--	6.95	--	238.42
	06/27/24			20.1		--	7.39	--	237.98
	10/17/24			20.0		--	7.84	--	237.53
	02/19/25			20.0		--	6.92	--	238.45
	05/15/25			19.7		--	6.01	--	239.36
	08/25/25			19.9		--	7.30	--	238.07
MW-11	09/15/23	244.3	243.91	16.3	227.9 - 237.5	--	4.15	--	239.76
	12/14/23			15.8		--	4.05	--	239.86
	03/15/24			16.3		--	3.15	--	240.76
	06/27/24			16.5		--	4.03	--	239.88
	10/17/24			16.3		--	4.14	--	239.77
	02/19/25			16.4		--	2.67	--	241.24
	05/15/25			16.3		--	0.50	--	243.41
	08/25/25			16.3		--	3.78	--	240.13
MW-12	09/15/23	236.3	235.98	12.4	224.1 - 233.7	--	10.12	--	225.86
	12/14/23			12.2		--	9.45	--	226.53
	03/15/24			12.4		--	8.82	--	227.16
	06/27/24			12.4		--	9.39	--	226.59
	10/17/24			12.3		--	9.85	--	226.13
	02/19/25			12.4		--	8.06	--	227.92
	05/15/25			12.3		--	7.62	--	228.36
	08/25/25			12.4		--	9.86	--	226.12

TABLE 1
GROUNDWATER ELEVATION SURVEY DATA
LAKELAND GROCERY
NORTHPORT, ALABAMA

WELL I.D.	DATE	SURFACE ELEVATION (ft)	TOP OF CASING ELEVATION (ft)	WELL DEPTH (ft-BTOC)	SCREENED INTERVAL (ft)	DEPTH TO FREE PRODUCT (ft-BTOC)	DEPTH TO WATER (ft-BTOC)	FREE PRODUCT THICKNESS (ft)	GROUND-WATER ELEVATION (ft)
MW-98-1	10/26/22	249.4	249.17	9.1	235.0 - 240.0*	--	7.62	--	241.55
	04/17/23			8.9		--	6.40	--	242.77
	09/15/23			9.2		--	7.72	--	241.45
	12/14/23			8.7		--	7.91	--	241.26
	03/15/24			9.1		--	6.91	--	242.26
	06/27/24			9.2		--	7.56	--	241.61
	10/17/24			9.1		--	7.91	--	241.26
	02/19/25			9.0		--	6.87	--	242.30
	05/15/25			9.0		--	5.94	--	243.23
	08/25/25			9.1		--	7.16	--	242.01
MW-98-2	10/26/22	248.8	248.41	9.7	233.7 - 238.7*	--	6.69	--	241.72
	04/17/23			9.7		--	5.46	--	242.95
	09/15/23			9.7		--	6.80	--	241.61
	12/14/23			9.6		--	7.04	--	241.37
	03/15/24			9.6		--	6.15	--	242.26
	06/27/24			9.5		--	6.65	--	241.76
	10/17/24			10.7		--	7.05	--	241.36
	02/19/25			9.8		--	6.20	--	242.21
	05/15/25			9.8		--	5.61	--	242.80
	08/25/25			9.8		--	6.29	--	242.12

Notes: *ft-BTOC - feet below top of casing*
Elevations based on approximate NGVD of 248 feet above mean sea level as referenced from Lake Tuscaloosa South, Alabama USGS 7.5-Minute Quadrangle Topographic Map
** - Screen interval estimated from measured base of well*

Source: *PPM Consultants, Inc.*
40166601-CAP

TABLE 2
SOIL ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DEPTH (ft BGS)	SAMPLE DATE	HEADSPACE READING (ppmv)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	MTBE (mg/kg)	NAPH-THALENE (mg/kg)
SB-1-1-3	1-3	10/17/22	15.0	<0.000667	<0.000996	*0.000927*	<0.00189	0.000927	<0.000996	<0.00299
SB-2-1-3	1-3	10/17/22	10.8	0.00621	0.0173	0.0363	0.119	0.17881	<0.000965	0.0125
SB-2-4-6	4-6	10/17/22	227.8	**0.0347**	0.0494	0.0638	0.291	0.4389	0.00604	0.0600
SB-3-1-3	1-3	10/17/22	23.2	***0.218***	*0.0739*	0.334	*0.398*	1.0239	**<0.0476**	*0.203*
SB-3-4-6	4-6	10/17/22	55.1	**0.450**	0.00714	0.0789	0.0144	0.55044	**0.112**	0.0221
SB-4-1-3	1-3	10/17/22	69.2	**0.377**	0.0173	0.181	0.0371	0.6124	**0.133**	0.0120
SB-1-1-3	1-3	10/17/22	15.0	<0.000667	<0.000996	*0.000927*	<0.00189	0.000927	<0.000996	<0.00299
SB-2-1-3	1-3	10/17/22	10.8	0.00621	0.0173	0.0363	0.119	0.17881	<0.000965	0.0125
SB-2-4-6	4-6	10/17/22	227.8	**0.0347**	0.0494	0.0638	0.291	0.4389	0.00604	0.0600
SB-3-1-3	1-3	10/17/22	23.2	***0.218***	*0.0739*	0.334	*0.398*	1.0239	**<0.0476**	*0.203*
SB-3-4-6	4-6	10/17/22	55.1	**0.450**	0.00714	0.0789	0.0144	0.55044	**0.112**	0.0221
SB-4-1-3	1-3	10/17/22	69.2	**0.377**	0.0173	0.181	0.0371	0.6124	**0.133**	0.0120
SB-4-4-6	4-6	10/17/22	872.1	**2.15**	**11.2**	**18.6**	**59.8**	91.75	***0.291***	**7.79**
SB-5 (1-3)	1-3	04/11/23	15	<0.000664	<0.000991	<0.000664	<0.00188	BDL	<0.000991	<0.00297
SB-6 (4-5)	4-5	04/11/23	45	<0.000723	<0.00108	<0.000658	<0.00205	BDL	<0.00108	<0.00324
SB-6 (6-8)	6-8	04/11/23	20	<0.000632	<0.000943	<0.000575	<0.00179	BDL	<0.000943	<0.00283
SB-7 (4-5)	4-5	04/10/23	45	<0.000652	<0.000974	<0.000594	<0.00185	BDL	<0.000974	<0.00292
SB-7 (6-8)	6-8	04/10/23	35	<0.000701	<0.00105	<0.000638	<0.00199	BDL	<0.00105	<0.00314
SB-8 (1-3)	1-3	04/10/23	20	<0.000624	<0.000931	<0.000568	<0.00177	BDL	<0.000931	<0.00279
SB-8 (4-5)	4-5	04/10/23	15	<0.000563	<0.000841	<0.000513	<0.00160	BDL	<0.000841	<0.00252
SB-9 (4-6)	4-6	04/10/23	15	<0.000614	<0.000916	<0.000559	<0.00174	BDL	<0.000916	<0.00275
SB-10 (6-8)	6-8	04/12/23	0	<0.000613	<0.000916	<0.000559	<0.00174	BDL	<0.000916	<0.00275
SB-11 (9-11)	9-11	08/29/23	25	<0.000673	<0.00100	<0.000612	<0.00191	BDL	<0.00100	<0.00301
SB-11 (14-16)	14-16	08/29/23	20	<0.000636	<0.000949	<0.000579	<0.00180	BDL	<0.000949	<0.00285
SB-12 (4-6)	4-6	08/29/23	25	<0.000643	<0.000960	<0.000585	<0.00182	BDL	<0.000960	<0.00288
SB-12 (9-11)	9-11	08/29/23	20	<0.000675	<0.00101	<0.000615	<0.00191	BDL	<0.00101	<0.00302

TABLE 2
SOIL ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DEPTH (ft BGS)	SAMPLE DATE	HEADSPACE READING (ppmv)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	MTBE (mg/kg)	NAPH-THALENE (mg/kg)
SB-13 (4-6)	4-6	08/29/23	20	<0.000749	<0.00112	<0.000682	<0.00212	BDL	<0.00112	<0.00335
SB-13 (9-11)	9-11	08/29/23	15	<0.000527	<0.000787	<0.000480	<0.00150	BDL	<0.000787	<0.00236
ADEM ISLs				**0.00845**	**3.60**	**3.61**	**13.2**	**--**	**0.00862**	**0.579**

Notes: *ft BGS - feet below ground surface (approximate)*
ppmv - parts per million by volume
mg/kg - milligrams per kilogram
Headspace analysis conducted with a photoionization detector (PID) calibrated to isobutylene or RKI Eagle calibrated to hexane
BTEX/MTBE/Naphthalene analyses conducted per EPA Method 8260/5035
Values in italics indicates result is less than reporting limit but greater than method detection limit and concentration is approximate
ISLs - Initial Screening Levels for Residential
Bold *indicates concentration exceeds ISL*

Source: *PPM Consultants, Inc.*
PPM Project No. 40166601-CAP

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-1	10/26/22	0.00374	0.00104	*0.000543*	*0.00452*	0.009843	0.00721	<0.00300
	04/17/23	*0.000996*	<0.000410	<0.000500	<0.00160	0.000996	<0.000220	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	0.00217	<0.000900	<0.000500	<0.00160	0.00217	<0.000220	<0.00300
	10/17/24	*0.000362*	<0.000900	<0.000500	<0.00600	*0.000362*	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	0.002	<0.001	<0.001	<0.003	0.002	<0.001	<0.005
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	**--**	***2.887***	***2.887***
MW-2	10/26/22	**1.31**	1.16	1.88	5.45	9.80	0.0529	0.578
	04/17/23	**2.62**	0.644	3.48	5.06	11.804	0.122	0.803
	09/15/23	**2.03**	0.887	3.14	6.68	12.737	0.0665	0.843
	12/14/23	**1.51**	0.241	2.16	3.13	7.041	0.070	0.566
	03/15/24	**2.28**	0.172	2.45	2.08	6.982	0.0989	0.606
	06/27/24	**2.20**	0.196	2.56	3.96	8.916	0.106	0.691
	10/17/24	**2.52**	0.205	3.28	3.74	9.745	0.149	0.942
	02/19/25	**2.19**	0.0444	1.36	0.636	4.2304	0.197	0.461
	05/15/25	**2.470**	*0.024*	1.40	0.495	4.389	0.291	0.640
	08/25/25	**2.980**	*0.416*	4.680	4.560	12.636	0.178	1.520
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	**--**	***2.887***	***2.887***
MW-3	10/26/22	**5.29**	**2.14**	3.04	4.74	15.21	0.654	0.843
	04/17/23	**5.53**	**4.98**	2.87	8.14	21.52	0.678	0.696
	09/15/23	**7.05**	**1.93**	2.81	8.51	20.30	0.826	1.42
	12/14/23	**5.74**	1.43	1.98	3.13	12.28	0.635	0.949
	03/15/24	**6.11**	**7.40**	3.25	12.3	29.06	0.0843	0.775
	06/27/24	**5.62**	1.29	1.75	4.50	13.16	0.326	0.880
	10/17/24	**4.27**	0.669	1.39	2.33	8.659	0.245	0.714
	02/18/25	**2.54**	**2.96**	2.56	7.41	15.47	<0.011	1.16
	05/15/25	**3.570**	**3.210**	3.590	11.500	21.870	*0.016*	1.460
	08/25/25	**6.720**	0.836	1.860	2.360	11.776	0.305	1.500
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	**--**	***2.887***	***2.887***
MW-4	10/26/22	**4.86**	**3.97**	3.11	8.85	20.79	1.94	0.677
	04/17/23	**6.56**	**4.89**	2.71	8.15	22.31	2.56	0.597
	09/15/23	**2.83**	1.88	1.38	3.49	9.58	1.23	0.314
	12/14/23	**1.81**	0.980	1.01	2.37	6.17	0.905	0.198
	03/15/24	**2.97**	**2.25**	1.11	3.20	9.53	0.996	0.258
	06/27/24	**6.73**	**2.73**	2.49	5.34	17.29	1.81	0.456
	10/17/24	**1.84**	0.911	0.848	1.64	5.239	0.65	0.171
	02/19/25	**1.86**	**2.17**	1.62	4.69	10.34	0.307	0.339
	05/15/25	**0.740**	1.350	1.590	5.290	8.970	0.123	0.383
	08/25/25	**6.650**	**2.370**	4.460	8.400	21.880	0.925	0.960
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	**--**	***2.887***	***2.887***

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-5	04/17/23	**0.0321**	*0.000504*	0.00340	*0.00483*	0.040834	0.124	<0.00300
	09/15/23	**0.0595**	<0.000900	0.02270	*0.00288*	0.085080	0.083	0.0221
	12/14/23	**0.0209**	<0.000900	0.00217	<0.00160	0.02307	0.0894	<0.000300
	03/15/24	**0.0608**	0.00121	0.00565	*0.00957*	0.07723	0.0609	0.015
	06/27/24	**0.0322**	0.00180	0.00542	<0.00320	0.03942	0.0522	*0.00804*
	10/17/24	**0.0349**	<0.000900	0.00318	<0.00600	0.03808	0.0627	0.00775
	02/18/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	0.00715	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	0.005	<0.005
	08/25/25	**0.021**	<0.001	0.005	<0.003	0.026	0.024	0.010
SSCALs - GRP/SP - POC		***0.0160***	***0.2552***	***0.6607***	***175***	***--***	***0.3808***	***0.3808***
MW-6	04/17/23	0.00271	<0.000820	*0.00106*	<0.00320	0.00377	0.254	<0.00600
	09/15/23	<0.000500	<0.000900	*<0.000500*	<0.00160	BDL	0.015	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0231	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.000587*	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00763	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	0.00545	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	0.00217	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	0.002	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	0.014	<0.005
SSCALs - GRP/SP - POC		***0.0219***	***0.3477***	***0.9001***	***175***	***--***	***0.5189***	***0.5189***
MW-7	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	0.0105	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0003	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00112	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00109	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - GRP/SP - POC		***0.0219***	***0.3477***	***0.9001***	***175***	***--***	***0.5189***	***0.5189***
MW-8	04/17/23	0.00606	*0.000534*	*0.000899*	<0.00160	0.007493	0.0376	0.0151
	09/15/23	0.000729	<0.000900	<0.000500	<0.00160	0.000729	0.0170	0.00620
	12/14/23	0.00106	<0.000900	<0.000500	<0.00160	0.00106	0.0073	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0018	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.0128	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	0.0104	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	0.000639	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	0.005	<0.005
SSCALs - GRP/SP - POC		***0.0219***	***0.3477***	***0.9001***	***175***	***--***	***0.5189***	***0.5189***

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-9	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	0.0073	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.000297	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.00029*	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	0.00286	0.00286	*0.000231*	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.000301*	<0.00300
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	*0.000346*	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00160	BDL	*0.000273*	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - GRP/SP - Source		***0.1216***	***1.934***	***5.007***	***175***	***--***	***2.887***	***2.887***
MW-10	09/15/23	0.00137	<0.000900	<0.000500	<0.00160	0.00137	*0.126*	<0.00300
	12/14/23	0.00134	<0.000900	<0.000500	<0.00160	0.00134	0.0909	<0.00300
	03/15/24	0.00169	<0.000900	0.00483	*0.00180*	0.00832	0.0773	<0.00300
	06/27/24	0.0205	<0.000900	0.0206	<0.00160	0.0411	0.107	<0.00300
	10/17/24	0.00385	<0.000900	<0.000500	<0.00600	0.0039	0.088	<0.00300
	02/18/25	0.00113	<0.000900	0.00241	<0.00600	0.00354	0.109	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	0.098	<0.005
	08/25/25	0.005	<0.001	<0.001	<0.003	0.005	0.127	<0.005
SSCALs - GRP - POC		***0.2157***	***43.14***	***30.20***	***175***	***--***	***0.8627***	***0.8627***
MW-11	09/15/23	0.0539	0.00157	0.00314	0.00607	0.06468	0.0133	0.0201
	12/14/23	0.0717	0.00177	0.0128	*0.0044*	0.09067	0.0225	0.0172
	03/15/24	0.0293	<0.000900	0.00259	*0.00184*	0.03373	0.00892	0.00705
	06/27/24	0.0350	<0.000900	0.00123	<0.00160	0.03623	0.0145	0.00574
	10/17/24	0.0166	<0.000900	0.00107	<0.00600	0.01767	0.0251	<0.00300
	02/19/25	0.0107	<0.000900	0.000723	<0.00600	0.011423	0.0368	0.00301
	05/15/25	0.005	<0.001	<0.001	<0.003	0.005	0.034	<0.005
	08/25/25	0.008	<0.001	<0.001	<0.003	0.008	0.027	<0.005
SSCALs - GRP - POC		***0.1164***	***23.29***	***16.30***	***175***	***--***	***0.4658***	***0.4658***
MW-12	09/15/23	<0.000500	<0.000900	<0.000500	*<0.00160*	BDL	0.00547	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	0.00172	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.00250	<0.00450	<0.00250	<0.00800	BDL	<0.00110	<0.0150
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	*0.000788*	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - GRP/SP - POC		***0.0110***	***0.1750***	***0.4530***	***118***	***--***	***0.2360***	***0.2360***

TABLE 3
GROUNDWATER ANALYTICAL SUMMARY
LAKELAND GROCERY
NORTHPORT, ALABAMA

SAMPLE I.D.	SAMPLE DATE	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	XYLENES (mg/L)	TOTAL BTEX (mg/L)	MTBE (mg/L)	NAPH-THALENE (mg/L)
MW-98-1	10/26/22	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	10/17/24	<0.00024	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - Commercial Worker		**50.885**	**526**	**169**	**175**	**--**	**48,000**	**31.0**
MW-98-2	10/26/22	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	04/17/23	<0.000130	<0.000410	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	09/15/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	12/14/23	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	03/15/24	<0.000500	<0.000900	<0.000500	<0.00160	BDL	<0.000220	<0.00300
	06/27/24	<0.00100	<0.00180	<0.00100	<0.00320	BDL	<0.000440	<0.00600
	10/17/24	<0.000240	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	02/19/25	<0.000500	<0.000900	<0.000500	<0.00600	BDL	<0.000220	<0.00300
	05/15/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
	08/25/25	<0.001	<0.001	<0.001	<0.003	BDL	<0.001	<0.005
SSCALs - Commercial Worker		**50.885**	**526**	**169**	**175**	**--**	**48,000**	**31.0**
DUPLICATE RESULTS								
DUP (MW-2)	10/26/22	1.13	0.924	1.36	4.12	7.534	0.0521	0.557
DUP (MW-2)	04/17/23	2.02	0.441	2.00	2.91	7.371	0.109	0.553
DUP (MW-2)	09/15/23	2.33	1.000	3.46	7.32	14.110	0.087	0.942
DUP (MW-5)	12/14/23	0.0149	<0.000900	0.00106	<0.00160	0.01596	0.0834	<0.00300
DUP (MW-5)	03/15/24	0.0528	0.00111	0.00389	*0.00622*	0.06402	0.0573	0.0115
DUP (MW-5)	06/27/24	0.0391	<0.000900	0.0118	*0.00222*	0.05312	0.0563	0.0123
DUP (MW-11)	10/17/24	0.0156	<0.000900	*0.000863*	<0.00600	0.01646	0.0235	<0.00300
DUP (MW-11)	02/19/25	0.0108	<0.000900	*0.000618*	<0.00600	0.011418	0.0385	<0.00300
DUP (MW-11)	08/25/25	0.007	<0.001	<0.001	<0.003	0.007	0.026	<0.005

Notes: *mg/L - milligrams per liter*
BDL - below detection limits
BTEX/MTBE/Naphthalene analyses conducted per EPA Method 8260
Values in italics indicates result is less than reporting limit but greater than method detection limit and concentration is approximate
SSCAL - Site Specific Corrective Action Limit
SP-POC - Stream Protection - Point of Compliance
GRP-POC - Groundwater Resource Protection - Point of Compliance
Bold *indicates concentration exceeds SSCAL*

Source: *PPM Consultants, Inc.*
40166601-CAP

APPENDIX D – NPDES NOI

November 25, 2025

Ms. Colleen Cook
Office of the City Engineer
City of Tuscaloosa
2201 University Boulevard
Tuscaloosa, Alabama 35401

Re: Notification of Planned Discharges to Lake Tuscaloosa
Lakeland Grocery
12389 Lary Lake Road
Northport, Alabama
Facility I.D. No. 25156-125-012503
UST Incident No. UST22-06-01
PPM Project No. 40166601-CAP

Dear Ms. Cook,

On behalf of Pinnacle Capital, LLC, PPM Consultants, Inc. (PPM) provides this notification to the City of Tuscaloosa that we intend to discharge treated stormwater and groundwater to Lake Tuscaloosa. Outfall DNS001-0011 will be located approximately 250 feet east of the proposed remediation equipment.

Recovered water will go through independent water treatment systems that will consist of an oil-water separator, an air stripper, and granular activated carbon (GAC) prior to discharge. The water treatment systems will be designed to treat gasoline-impacted water at the referenced site. PPM, on behalf of Pinnacle Capital, will submit an electronic Notice of Intent (eNOI) to the Alabama Department of Environmental Management (ADEM), for permission to these discharges. Monthly samples of the effluent will be required by ADEM to document the effectiveness of the treatment systems. Results from these samples will be reported to ADEM on a semi-annual basis. The systems are anticipated to be started in March 2026.

If you have any questions or need additional information, please do not hesitate to contact me at (205) 909-1451.

Sincerely,
PPM Consultants, Inc.

Chuck Gooden.
Senior Geologist

c: Mr. Randy Albritton, Pinnacle Capital
Mr. Chris Krafcheck, ADEM

MIDSTATES PETROLEUM COMPANY

November 19, 2025

Ms. Monique Miles
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, Alabama 36110

Re: Delegation of Signature Authority
NPDES Permits, DMRs, and UIC Permits
Pinnacle Capital, LLC
Lakeland Grocery
Northport, Tuscaloosa County, Alabama

Dear Mr. Stearns

Pinnacle Capital, LLC, Lakeland Grocery delegates signature authority to Mr. Chuck Gooden of PPM Consultants, Inc. with regards to National Pollutant Discharge Elimination System General Permit (NPDES) permits, Discharge Monitoring Repors (DMRs), and Underground Injection Control (UIC) permits for the Lakeland Grocery facility located in Northport, Alabama. If you have any questions I can be reached at 251-253-2882 or at randy@mstpco.com.

Thank You,

Randy Albritton
Environmental Compliance Manager
Pinnacle Capital, LLC/Midstates Petroleum Company

Form Submission Reason
New

Are you applying for a modification or reissuance of an EXISTING permit coverage under General Permit Number ALG340000?
No

Industrial Activity Information

Check the type of discharge at your facility and complete the applicable sections associated with the type checked:
Storm water and/or groundwater discharges associated with the remediation of groundwater and/or soil contaminated with petroleum or its derivatives (DSN001)

Are any discharges above combined?
No

Does any discharge or runoff from the facility reach an Outstanding Alabama Water or Outstanding Natural Resource Water stream segment as defined by ADEM Administrative Code r. 335-6-11-.02?
No

Description of industrial activity and land use at the facility:
Retail petroleum station and convenience store

Permittee Information

Permittee

Permittee Name (Legal Business Name)
Pinnacle Capital, LLC

Mailing Address

12389 LARY LAKE RD

NORTHPORT, AL 35475-3519

United States

To look up your company's legal business name, please refer to the Secretary of State's website:
Click here

Responsible Official

Prefix
Mr.

First Name	Last Name
Randy	Albritton

Title
Environmental Compliance Manager

Organization Name
Midstates Petroleum Company

Phone Type	Number	Extension
Mobile	251-253-2882	

Email
randy@mstpco.com

Fax
NONE PROVIDED

Mailing Address

12389 LARY LAKE RD

NORTHPORT, AL 35475-3519

United States

Does the Responsible Official intend to delegate signatory authority to an individual (or to a company position) as a duly authorized representative (DAR) for this site?
Yes

Duly Authorized Representative (DAR)

Delegation Document for Duly Authorized Representation (DAR)
NONE PROVIDED

Comment
NONE PROVIDED

> Pursuant to ADEM Admin. Code r. 335-6-6-.09(2), a person may ONLY be delegated signatory authority for reports if that person has responsibility for the overall operation of the regulated facility or activity. Once such delegation is made, that person is considered a duly authorized representative (DAR).

Authorized Rep

Prefix
Mr.

First Name	Last Name
Chuck	Gooden

Title
Project Manager

Organization Name
PPM CONSULTANTS INC.

Phone Type	Number	Extension
Business	2058365650	

Email
chuck.gooden@ppmco.com

Mailing Address

5555 BANKHEAD HWY

BIRMINGHAM, AL 35210-4531

United States

Do you have additional Duly Authorized Representative (DAR) contacts?
Yes

DMR Contact(s) (1 of 4)

DMR Contact

Prefix
Mr.

First Name	Last Name
Mitch	Stripling

Title
Project Manager

Organization Name
PINNACLE CAPITAL LLC

Phone Type	Number	Extension
Mobile	2054317489	

Email
mitch@mstpco.com

Address

12389 LARY LAKE RD

NORTHPORT, AL 35475-3519

United States

DMR Contact(s) (2 of 4)

DMR Contact

Prefix
Mr.

First Name	Last Name
Andrew	Paradis

Title
Project Manager

Organization Name
PPM Consultants, Inc.

Phone Type	Number	Extension
Business	2058365650	

Email
andrew.paradis@ppmco.com

Address

5555 BANKHEAD HWY

BIRMINGHAM, AL 35210

United States

DMR Contact(s) (3 of 4)

DMR Contact

Prefix
Mr.

First Name	Last Name
chuck	gooden

Title
Project Manager

Organization Name
PPM Consultants, Inc.

Phone Type	Number	Extension
Mobile	2055416391	

Email
chuck.gooden@ppmco.com

Address

5555 BANKHEAD HWY

BIRMINGHAM, AL 35210-4531

United States

DMR Contact(s) (4 of 4)

DMR Contact

Prefix
Mr.

First Name	Last Name
Jeff	Schexnayder

Title
Project Manager

Organization Name
PPM Consultants, Inc.

Phone Type	Number	Extension
Business	2058365650	

Email
jeff.schexnayder@ppmco.com

Address

5555 BANKHEAD HWY

BIRMINGHAM, AL 35210-4531

United States

Facility/Site Information

Facility/Site Name
LAKELAND GROCERY

Permittee Organization Type
LLC

Facility/Site Contact

Prefix
Mr.

First Name	Last Name
Randy	Albritton

Title
Environmental Compliance Manager

Organization Name
PINNACLE CAPITAL LLC - LAKELAND GROC

Phone Type	Number	Extension
Business	2056950018	

Email
randy@mstpco.com

Address

12389 LARY LAKE RD

NORTHPORT, AL 35475-3519

Facility/Site Address or Location Description

12389 LARRY LAKE RD

NORTHPORT, AL 35475

Facility/Site County
Tuscaloosa

Detailed Directions to the Facility/Site
Travel north on I-65 from Montgomery. Take exit 250 toward Tuscaloosa, AL. Take exit 71B to merge onto AL-69N/I-359 N toward Tuscaloosa. Continue onto AL-69N/US 43 N/Lurleen B Wallace Blvd N. Turn left onto US-43N/US 82W. Turn right on US-43 N. Turn right onto Lary Lake Road.

Please refer to the link below for Lat/Long map instruction help:
Map Instruction Help

Facility/Site Front Gate Latitude and Longitude
33.3458199,-87.60926529999999

12389 LARRY LAKE RD, NORTHPORT, AL

SIC Code(s) [Please select your primary SIC code first]:
5541-Gasoline Service Stations

NAICS Code(s) [Please select your primary NAICS code first]:
457110-Gasoline Stations With Convenience Stores

Has the facility been issued an NPDES INDIVIDUAL permit?
No

Has the facility been issued a State Indirect Discharge (SID) Permit?
No

Has the facility ever been issued coverage under an NPDES GENERAL Permit other than the permit listed on this application?
No

Are any discharges that you intend to be covered by this general permit going to municipal storm sewer?
No

Date facility started or will start operations:
01/31/2026

What is the size of the site in acres?
1.75

Do you discharge to any waters of the State that are impaired (303(d) or TMDL)?
Yes

Do your discharges contain pollutants of concern listed for the impaired water(s)?
No

Does any discharge or runoff from the facility reach a public water supply stream segment as defined by ADEM Administrative Code r. 335-6-11-.02?
Yes

Please indicate which of the following control measures the facility has to prevent pollution. Check all that apply or select "None".
Treatment of groundwater (retention, aeration)
Other: Air stripper, filtration and granular activate carbon

Do you have additional contacts associated with this site?
No

Additional Contacts (1 of 1)

Additional Contacts: Consultant

Contact Type
Consultant

Contact

Prefix
Mr.

First Name	Last Name
Chuck	Gooden

Title
Project Manager

Organization Name
PPM Consultants

Phone Type	Number	Extension
Mobile	2055416391	

Email
chuck.gooden@ppmco.com

Address

5555 BANKHEAD HWY

BIRMINGHAM, AL 35210-4531

United States

Best Management Practices (BMP) Plan

Note

This permit requires the development and implementation of a Best Management Practices (BMP) Plan. The BMP Plan shall be prepared and fully implemented no later than the date coverage is granted. This includes the generation and retention of inspection and training records.

Please confirm the status of the BMP plan:
I confirm that the BMP plan will be prepared and implemented no later than the date the industrial activity requiring coverage commences.

DSN001: Storm water and/or groundwater discharges associated with the remediation of groundwater and/or soil contaminated with petroleum or its derivatives (1 of 1)

Outfall: 0011

Feature Type
DSN001

Outfall Identifier
0011

Receiving Stream
North River (Lake Tuscaloosa)

Does the discharge enter the named receiving water via an unnamed tributary and/or a storm sewer system? Please also indicate if the storm sewer system is under an MS4 permit.
NONE PROVIDED

For help on how to place a point on the map, click here.

Location of the Point Where Each Discharge Exits the Property
33.346127449987584,-87.60844770356597

DSN001: Related Information

Have the groundwater discharges and/or storm water runoff from the facility been analyzed for presence of any known pollutants?
No

Has groundwater from this site been tested for the presence of Lead?
No

Are there any known impacts on the receiving water as a result of any discharges under DSN001?
No

List the outfalls under DSN001 that are treated groundwater:
0011

Will there be any discharge of groundwater as a result of aquifer testing?
No

Does the facility plan to discharge well purge waters?
Yes

This discharge must meet the requirements of this general permit.

Does the facility plan to discharge storm water accumulated in UST tank pits during closure?
No

Were there any past industrial activities on the site that would contribute to storm water contamination?
No

Did the facility ever handle leaded fuels?
No

Did the facility ever handle aviation fuel, jet fuel, or diesel fuel?
No

Will the facility stockpile contaminated material on site?
No

NOI Preparer

NOI Preparer

Prefix
Mr.

First Name	Last Name
Chuck	Gooden

Title
Project Manager

Organization Name
PPM Consultants

Phone Type	Number	Extension
Mobile	2055416391	

Email
chuck.gooden@ppmco.com

Address

5555 BANKHEAD HWY

BIRMINGHAM, AL 35210-4531

United States

Inspection Status

Was this facility/site inspected and found to be in operation (conducting industrial activities) prior to effective Industrial NPDES Permit coverage?
No

APPENDIX E – SUBCONTRACTOR SPECIFICATIONS AND QUOTATIONS

Cost Proposal

Date	Proposal #
11/17/2025	21554

PO Box 1147
Foxworth, MS 39483

Name / Address	Re:
PPM CONSULTANTS, INC. 5555 BANKHEAD HIGHWAY BIRMINGHAM, AL 35210	Environmental Services Lakeland Grocery 12389 Lary Lake Rd Northport, AL PPM Project No. 40166601-CAP

Description	Unit	Qty	Rate	Total
Mobilize (including rental equip and perdiem)	lump sum	1	17,100.00	17,100.00T
Trench & Backfill - Soil	per ft.	250	28.00	7,000.00T
Trench & Backfill - Asphalt	per ft.	340	48.00	16,320.00T
Hand Trench - Recovery Piping	per ft.	30	45.00	1,350.00T
2" PVC Sch 40 Piping	per ft.	1,500	2.50	3,750.00T
Install Well Vaults (includes saw cutting)	per each	9	1,200.00	10,800.00T
Backfill trenches with crusher run	lump sum	1	6,500.00	6,500.00T
Install & Finish Concrete	lump sum	1	4,800.00	4,800.00T
Create system pad	lump sum	1	4,500.00	4,500.00T
Construct Manifold	lump sum	1	7,650.00	7,650.00T
Install 8' Wooden Fence with gates	lump sum	1	8,450.00	8,450.00T
Barricade & Steel Plate Rental / Moving	lump sum	1	2,500.00	2,500.00T
Offload & Level System, Tank & GAC System	Lump sum	1	3,800.00	3,800.00T
Haul Excavated Soil to Black Warrior LF	per ton	80	10.00	800.00T
Connect AWS3 & GAC	lump sum	1	1,500.00	1,500.00T
Site Clean-up	lump sum	1	1,250.00	1,250.00T
Electricity Hook-up	lump sum	1	4,800.00	4,800.00T

Customer Acceptance of Cost Proposal

_____
Authorized Signature Date

*Payment Terms NTE 30 days upon project completion.
*1.5% Interest will be charged monthly to all overdue invoices.

Subtotal	$102,870.00
Tax (0.0%)	$0.00
Total	$102,870.00

Walker-Hill Environmental, Inc
Foxworth, MS Office
Phone: (601) 736-3500
Email: eric@whenv.com

LAKELAND GROCERY
SYSTEM INSTALLATION - QUOTE FORM
NORTHPORT, ALABAMA

	COMPLETE ENVIRONMENTAL & REMEDIATION CO., LLC			
Mobilization (including rental equip)	1	L.S.	$6,200.00	$6,200.00
Trench in Soil (includes backfill with soil)	250	feet	$40.00	$10,000.00
Trench in Asphalt (includes saw cutting)	340	feet	$91.00	$30,940.00
Hand Trench - Recovery Piping	30	feet	$100.00	$3,000.00
2-inch PVC	1,500	feet	$2.25	$3,375.00
Install Vaults (includes saw cutting)	9	well	$1,450.00	$13,050.00
Backfill Trenches with Crusher Run	1	L.S.	$6,600.00	$6,600.00
Install and Finish Concrete	1	L.S.	$10,640.00	$10,640.00
Create System Pad	1	L.S.	$2,800.00	$2,800.00
Construct Manifold	1	L.S.	$5,000.00	$5,000.00
Install 8-foot Fence with Gates	1	L.S.	$11,050.00	$11,050.00
Barriace and Steel Plate Rental/Moving	1	L.S.	$8,625.00	$8,625.00
Offload and Level System, Tank and GAC System	1	L.S.	$2,600.00	$2,600.00
Haul Excavated Soil to Black Warrior LF	80	ton	$56.00	$4,480.00
Connect AWS3 and GAC	1	L.S.	$3,350.00	$3,350.00
Electrical Hook-Uo	1	L.S.	$1,800.00	$1,800.00
Site Cleanup	1	L.S.	$5,200.00	$5,200.00
Total				**$128,710.00**

Days Anticipated to Complete Work 18

Kevin T. Ivy / Manager
Name/Title

11/18/2025
Date

Signature

Cost Proposal

Date	Proposal #
11/17/2025	21563

PO Box 1147
Foxworth, MS 39483

Name / Address
PPM CONSULTANTS, INC. 5555 BANKHEAD HIGHWAY BIRMINGHAM, AL 35210

Re:
Environmental Services Lakeland Grocery 12389 Lary Lake Road Northport, Alabama Facility I.D. No. 25156-125-012503

Description	Unit	Qty	Rate	Total
Mobilize/Demobilize	lump sum	1	300.00	300.00T
Mileage	per mile	207	8.40	1,738.80T
Drill & Install (9) 15'- 4" Recovery Wells	per ft.	135	70.00	9,450.00T
Per-Diem	per day	9	68.00	612.00T
Hotel	per night	6	150.00	900.00T

Customer Acceptance of Cost Proposal

_____
Authorized Signature Date

*Payment Terms NTE 30 days upon project completion.
*1.5% Interest will be charged monthly to all overdue invoices.

Subtotal	$13,000.80
Tax (0.0%)	$0.00
Total	$13,000.80

Walker-Hill Environmental, Inc
Foxworth, MS Office
Phone: (601) 736-3500
Email: eric@whenv.com

November 17, 2025

Mr. Kevin Ivy
Complete Environmental & Remediation, Co., LLC
37 David Swan Lane
Purvis, Mississippi 39475

Re: Quotation Request for Installation of Remediation System
Lakeland Grocery
12389 Lary Lake Road
Northport, Alabama
Facility I.D. No. 25156-125-012503
UST Incident No. UST22-06-01
PPM Project No. 40166601-CAP

Dear Mr. Ivy:

PPM Consultants, Inc. (PPM) is proposing to install a soil and groundwater remediation system at the referenced site and requests price quotations for the following work elements:

Trenching and Piping

- Perform approximately 50 feet of trenching using backhoe or excavator in gravel and grass and approximately 340 feet of trenching in asphalt (approximately 30 feet if hand trenching is required in the product piping area) to install approximately 1,100 feet of 2-inch I.D., Schedule 40 PVC extracting piping from the System Compound to recovery wells PRW-1 through PRW-9. Perform approximately 200 feet of trenching using backhoe or excavator to install two individual2-inch I.D. PVC effluent pipes (estimate total of 400 feet of piping). The piping should be installed approximately 2 feet below ground surface. Excavated soil from this trenching performed in grass/gravel areas is to be replaced to the excavation and compacted. Excavated soil from trenches in asphalt will need to be transported to the Black Warrior Solid Waste Facility in Coker, Alabama. PPM will pay the landfill tipping fees. The trenches in asphalt shall be backfilled with crusher run gravel and the gravel shall be compacted. **Note: Trenching over identified or suspected utilities, product piping, and storm**

drains shall be done by hand to avoid damage to the existing piping. Please refer to **Figure 1** for the work area.

- Hand excavate a trench approximately 30 feet in length for the 2-inch extraction piping associated with wells PRW-6, PRW-7, and PRW-8. The trench area crosses a known product line that is connected to a dispenser located at the pier to the northeast. Additionally, there is conduit present in this area that is part of the UST system. Trench shall be no deeper than 1 foot to avoid utilities.

- Provide and install nine 2-foot by 2-foot by 2-foot steel vaults for proposed recovery wells PRW-1 through PRW-9. Vaults will be constructed in 4-foot by 4-foot, 6-inch thick concrete well pads (see concrete specs below). The technical specifications for the installation of the well vaults are included in **Figure 2, Details and Sections for 4-Inch Recovery Wells and Piping Trench** and **Attachment B, Well Vault Installation**.

- Furnish and install well seals, pipe fittings, and drop tubes in each recovery well vault as depicted in **Figure 2**.

- Open trenches should be covered with steel plates rated for vehicular traffic until finished with concrete. **Barricades in place of steel plates is not acceptable**.

- The active work zone shall be barricaded by the contractor to prevent vehicles from entering the work zone. Barricades shall be removed from the work zone at the end of work each day. Barricades shall be linked, plastic Jersey Barriers similar to that shown below. **Note: The parking lot will be full with cars and customers at least twice a day.**

- Trenching and piping will be performed in accordance with the dimensions and details on the attached drawings.
    - Trenches and excavations for well vaults performed in pavement will be backfilled with new crusher run stone to approximately 6 inches below the top of pavement and covered with concrete (see below).
    - Trenches performed in soil will be backfilled with excavated materials and lightly compacted. Note, the trench for the discharge lines has a steep grade; therefore, contractor shall apply hay and seed along length of trench and staked wattles at 25-foot spacings down trench.
- Trenches and vaults performed in asphalt and concrete will be completed with a minimum thickness of 6 inches of concrete. Concrete shall be rated for 5,000 pounds per square inch (p.s.i.) and include fiber mesh. The finished grade of concrete should match the existing grade on both sides of the trench and a light broom finish should be applied after the concrete has been allowed to slightly cure. **Note: If the concrete work does not look professional, look clean, match the existing surface, or significantly cracks within one year, the contractor may be required to remove and replace the concrete at their own costs.**

System Compound

- Create a level pad utilizing crusher run that is approximately 40 feet in length (northwest to southeast) and 25 feet in width (southwest to northeast).

- Construct a PVC manifold system in accordance with details shown on **Figure 3, Profile/Plan View of Manifold**.

- Install a four-sided, 8-foot tall wooden fence. The compound measures approximately 40 feet in length and 25 feet in width. A double gate that measures 8 feet wide will be installed on the western side of the compound and a 4-foot gate will be installed on the northwestern side.

- Off-load and position the remediation system, two 1,000-pound carbon vessels for air treatment, and an AWS-3/heat exchanger at the locations designated on **Figure 4, Proposed System Compound,** including set-up and leveling (1/8-inch over 4 feet). The Dual-Phase Vacuum Extraction (DPVE) system should be placed on concrete block footings **(wood is not allowed for shims)**. The weight of the DPVE system is

approximately 16,000 pounds and the weight of each vapor carbon vessel should be approximately 1,500 pounds. The proposed layout of the System Compound is depicted on **Figure 4, Proposed System Compound**. Technical specifications for remediation unit placement are included in **Attachment C, Remediation Unit Placement**.

- Connect exhaust of liquid-ring vacuum pump (LRVP) to the inlet of the AWS-3/heat exchanger equipment; connect exhaust of AWS-3/heat exchanger to inlet of one granular activated carbon (GAC) vessel; connect 2-inch discharge hose to 2-inch I.D. PVC effluent piping.

- PPM will retain the electrical contractor for the work.

- Restoration of site to original conditions. Specifications for site cleanup are included in **Attachment D, Cleanup, Repair, Etc.**

The site shall be barricaded for safety reasons during all work. The contractor shall perform work in consecutive workdays until such time that the project is complete. A schedule of implementation should be submitted one week prior to initiation of work. Work for each phase shall be performed during contiguous days and work shall commence on a Monday, prior to noon.

Please use the attached quote form to submit pricing (Attachment E, Quote Form). Also, please provide your estimated number of days to complete the work. Alternate, more economical trenching and drilling methods are welcome, but must be included as a separate quote with accompanying documentation justifying the deviations. Payment will be made based on actual measurements following completion of the work. Should the estimated quantities be exceeded, a change order should be requested prior to initiation of work. If this is not practical, at a minimum, a verbal confirmation should be requested and followed up by written correspondence (email or fax).

It is noted that all unit rates should be consistent with Alabama Tank Trust Fund (ATTF) rates, when applicable, including per diem. Receipts for overnight per diem will be required as part of the invoice.

PPM recommends, but does not require, that you visit the site prior to your submittal. **Proposals are due to PPM by close of business on, Wednesday, November 24, 2025**. If you have any questions or need additional information, please contact me at your convenience.

Sincerely,
PPM Consultants, Inc.

Chuck Gooden
Project Geologist

Attachments: Attachment A – Figures
Attachment B – Well Vault Installation
Attachment C – Remediation Unit Placement
Attachment D – Cleanup, Repair, Etc.
Attachment E – Quote Form

ATTACHMENTS

ATTACHMENT A

FIGURES

N

0 15 30

SCALE: 1"=30'
(Approximate)

13

43

MW-12
<0.001

MW-5
0.021

MW-6
<0.001

MW-11
0.008

MW-98-1
<0.001

MW-4
6.650

MW-3
6.720

MW-2
2.980

MW-1
0.002

MW-98-2
<0.001

MW-9
<0.001

MW-7
<0.001

MW-8
<0.001

MW-10
0.005

PRW-1 ®
PRW-2 ®
PRW-3 ®
PRW-4 ®
PRW-5 ®
PRW-6 ®
PRW-7 ®
PRW-8 ®
PRW-9 ®

0.005
0.1
1.0

OVERHANG
STORE
BAIT SHOP
CANOPY
UST PIT
HAND DIG
PRODUCT LINE
PIER
COVERED BOAT DOCK
COVERED BOAT DOCK
PROPOSED TRENCHING
PROPOSED EFFLUENT DISCHARGE LINE
PROPOSED DPVE SYSTEM COMPOUND (SEE FIGURE 4 FOR DETAIL)

LAKE TUSCALOOSA

LARY LAKE ROAD

NOTE
MW-9 WAS NOT USED TO CONTOUR THIS MAP AS IT IS SCREENED AT DEEPER INTERVAL.

LEGEND:

- TYPE II MONITORING WELL LOCATION
- TYPE III MONITORING WELL LOCATION
- ® PROPOSED RECOVERY WELL LOCATION
- 2.980 BENZENE CONCENTRATION (mg/L) (VALUE IN RED EXCEEDS SSCAL)
- 0.005 BENZENE CONCENTRATION CONTOUR (mg/L)

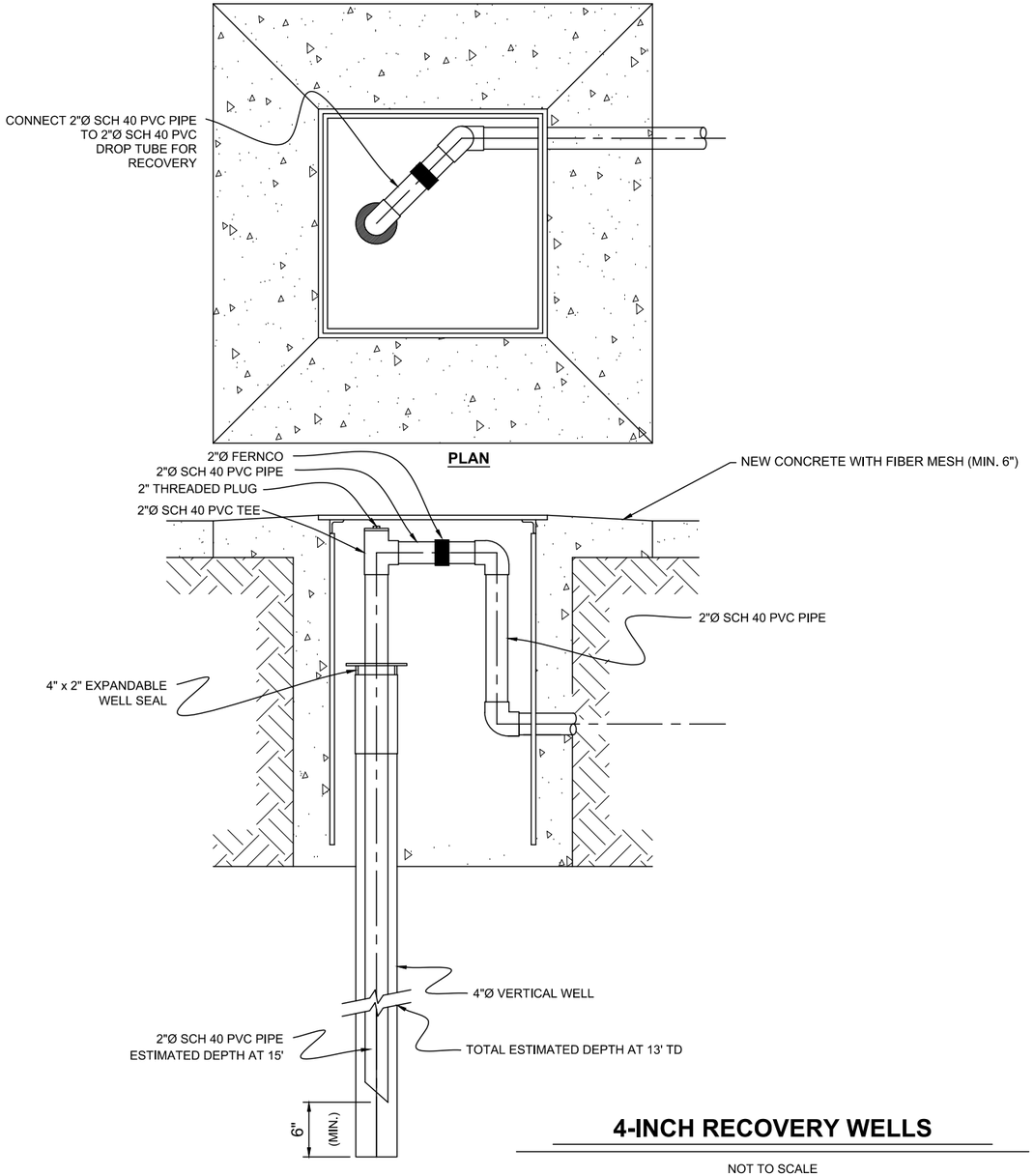
PPM CONSULTANTS, INC.
www.ppmco.com

DRAWN BY:	DRAWN DATE:
BWH	11/05/25
PROJECT NUMBER:	PHASE:
40166601	CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

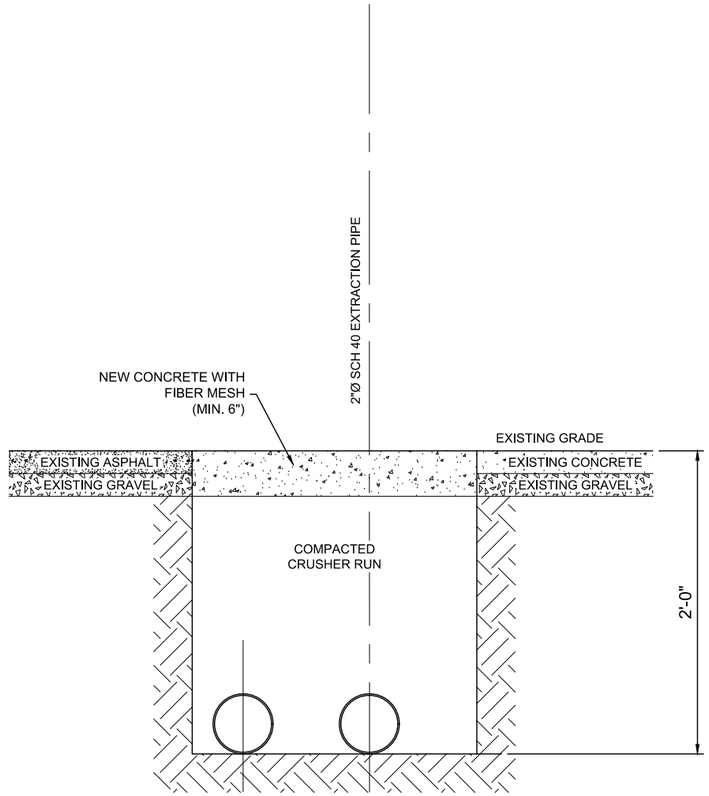
PROPOSED SYSTEM LAYOUT

FIGURE NUMBER
1



4-INCH RECOVERY WELLS

NOT TO SCALE



PIPING TRENCH

(TYPICAL TRENCHING)

NOT TO SCALE

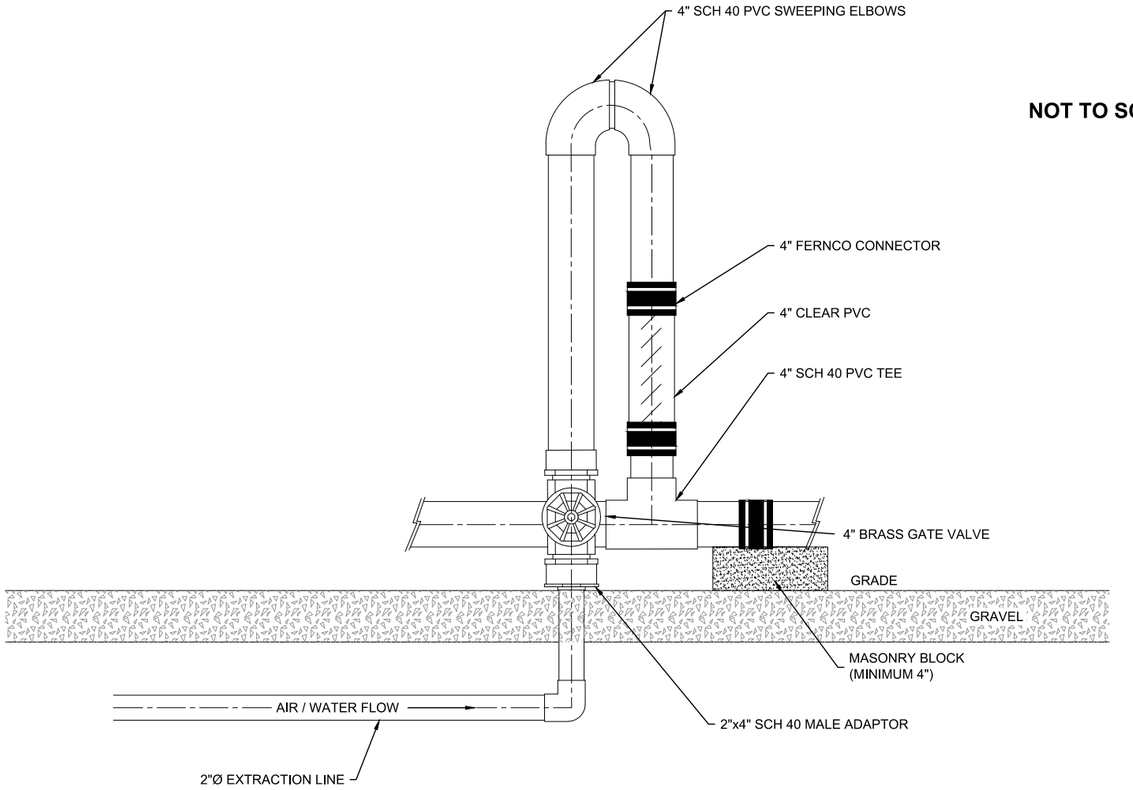
PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 11/05/25
PROJECT NUMBER: 40166601	PHASE: CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

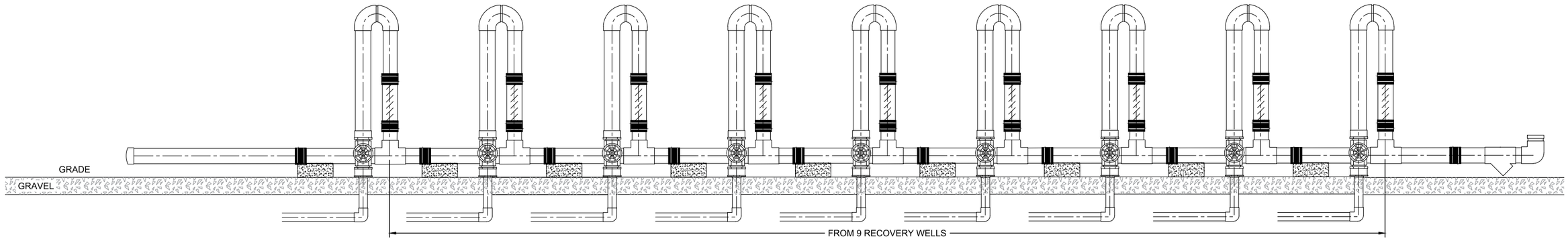
DETAILS AND SECTIONS FOR 4-INCH RECOVERY WELLS AND PIPING TRENCH

FIGURE NUMBER 2

MANIFOLD CONNECTION FROM RECOVERY WELLS TO SYSTEM (9 WELLS)



NOT TO SCALE



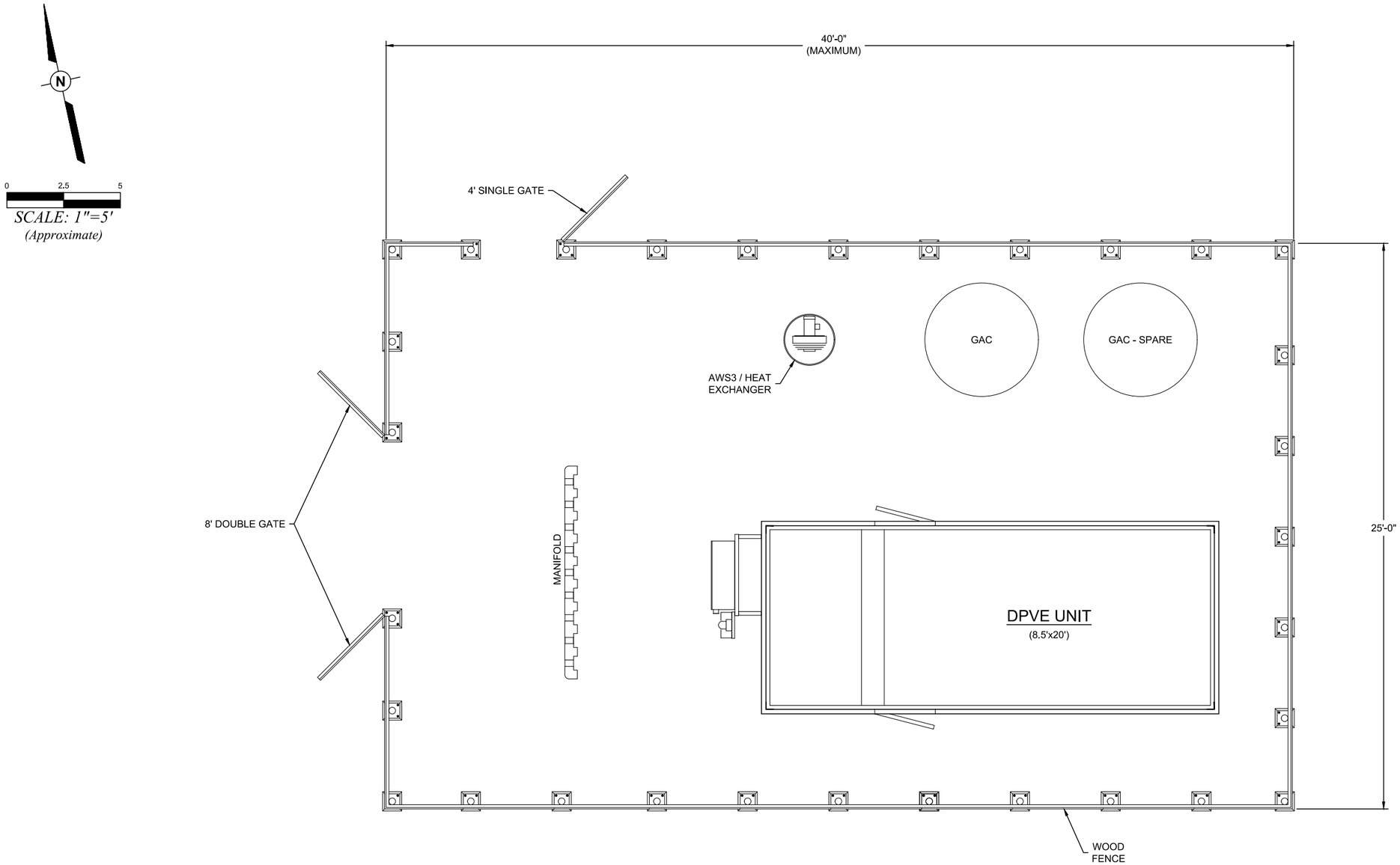
NOT TO SCALE

PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 11/05/25
PROJECT NUMBER: 40166601	PHASE: CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

PROFILE / PLAN VIEW OF MANIFOLD

FIGURE NUMBER
3



PPM CONSULTANTS, INC. www.ppmco.com	
DRAWN BY: BWH	DRAWN DATE: 11/05/25
PROJECT NUMBER: 40166601	PHASE: CAP

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA

PROPOSED SYSTEM COMPOUND

FIGURE NUMBER
4

ATTACHMENT B

WELL VAULT INSTALLATION

PPM Consultants, Inc.
5555 Bankhead Highway
Birmingham, Alabama 35210

200.0 WELL VAULT INSTALLATION

200.0 WELL VAULT INSTALLATION

200.1 GENERAL

The Contractor shall be required to install locking, spring loaded well vault(s) as specified on Drawings. At a minimum, the Contractor shall saw cut and excavate an area 4 inches larger than the dimensions of the vault on all sides (i.e., for a 30" x 30" x 30" vault, the excavated area shall be 38" x 38" x 38" minimum). The Engineer shall determine the exact placement of the vaults.

The task of this section shall include, but not necessarily be limited to the following:

- Saw cut existing asphalt
- Excavation
- Install a locking well vault
- Concrete placement
- Site restoration
- Other as may be indicated, noted, or shown on drawings, specified herein, or as reasonably implied therein

200.2 MATERIALS

All materials shall be new, unless specifically stated otherwise and be manufactured and approved for the intended service. All materials covered by local codes shall meet the requirements of those codes.

The Contractor will be responsible for backfilling and placing concrete in the excavated area around the well vaults to the original grade. The Contractor should complete these tasks as specified in the drawings.

200.3 MEASUREMENT AND PAYMENT

Measurement and payment shall be made for the following only and the cost of all other work, materials, equipment, and operations necessary for the satisfactory completion of this project, as shown on the plans and specified herein.

Complete well vault installation will be measured by the job basis for the furnishings, installation, and finishing paving area as required by the Specifications and Drawings.

ATTACHMENT C

REMEDIATION UNIT PLACEMENT

PPM Consultants, Inc.
5555 Bankhead Highway
Birmingham, Alabama 35210

SECTION 300 REMEDIATION UNIT PLACEMENT

PPM Consultants, Inc.
5555 Bankhead Highway
Birmingham, Alabama 35210

300.0 REMEDIATION UNIT PLACEMENT

300.1 GENERAL

The Contractor shall be required to place remediation units as specified on drawings. Remediation unit placement shall be scheduled to take place after the installation of the subsurface extraction lines, recovery well vaults, subsurface utilities, and the electricity. It shall be the responsibility of the Engineer to schedule the delivery of the unit to the site. After the unit is in place, all subsurface utility lines and extraction lines will be piped into the unit by the Contractor according to drawing specifications and the approval of the Engineer.

300.2 SKID-MOUNTED REMEDIAL UNIT

300.2.1 Unloading and Setup

The Remediation unit shall be brought to the site on a "low-boy" or a standard trailer. The unit may be placed by either a crane or large forklift(s). The Weight of the unit is shown on the Drawings.

300.2.1.1 Crane Method

If a crane is used to lift the Remediation unit, the unit shall be lifted and set in place by the four "D" rings located along the skid at each corner of the unit. The Contractor shall use four lifting chains with end hooks to allow for adjusting of the crane's hook over the unit's center-of-gravity. Also, a 9-foot spreader bar shall be used to prevent damage to the remedial unit's roof.

300.2.1.2 Forklift Method

If a forklift(s) is used to lift the Remediation unit, the fork spacing should be wide enough to fit the lift pockets that are built into the skid of the unit, as specified on the Drawings. Based on the size and weight of the Remediation unit two fork trucks may be required for placement of the unit, depending on their lifting capacity.

300.2.2 Placement

The unit shall be supported on 3-inch solid cinder blocks placed at points around the perimeter of the unit to a minimum height of 9 inches. The location of the unit and block placement is specified on Drawings. If field conditions warrant any changes to the remediation unit placement, these changes must be made by the Engineer.

300.2.3 Leveling

The Contractor shall be required to level the unit once the unit is properly placed. The unit must be leveled to 1/8-inch over a 4-foot interval in all directions, measured on the air stripper tank. Solid steel or hardwood shims, provided by the Contractor, may be used for the final leveling of the Remediation unit.

300.3 TRAILER-MOUNTED REMEDIAL UNIT

The unit shall be placed on 3-inch blocks adequately stacked to a height so that the weight of the unit is not resting on the Trailer Axle. The Contractor shall be required to level the trailer once the unit has been set in the proper place (1/8-inch on 4-foot).

The location of the unit and block placement is specified on the Drawings. Any changes due to field conditions shall be made by the Engineer.

300.4 DPVE ASSOCIATED FEATURES

The Contractor shall be required to install all features associated with the vacuum extraction lines, water lines, sewer lines, electrical power, and the inline filtration system. The Drawings will specify all associated features, which may include but not limited to:

- Inline filtration system
- Muratic acid injection system
- Gate valves
- Site tubes, Fernco® couplings, specified reducers, associated piping and connections
- Extraction line manifold
- Vacuum gauges and flow meters

300.5 FINAL UTILITY CONNECTIONS

The final utility connections should be made after the unit has been placed. Contractor will be responsible for making the final connections as specified in the Specifications and Drawings. All exposed service water and sewer lines shall be insulated using pipe insulation having an R-2 rating.

PPM Consultants, Inc.
5555 Bankhead Highway
Birmingham, Alabama 35210

SECTION 300 REMEDIATION UNIT PLACEMENT

PPM Consultants, Inc.
5555 Bankhead Highway
Birmingham, Alabama 35210

300.0 REMEDIATION UNIT PLACEMENT

300.1 GENERAL

The Contractor shall be required to place remediation units as specified on drawings. Remediation unit placement shall be scheduled to take place after the installation of the subsurface extraction lines, recovery well vaults, subsurface utilities, and the electricity. It shall be the responsibility of the Engineer to schedule the delivery of the unit to the site. After the unit is in place, all subsurface utility lines and extraction lines will be piped into the unit by the Contractor according to drawing specifications and the approval of the Engineer.

300.2 SKID-MOUNTED REMEDIAL UNIT

300.2.1 Unloading and Setup

The Remediation unit shall be brought to the site on a "low-boy" or a standard trailer. The unit may be placed by either a crane or large forklift(s). The Weight of the unit is shown on the Drawings.

300.2.1.1 Crane Method

If a crane is used to lift the Remediation unit, the unit shall be lifted and set in place by the four "D" rings located along the skid at each corner of the unit. The Contractor shall use four lifting chains with end hooks to allow for adjusting of the crane's hook over the unit's center-of-gravity. Also, a 9-foot spreader bar shall be used to prevent damage to the remedial unit's roof.

300.2.1.2 Forklift Method

If a forklift(s) is used to lift the Remediation unit, the fork spacing should be wide enough to fit the lift pockets that are built into the skid of the unit, as specified on the Drawings. Based on the size and weight of the Remediation unit two fork trucks may be required for placement of the unit, depending on their lifting capacity.

300.2.2 Placement

The unit shall be supported on 3-inch solid cinder blocks placed at points around the perimeter of the unit to a minimum height of 9 inches. The location of the unit and block placement is specified on Drawings. If field conditions warrant any changes to the remediation unit placement, these changes must be made by the Engineer.

300.2.3 Leveling

The Contractor shall be required to level the unit once the unit is properly placed. The unit must be leveled to 1/8-inch over a 4-foot interval in all directions, measured on the air stripper tank. Solid steel or hardwood shims, provided by the Contractor, may be used for the final leveling of the Remediation unit.

300.3 TRAILER-MOUNTED REMEDIAL UNIT

The unit shall be placed on 3-inch blocks adequately stacked to a height so that the weight of the unit is not resting on the Trailer Axle. The Contractor shall be required to level the trailer once the unit has been set in the proper place (1/8-inch on 4-foot).

The location of the unit and block placement is specified on the Drawings. Any changes due to field conditions shall be made by the Engineer.

300.4 DPVE ASSOCIATED FEATURES

The Contractor shall be required to install all features associated with the vacuum extraction lines, water lines, sewer lines, electrical power, and the inline filtration system. The Drawings will specify all associated features, which may include but not limited to:

- Inline filtration system
- Muratic acid injection system
- Gate valves
- Site tubes, Fernco® couplings, specified reducers, associated piping and connections
- Extraction line manifold
- Vacuum gauges and flow meters

300.5 FINAL UTILITY CONNECTIONS

The final utility connections should be made after the unit has been placed. Contractor will be responsible for making the final connections as specified in the Specifications and Drawings. All exposed service water and sewer lines shall be insulated using pipe insulation having an R-2 rating.

300.6 TELEPHONE

The local telephone company shall be responsible for making the appropriate telephone service connections. The Engineer shall be responsible for coordinating the installation of telephone service.

300.7 METHOD OF PAYMENT

Measurement and payment shall be made for the cost of all other work, materials, equipment, labor, and operations necessary for the satisfactory completion of this project, as shown on the plans and specified herein.

Complete Remediation unit installation will be measured by the job basis for furnishing, installing, connecting all piping (extraction lines, water lines, and sewer lines), electrical power, and making operational the remedial unit.

ATTACHMENT D

CLEANUP, REPAIR, ETC.

SECTION 1300 CLEANUP, REPAIRS, ETC.

1300.0 CLEANUP, REPAIRS, ETC.

1300.1 GENERAL

The Scope of the Work required by this section includes cleaning up of all areas in which the contractor has worked; repairing all property (both public and private) which has been damaged, disturbed, altered, etc., by the Contractor's operations; and maintenance of necessary access to and across the work area.

1300.2 PROTECTION, REMOVAL, AND REPLACEMENT OF EXISTING FACILITIES

The Contractor shall be required to work around existing facilities, including, but not limited to, buildings, utilities, fences, roads, streets, sidewalks, etc., and will, in some cases, be required to remove and replace or reinstall such.

The Contractor shall exercise care not to damage any such property, and shall be fully responsible for any such damages, whether to the owner's property or any responsibility from such damages.

Any property removed shall be replaced such that, after replacement, it shall be similar and equal in all respects to that removed.

1300.3 PROTECTION OF PROPERTY

The Contractor shall be responsible for protecting all property, both private and public, and shall be responsible for any damages or blockage to streets, alley, adjacent property, etc., and shall be responsible for the stoppage or diversion of any surface waters, rainfall, etc., and does hereby indemnify the Engineer of any responsibilities from such damages.

1300.4 CLEAN-UP

The Contractor shall, after acceptance of the various items of work, neatly clean all his work area, including any access areas, such that after clean up, the areas will be in a neat condition and shall be in at least an equal condition as when the Contractor started his operations.

1300.4.1 Repairs to Roads, Streets, etc.

The Contractor shall repair any and all damages to roads, streets, etc., occurring as a result of his operations. All construction methods, materials, etc., shall be strictly in accordance with state, parish (county), or local specifications or codes as applicable and

the contractor shall replace or repair such to the satisfaction of the applicable governing body and the Engineer, or as specified elsewhere herein and/or as shown on the plans.

1300.4.2 Repair and Maintenance or Replacement of Fences, Lawns, Driveways, etc.

The Contractor shall repair or replace any and all damage or alterations to fences, lawns, or other property as a result of his operations. All such repair or replacement shall be performed such that the finished product shall be in a condition of at least equal to that prior to its damage or removal, all as determined by the Engineer.

The Contractor shall maintain such temporary fencing, gates, etc., as is required to protect livestock, etc., at all times during his operations and shall be fully responsible for any and all damages to such as a result of his negligence.

The Contractor shall exercise due care with respect to damage to lawns, sidewalks, driveways, entrances, etc., and shall maintain access to all property, both public and private, at all times. The Contractor shall promptly repair any such damages to the satisfaction of the Engineer.

1300.5 RESPONSIBILITY OF CONTRACTOR

Should the Contractor fail to repair or replace any damages as specified herein or should he fail to maintain access, or to protect any property, all as specified herein, within a reasonable time as determined by the Engineer, the Engineer hereby reserves the right to perform, or have performed for him, such work and deduct the cost thereof from any money due or which shall become due to the Contractor.

1300.6 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for any of the items covered in this section, and all cost thereof shall be included in the prices for the other items of work.

ATTACHMENT E

QUOTE FORM

LAKELAND GROCERY
SYSTEM INSTALLATION - QUOTE FORM
NORTHPORT, ALABAMA

	{{INSERT COMPANY NAME}}			
Mobilization (including rental equip)	1	L.S.		$0.00
Trench in Soil (includes backfill with soil)	250	feet		$0.00
Trench in Asphalt (includes saw cutting)	340	feet		$0.00
Hand Trench - Recovery Piping	30	feet		$0.00
2-inch PVC	1,500	feet		$0.00
Install Vaults (includes saw cutting)	9	well		$0.00
Backfill Trenches with Crusher Run	1	L.S.		$0.00
Install and Finish Concrete	1	L.S.		$0.00
Create System Pad	1	L.S.		$0.00
Construct Manifold	1	L.S.		$0.00
Install 8-foot Fence with Gates	1	L.S.		$0.00
Barriace and Steel Plate Rental/Moving	1	L.S.		$0.00
Offload and Level System, Tank and GAC System	1	L.S.		$0.00
Haul Excavated Soil to Black Warrior LF	80	ton		$0.00
Connect AWS3 and GAC	1	L.S.		$0.00
Site Cleanup	1	L.S.		$0.00
Total				**$0.00**

Days Anticipated to Complete Work _____

Name/Title _____ **Date** _____

Signature _____

APPENDIX F – DPVE MONITORING FORMS

DPVE MONITORING FIELD FORM

SITE: Lakeland Grocery	**PROJECT NO.: 40166601-**
LOCATION: Northport, Alabama	**WELL CONFIGURATION:**
DATE:	**TIME OF ARRIVAL:**
TECHNICIAN:	**STATUS OF SYSTEM:**

SITE RESPONSE DATA:

Observation Point	SYSTEM RUNNING			SYSTEM SHUT DOWN		Pressure
	DTW	DTP	PT	DTW	DTP	(Inches W.C.)

COMMENTS:

_____

_____

_____

RECOVERY WELL DATA:

VOC READINGS ISOLATED (Y OR N) :____

Extraction Well	Vacuum @ Wellhead	Vacuum @ Manifold	Priming TubeOpen (Y/N)	VOC's	O2

WATER EFFLUENT DATA:

Time		Stripperator Discharge Meter	pH	Effluent Water Sample	BTEX/MTBE & Naphthalene Lead, pH Oil and Grease

AIR EFFLUENT DATA: *AIR SAMPLE: CIRCLE Y / N*

LRVP RunTime	Air Temperature	Differential Pressure Pre – Dilute	Total VOCs/LEL Pre - Dilute	%O2	Air sample required once per quarter (Short Hold) Sample Collected? Yes or No BTEX/MTBE/TPH	Air Effluent Sample Time

AIR EFFLUENT STRIPERATOR:

Time	Air Temperature	Differential Pressure	VOC/LEL	$\%O_2$	Lab Sample (Y or N)

MISCELLANEOUS DATA:

Ambient Temperature	Bag Filter Inlet Pressure	Bag Filter Outlet Pressure	Water Effluent Carbon Vessel Pressure	KW hours

LRVP DATA:

Vacuum @ LRVP #1	Oil Level @ LRVP #1	Run Time LRVP #1	Oil Inlet Temperature	Oil Outlet Temperature

Well Configuration at Departure	RKI Calibration Gas

APPENDIX G – TECHNICAL SAMPLING AND ANALYSIS QA/QC PLAN

1.0 TECHNICAL SAMPLING AND ANALYSIS PLAN FOR GROUNDWATER MONITORING

1.1 PURPOSE

This Technical Sampling and Analysis (TS&A) Plan describes the methods and procedures to be followed during groundwater monitoring activities at leaking underground storage tank sites. Any modification to the sampling process will be addressed and described within in the monitoring reports.

1.2 LIQUID GAUGING PROCEDURES

Prior to groundwater sampling, liquid levels are measured in each well to determine the groundwater elevation and flow direction. Liquid levels inside the wells are measured with an ORS or Keck interface probe from the top of the well casing using the same reference point from which the survey elevations determined during the assessment were recorded. Groundwater elevations at the site are calculated to a common datum. Calculations for determining the water table elevations are as follows:

$$WTE = ETC - DTW$$

Where:
WTE = water table elevation
ETC = elevation to the top of the casing
DTW = depth to water

Where free product is present, the groundwater elevation is adjusted using the following formula:

$$Z_{aw} = (1-\Gamma_{ro})(Z_{ow}) + (\Gamma_{ro})(Z_{ao})$$

Γ_{ro} = 0.755 (specific gravity)
Z_{ow} = oil/water elevation
Z_{ao} = air/oil elevation
Z_{aw} = air/water elevation

Groundwater flow direction at the site is determined through groundwater contouring based on water table elevations calculated from the monitoring wells installed at the site.

1.3 GROUNDWATER SAMPLING PROCEDURES

After the depth to water is measured, each well is purged of at least five well volumes of liquid prior to sampling using a submersible pump or bailer. Purged water is contained in sealed 55 gallon drums and disposed of at an approved disposal facility. Groundwater samples are collected using disposable bailers and immediately transferred into 40 ml glass VOA vials. The vials are immediately sealed and placed on ice inside coolers. The samples are shipped with chain-of-custody forms via common courier to an independent testing laboratory for analysis. One trip blank and one duplicate sample are submitted per event for QA/QC purposes. QA/QC procedures are described in detail in the QA/QC Plan.

1.4 LABORATORY ANALYSES

Laboratory analyses are performed by an independent testing laboratory. The laboratory used will maintain a QA/QC program which utilizes spike and duplicate analysis. Groundwater samples will be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), per EPA SW-846, Test Method 5030/8020, and other parameters that may be applicable to the constituents of concern. Results of the internal QA/QC program used by the laboratory are included in each report.

2.0 QUALITY ASSURANCE/QUALITY CONTROL PLAN

2.1 PURPOSE

This Quality Assurance/Quality Control (QA/QC) Plan describes the procedures followed by personnel during the project to ensure that all data generated is accurate and representative of conditions encountered. Any modification of these procedures will be documented in the respective quarterly update.

2.2 GROUNDWATER SAMPLING

2.2.1 Well Purging

Groundwater is purged from monitoring wells prior to sampling to ensure each sample is representative of existing subsurface conditions. At a minimum, five well volumes of standing water are purged using a submersible pump or bailer. Only water inside the upper column of the well is purged. Each well is purged at a minimal rate to avoid aeration through cascading action of groundwater in the screened interval. When the bailing method is employed, the bailer is slowly lowered and retrieved from the groundwater to minimize aeration inside the well. Groundwater in wells is allowed to recover to near static water level before sampling.

2.2.2 Sample Collection

Groundwater samples are collected using disposable bailers. Procedures for sampling groundwater are described below:

1) The bailer is lowered into the well slowly to avoid aeration of the sample;

2) The bailer is filled from the top of the water column and retrieved; and

3) The first bailer of water is transferred from the bottom of the bailer into 40 ML, prepared, VOA vials or applicable containers specific to the analyte. The sample container is filled completely to the top and tightly sealed. Samples are placed on ice immediately following collection.

2.2.3 Decontamination

Disposable vinyl gloves are worn during well purging and sample collection. During well purging, the gloves are changed between each well. Gloves are also changed between each sample acquisition during the sampling process. When a pump is used, all downhole equipment is decontaminated between each use by circulating clean water and phosphate-free detergent. Disposable bailers are used for collecting samples; therefore, no additional decontamination procedures are employed.

2.2.4 Sample Dispatch

Groundwater samples are packed in individual plastic protective envelopes (bubble pack) inside a cooler to avoid breakage during shipment. The coolers used are insulated to maintain sample temperature near 4° C. Each cooler is sealed with tape to discourage tampering. The samples are shipped to the laboratory via common courier.

2.3 SAMPLE CUSTODY

A traceable link is established from the time samples are obtained until submission of analytical results. The following section describes chain-of-custody (COC) procedures which are adhered to during the project to establish that traceable link.

2.3.1 Documentation

Protocols for documentation are used to ensure appropriate sample identification and transfer. This documentation includes sample labels, seals, and COC forms. Labels and seals will be filled out using water-proof ink. Information to be supplied on COC forms consists of the following:

- Project number and location of the site.

- Sample identification/location.
- Sample point (depth).
- Signature of collector.
- Date and time of sample collection.
- Sample matrix (water).
- Method of preservation (HCl).
- Number of containers per sample location.
- Analytical method requested.
- Name of person(s) in possession of the COC and samples.
- Applicable remarks.

Custody seals are placed on coolers in such a manner that the container cannot be opened without breaking the seal. At least two seals are used, (one on either side of the cooler).

2.3.2 Custody Procedures

COC procedures implemented during the project are as follows:

- Each sample collected for the project is entered on the COC record.
- The original COC record accompanies the sample containers during transport to document their custody.
- The shipping package is sealed with strapping tape and a custody seal affixed. The seal is placed on the package in such a manner that the package cannot be opened without breaking the seal. The seal documents that the samples remained unaltered during shipment through the common parcel carrier.
- The laboratory assumes custody of the sample upon receipt and a designated sample custodian is charged with sample care and receipt.

- The laboratory retains custody of the samples in a secure area for a minimum of one month following the date of receipt. At that time, the samples are disposed of in accordance with appropriate disposal procedures.

- The sampler maintains the final copy of the COC to verify that the samples were collected and sent to the laboratory.

2.4 QUALITY CONTROL CHECKS

The following quality control checks are implemented during the project to verify the adherence to the QA/QC plan, and to provide measurement for method and samplers performance.

2.4.1 Trip Blanks

Trip blanks are used to determine the QA/QC of sample handling procedures. The trip blanks are filled with distilled water in the laboratory and will accompany the cooler to and from the project site. One trip blank is sent per cooler.

2.4.2 Duplicate Samples

Duplicate groundwater samples are collected to provide a check on sampling techniques as well as laboratory equipment. Duplicate samples are collected simultaneously from the same well and labeled with a different well designation number. Duplicate samples are collected at a frequency of one per 10 samples submitted for laboratory analysis.

3.0 TS&A AND QA/QC PLAN APPROVAL/SIGN-OFF FORMAT

I have read, understood, and agreed with the information set forth in the TS&A and QA/QC Plan.

Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date
Name	Signature	Affiliation	Date

APPENDIX H – SITE-SPECIFIC HEALTH AND SAFETY PLAN

HEALTH, SAFETY, SECURITY AND ENVIRONMENTAL PROGRAM

HEALTH AND SAFETY PLAN

PINNACLE CAPITAL, LLC
LAKELAND GROCERY
12389 LARY LAKE ROAD
NORTHPORT, ALABAMA
TUSCALOOSA COUNTY

PPM PROJECT NO. **40166601-CAPE**

NOVEMBER 17, 2025

PPM CONSULTANTS

PREPARED UNDER THE DIRECTION OF:
JERI F. THRASHER, CSP|MBA / HEALTH AND SAFETY DIRECTOR
1600 LAMY LANE, MONROE, LOUISIANA 71201
(P) 318.812.3454 / (C) 318.884.8188

HEALTH, SAFETY, SECURITY AND ENVIRONMENTAL PROGRAM

TABLE OF CONTENTS

HEALTH, SAFETY, SECURITY AND ENVIRONMENTAL PROGRAM

PROJECT CHECKLIST – HASP AND JSA

Project/Task and Corresponding Job Safety Analysis:

- ☐ Chemical Injection
- ☒ DPVE/SVE/AS System Install/Decommission
- ☒ Drilling/Probing [Hand Auger/Heavy Equipment – specify]
- ☐ Mobile Vacuum Event [Emergency Response]
- ☐ Ozone System Install/Decommission
- ☐ Remediation System Modification
- ☐ Spill Bucket Replacement/Closure
- ☒ Trenching/Excavation
- ☐ UST Closure [PPM as General Contractor]
- ☐ UST Closure/Raze & Rebuilds [Client Contractor, PPM Sample Only]
- ☐ Well Plugging and Abandonment [GIP/Overdrill – specify]
- ☐ Other [specify below and contact HSD with details]

Notes: [Specify type of system and whether install/decommission; identify chemical being injected and notify HSD in advance for new chemical(s); if trenching or excavating; specify whether P&A is GIP or overdrill; specify what system modification is to be conducted.]

INSTALLATION OF DPVE SYSTEM

Hazard Assessment:

Chemical Hazards

- ☐ Acids
- ☐ Activated Carbon
- ☐ Alconox®/Liquinox®/Isopropanol
- ☐ Asbestos
- ☐ Bases/Alkali
- ☐ Calibration Gas [Meth/Hex/Hydro/Iso]
- ☐ Carbon Dioxide [Dry Ice]
- ☐ Chlorinated Solvents [Dry Cleaners]
- ☐ Descaling Agents [Analytix AN-754GH]
- ☐ Diesel/PAHs
- ☒ Dust [Nuisance/Concrete]
- ☐ Dust [Granular Carbon/Aluminum Oxide]
- ☐ Fuel Gases [Meth/Hex/Butane/Prop]
- ☒ Gasoline [BTEX]
- ☐ Hydrogen Sulfide [H_2S]
- ☐ Kerosene
- ☐ Metals [specify metal(s) above]
- ☒ Methyl-Tertiary Butyl Ether [MTBE]
- ☐ Oil [hydraulic/lubricating]
- ☐ Oxidizer [specify chemical above]
- ☐ Ozone
- ☐ Pesticides [Industrial/Agricultural]
- ☐ Polychlorinated Biphenyls [PCB]
- ☐ Other* [contact HSD]
- ☐ Unknown(s)* [contact HSD]

Physical/Biological Hazards

- ☒ Biological [specify above]
- ☐ Combustion/Flammability
- ☐ Compressed Gas [cylinders]
- ☒ Concrete [coring/cutting]
- ☒ Crane [subcontractor]
- ☒ Cuts/Lacerations
- ☒ Driving
- ☐ Drowning
- ☒ Electrical
- ☐ Falls [elevated heights]
- ☐ Forklift
- ☒ Hand/Power Tools
- ☒ Heat/Cold Stress
- ☐ Illumination
- ☐ Ladder Safety
- ☒ Material Handling [back safety]
- ☒ Mobile Equipment
- ☒ Noise
- ☒ Repetitive Motion
- ☒ Slips/Trips/Falls
- ☒ Traffic or Secluded Sites
- ☒ Uneven Working Surfaces
- ☐ Unstable Soils/Cave-Ins
- ☐ Other* [contact HSD]
- ☐ Unknown(s)* [contact HSD]

Protective Equipment:

- ☐ Apron and Goggles
- ☐ Booties/Foot Covers
- ☒ Ear Plugs/Canal Caps
- ☐ Face Shield
- ☐ Flame-Retardant Clothing
- ☐ Hand – Cotton Gloves
- ☐ Hand – Kevlar Gloves
- ☐ Hand – Leather Gloves
- ☒ Hand – Nitrile Gloves
- ☐ Hand – Other*
- ☒ Hard Hat [Class E]
- ☐ Harness and Lanyard
- ☒ High Visibility Shirt/Vest
- ☐ Personal Flotation Device
- ☐ Protective Suits [tyvek]*
- ☒ Reflective Shirt/Vest
- ☐ Respirator [air-purifying]*
- ☐ Respirator [supplied air]*
- ☐ Rubber boots
- ☒ Safety Glasses
- ☒ Steel-Toed Boots
- ☐ Other* [contact HSD]

Documentation Required:

- ☒ Ambient Air Monitoring
- ☐ Forklift Safety Inspection
- ☒ HASP Acknowledgement Form
- ☒ Incident Report/Log [as applicable]
- ☒ Occupational Noise Monitoring
- ☒ Subsurface Clearance Checklist
- ☒ Tailgate Safety Meeting Log
- ☒ Trench/Excavation Inspection

Subcontractor-Required (must obtain copy):

- ☒ Crane Inspection
- ☐ Forklift Inspection
- ☐ Heavy Equipment Inspection [specify above]
- ☐ One Call
- ☐ Other* [specify above]

Return Pages in the Following Order:

- HASP Cover Page
- Project Checklist
- Emergency Summary Information and Maps
- Personnel Roles and Responsibilities, p.3
- Site Map with boring, well, trench/excavation locations
- One Call (if electronic copy)
- Subsurface Clearance Checklist
- Ambient Air Monitoring Report
- Occupational Noise Monitoring Report
- Crane Inspection (if applicable)
- Forklift Inspection (if applicable)
- Trench/Excavation Checklist
- Incident Report and Log (if applicable)
- HASP Acknowledgement
- Tailgate Safety Meeting Log

HASP Generated By [Print Name]: Andrew Paradis Date Generated: 11/17/2025

HEALTH, SAFETY, SECURITY AND ENVIRONMENTAL PROGRAM

EMERGENCY SUMMARY INFORMATION

Medical Facility:

In cases of incidents or near-misses, the Health and Safety Director (HSD) must be verbally contacted immediately once any spills/releases have been contained and appropriately isolated. Incidents resulting in injury or illness must be reported immediately to the HSD for further instruction and injury case management. 911 should be called for life-threatening cases or cases requiring immediate attention. Be prepared to administer CPR and first aid care only if you have been trained to do so, acquire consent from injured worker (unless unconscious in which consent is implied), and training is up-to-date.

Name of Hospital: DCH Regional Medical Center Phone: 205-759-7111

Address: 809 University Blvd East City, State: Tuscaloosa, AL Zip: 35401

Directions and Map: See attached (next page) Distance: 13.3 miles Time: 22 min

Company and Emergency Contact Information:

Agency/Emergency Responder	Telephone	Website
Fire Department / Police Department / Ambulance	911	--
Center for Disease Control and Prevention	800-232-4636	www.cdc.gov
CDC – Public Health Preparedness and Response	404-639-7405	cdcinfo@cdc.gov
CDC – Bioterrorism Preparedness and Response	404-639-0385	cdcinfo@cdc.gov
CDC – Toxic Substances and Disease Registry	770-488-7100	cdcinfo@cdc.gov
Chemtrec [24-Hour Emergency Chemical Spill]	800-262-8200	chemtrec@chemtrec.com
EPA RCRA Superfund Hotline	800-424-9346	--
Poison Control Center	800-222-1222	www.aapcc.org

PPM Contact Information	Representative	Office	Cell
Principal [Primary Regional Safety PIC]	Shawn Ivey	318-812-3463	318-237-0677
Principal [Alternate Regional Safety PIC]	Zane Hood	205-836-5650	205-240-9883
Health and Safety Director	Jeri Thrasher	318-812-3454	318-884-8188
Safety Supervisor [Baton Rouge]	Jason Beauvais	225-293-7270	337-247-6994
Safety Supervisor [Birmingham]	Andrew Paradis	205-836-5650	251-622-8607
Safety Supervisor [Jackson]	Lori Lea	601-956-8233	601-955-5920
Safety Supervisor [Mobile/Pensacola]	Kay Williams	251-990-9000	251-753-4455
Safety Supervisor [Monroe]	Sarah Scott	318-323-7270	225-241-6751
Safety Supervisor [Orlando]	Brian Richards	407-240-1127	352-409-1606

Note: District and Project Managers can be contacted by using the office phone numbers provided for each location. During periods of transition or in the absence of a designated Safety Supervisor, the Health and Safety Director will assume responsibilities.

Designated Break and Evacuation Locations:

Personal protective equipment is required at all times within the work zone and can only be removed when in the site's designated break area. Smoking will be permitted within the break area pending the site's ambient contaminant concentrations. In the event of an emergency, workers must report to the designated evacuation area for a headcount. This site's designated break and evacuations areas are outlined as follows:

Break Area: _____ Evacuation Area: _____

Break Area: _____ Evacuation Area: _____

Break Area: _____ Evacuation Area: _____

1.0 INTRODUCTION

1.1 COMPANY COMMITMENT

PPM is committed to the safety and wellbeing of its employees and subcontractors. Our mission to simplify the complex is done under the provision that worker health, safety and security is not compromised in the process. In addition, the company strives to ensure that the environment and its natural resources are preserved and not otherwise negatively impacted as the result of company-related processes. This commitment to our workers and our environment is outlined within our written health, safety, security and environmental (HSSE) program, which establishes the company's expectations through its policies and procedures.

1.2 HASP PURPOSE

The purpose of this health and safety plan (HASP) is to mitigate those hazards associated with routine company-related tasks that could not otherwise be substituted or eliminated. This document outlines the control measures, protective equipment and emergency response procedures necessary to ensure worker safety and wellbeing are maintained. This HASP has been prepared in accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 standard for typical conditions encountered during routine business practices.

1.3 APPLICABILITY AND EXCEPTIONS

All field-related projects and/or tasks require a HASP, unless otherwise exempted by the safety department. The provisions outlined within this plan are applicable to all personnel assigned to the project and subcontracted workers hired by the company to complete the project. PPM will not be responsible for the safety of contracted workers hired directly by the client or partnering companies unless otherwise specified by these entities to do so and expressly agreed to, in writing, by all applicable parties. Accountability for the health, safety and security of contractors under these circumstances must be pre-established and explicitly outlined within the proposed scope of work and must additionally be approved by a Principal of the company.

This plan has been prepared specifically for common chemicals and tasks associated with routine business practices. Review and completion of this plan is separated into two categories:

1) *Routine and repetitive tasks that do not require field monitoring*. Some examples include: groundwater monitoring, mobile ozone or vacuum events (non-emergency release), system operation and maintenance, environmental assessments/audits, compliance audits, lead/asbestos inspections, and/or other similar non-intrusive tasks. These projects require review of applicable sections of the HASP and requires no field documentation other than HASP acknowledgement.
2) *Routine and repetitive tasks that require field monitoring*. Some examples include: drilling, geoprobing, excavating, trenching, chemical injection, remediation system installations or demobilizations, emergency mobile vacuum events (due to chemical releases), and/or other forms of similar sampling and analysis or subsurface disturbances. These projects require a HASP request form be submitted to the Safety Supervisor for preparation and document tracking. They also require review of applicable sections of the HASP and requires field documentation that must be returned to the safety department for recordkeeping.

Any project involving chemical(s), field-related task(s), and/or protective clothing and equipment not otherwise specified within this plan is considered non-routine and requires a site-specific plan be developed by the Health and Safety Director (HSD). When possible, please allow five days for preparation.

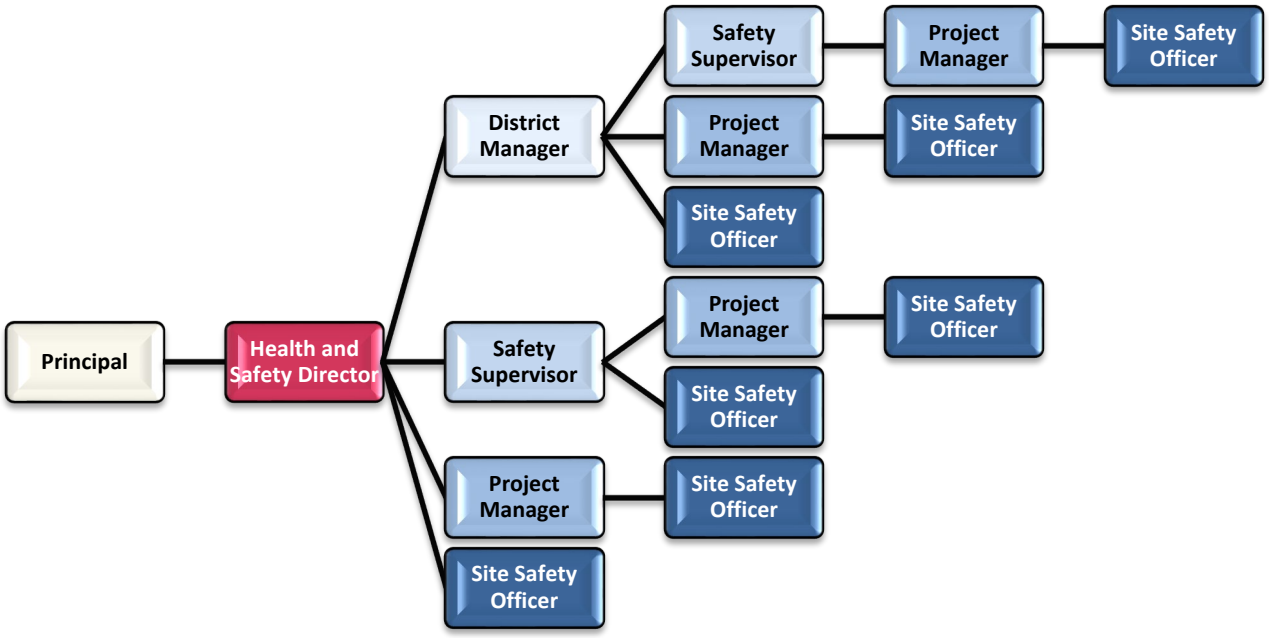
1.4 PROJECT AMENDMENTS

Should any unexpected conditions arise that introduces new hazards or eliminates existing hazards, work will cease immediately and this HASP will be amended to accommodate changes in site conditions. Additions or changes to this HASP will be communicated to all affected personnel and subcontractors.

2.0 ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

2.1 CHAIN-OF-COMMAND

The hierarchy of command creates a system for accountability and is extremely beneficial to the reporting process. As indicated by the graphic below, PPM has built-in redundancies within its command chain to ensure that all affected parties are notified and accountable as well as to compensate for designated personnel when they are inaccessible. There are various ways in which to notify management; however, when it involves worker safety and health, the HSD and Principal must be notified and cannot be by-passed.



2.2 PERSONNEL ROLES AND RESPONSIBILITIES

Safety is the responsibility of every worker within the company, regardless of position. Workers are accountable for their own personal safety as well as the safety of the co-workers around them. Also, key personnel within the company have additional safety obligations due to their designated leadership roles within the organization. PPM expects its managers to set the tone for safety through their exemplary leadership thereby creating the foundation for a strong safety culture. Positions requiring additional safety responsibilities include the following:

- **Principal**. Principals are assigned responsibility for different departments within the company. Authorizing Principals in charge of review, implementation and enforcement of corporate HSSE policies and procedures are Shawn Ivey [BTR/JAC/MON] and Zane Hood [BHM/MOB/ORL].

- **Health and Safety Director**. The HSD is responsible for proposing and generating HSSE policies/procedures under the advisement of the Authorizing Principals and in accordance with evolving local, state and federal regulations; communicating HSSE requirements to all affected personnel within the organization; and ensuring uniform implementation of these provisions throughout the PPM organization. The HSD also ensures contractual HSSE obligations are fulfilled and sustained.
- **District Manager**. Each branch office has a designated District Manager (DM) who is responsible for ensuring that HSSE policies and procedures are implemented by the workers assigned to his/her office. The DM is directly accountable to the Principals for the safety performance of his/her office.
- **Safety Supervisor**. Each branch office has a designated Safety Supervisor (SS) assigned by the DM. The SS is responsible for ensuring HSSE compliance by all within his/her office through consistent toolbox training, unscheduled site safety inspections and any other tasks delegated by the HSD. The SS is directly accountable to the HSD for his/her supervisory role and is also accountable to his/her DM regarding the office's safety performance.
- **Project Manager**. Each project has a designated Project Manager (PM) who is responsible for the safety and wellbeing of the workers assigned to his/her jobsite(s). The PM establishes the overall scope-of-work for the project and must consider the appropriate safety provisions (i.e., engineering design, protective equipment, etc.) during the planning phase. The PM is directly accountable to their DM for job-related HSSE issues that arise throughout any phase of the project.
- **Site Safety Officer**. A site safety officer (SSO) is assigned to each field project. An alternate SSO is also assigned to any field project with more than one PPM employee onsite. The SSO is responsible for jobsite safety, which includes, but is not limited to, the following:

  → Designate break and evacuation areas based on current site conditions;
  → Review the provisions outlined within the HASP and JSA (as applicable) with all affected personnel, subcontractors, client, and regulatory officials;
  → Ensure site security and prevent unauthorized entry to the work zone;
  → Ensure subsurface utilities have been marked and appropriate Principal approval has been obtained for critical zone disturbances;
  → Locate emergency shut-off devices to pumps and heavy equipment;
  → Establish communication system with equipment operators;
  → Ensure all workers and contractors wear required protective equipment;
  → Prohibit onsite smoking, except when permitted within designated areas;
  → Complete required field documentation outlined within the HASP for worker exposure monitoring and other site safety inspections; and
  → Report to management any incident or near-miss event.

  The alternate SSO is responsible for jobsite safety in the absence of the SSO or when under the direction of the SSO.

The following personnel are assigned to this project:

Name	Title/Position
Michael Ellison	District Manager
Chuck Gooden	Project Manager
Jeri F. Thrasher, CSP	Health and Safety Director
Andrew Paradis	Safety Supervisor (SS)
Connor Gaston	Site Safety Officer (SSO)
Forest Stroud	Alternate SSO
Complete Environmental	Subcontractor

2.3 SHORT-SERVICE EMPLOYEES

Short-service employees are defined as any worker employed by PPM for less than six months or workers who have not yet completed required training and certification. Short-service employees are assigned a mentor and supervised at all times when in the field - (exception: establishing offices that do not have a mentor may require that short-service employees perform field duties unsupervised; however, exemption is required by an Authorizing Principal).

2.4 TRAINING AND MEDICAL MONITORING

PPM field personnel associated with this project have received company HSSE policy and procedural training as part of their safety orientation. Personnel have additionally received initial 40-Hour HAZWOPER certification, which is updated annually through an 8-Hour refresher. This training course meets the requirements of OSHA 29 CFR 1910.120(e). Short-service employees not otherwise HAZWOPER-certified will be provided training after 90-day probationary period.

In accordance with the medical monitoring requirements outlined within 29 CFR 1910.120(f), workers who are or may potentially be exposed to hazardous materials are provided a medical evaluation paid for by the company. Only those employees who have been medically cleared for duty by a physician are permitted to perform field duties.

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

3.1 CHEMICAL HAZARDS AND CONTROLS

PPM is an environmental consulting firm that specializes in environmental spill response, remediation and general regulatory compliance providing services to the energy, commercial, industrial, and private sectors. As part of these functions, workers will likely be exposed to chemical hazards through the following routes: site contamination, chemicals used as part of the remediation process, chemicals used for equipment maintenance and calibrations, and chemicals used/stored at client facilities.

3.1.1 Gases and Fumes

3.1.1.1 Acids

Acids have a pH <7, change litmus paper to red, taste sour (most citrus fruits are acidic), are corrosive to metals, and are commonly found in car/forklift batteries, used as sample preservatives and used to prevent algae, calcium and other similar buildups in piping systems. Common acids encountered through company-related processes include but are not limited to: hydrochloric (muriatic), nitric, phosphoric and sulfuric acid. Acids can cause moderate to severe skin and eye burns, and breathing the fumes created by these materials can cause extreme

burning of the respiratory system. Materials with a pH <2 must be disposed as a hazardous waste; however, acids can be neutralized with a base/alkali.

Control Measures: Never pour water into acid! Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Thoroughly wash exposed skin and hands upon completion of handling to avoid skin/eye irritations, itching and burning and prevent accidental ingestion. Prevent contact with metals.

3.1.1.2 Bases/Alkali

Commonly referred to as caustics, bases have a pH >7, change litmus paper to blue, have a bitter taste, feel slippery and are commonly used to make soap and textiles, found in common household detergents, cleaners (i.e., Drano, oven cleaners and ammonia products), milk of magnesia and antacids. Common bases encountered through company-related processes include but are not limited to: sodium hydroxide, potassium hydroxide, calcium hydroxide, ammonia, and sodium carbonate. Bases can cause moderate to severe skin and eye burns, and breathing the fumes created by these materials can cause extreme burning of the respiratory system and pulmonary edema. Materials with a pH >12.5 must be disposed as a hazardous waste. While bases react violently with acids, they can also be neutralized by acids.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Thoroughly wash exposed skin and hands upon completion of handling to avoid skin/eye irritations, itching and burning and prevent accidental ingestion.

3.1.1.3 Calibration and Fuel Gases

Calibration gases are used to calibrate air monitoring equipment. Common calibration gases used for equipment calibration include: hexane, hydrogen, isobutylene and methane. Calibration gases are used in small quantities, are highly flammable, and must be stored and handled safely. Gases such as hexane, methane, butane, and propane are used as fuel sources and may be encountered in larger quantities at oil and gas facilities. Workers may also come across methane gas through work in landfills, swamps, and agricultural land associated with raising livestock.

Control Measures: Keep containers upright, lids secured and store in climate-controlled environment away from heat sources. Calibration gases are asphyxiants (displace oxygen) so calibrate equipment in well-ventilated areas. When these gases are anticipated in larger quantities, workers must air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment.

3.1.1.4 Carbon Dioxide (Dry Ice)

Dry ice is carbon dioxide in a solid form. It may be used as a refrigerant and/or to displace vapors and has been used on some PPM jobsites for such purposes. Some hazards associated with the use of dry ice include, but are not limited to: frostbite through direct skin contact, asphyxiation due to displacement of oxygen in the atmosphere, and explosion from release of pressure exerted by the conversion of carbon dioxide solid to gas which could produce projectiles of the dry ice.

Control Measures: Avoid direct contact with solid dry ice to prevent frostbite. Avoid storing in areas with limited air flow (ventilation) such as buildings, vehicles, or other confined areas where gases can accumulate and be inhaled. Store inside a paper bag within a refrigerator, freezer, or cooler with a tight seal.

3.1.1.5 Hydrogen Sulfide

Hydrogen sulfide (H_2S) is a colorless gas known for its pungent odor (often referred to as a "rotten egg" odor) at low concentrations. It is a highly flammable and toxic substance associated with oil and gas refining, mining, tanning, pulp and paper processing, and rayon manufacturing. It can also occur naturally in sewers, well water, oil and gas wells, manure pits, and volcanoes. Hydrogen sulfide is heavier than air so it settles in low-lying enclosed areas such as manholes, sewers, and underground telephone vaults. Another characteristic of hydrogen sulfide is that it fatigues a worker's sense of smell so it cannot be relied upon in determining the continuous presence of H_2S gas. Health effects depend upon the exposure concentration and include, but are not limited to: irritation of eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (tears), photophobia (intolerance to light), corneal vesiculation; dizziness, headache, weakness, exhaustion, irritability, insomnia; gastrointestinal disturbance; as a liquid: frostbite.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Wear personal monitoring badges for H_2S within the breathing zone. Where applicable, rely upon stationary monitoring devices and when alarms are triggered, evacuate the area upwind immediately. Use escape only respiratory protection when issued by PPM and/or the client facility.

3.1.2 Oxidizers

3.1.2.1 Hydrogen Peroxide (30-50%)

Hydrogen peroxide is a colorless liquid with a slightly sharp odor. It is a powerful oxidizer injected into subsurface soils, in conjunction with ozone, for the treatment of contaminants such as MTBE, BTEX, hydrocarbons – aliphatic and polyaromatic, diesel fuel, chlorinated solvents, VOCs, and pesticides. It is generally noncombustible, but upon contact with a combustible material, may result in spontaneous combustion. Direct contact may result in severe skin and eye damage. Symptoms of exposure include: irritation of eyes, nose, and throat; corneal ulcer; burning and redness of skin; and bleaching of hair.

Control Measures: Because hydrogen peroxide is injected into subsurface soils, worker exposures will likely result from a release at the monitoring wellhead, sparge point or other similar avenues that will lead the substance to ground surface. Therefore, workers must routinely air monitor around sparge points and monitoring wells for evidence of leakage. Collections must occur at the wellhead (source) as well as within the breathing zone of the worker. Hydrogen peroxide is injected into the subsurface via tubing from storage containers of liquid hydrogen peroxide so workers may have direct contact with these storage containers during initial setup and when replacing empty containers with new containers. Wear face shields, elbow-length gloves, and aprons as necessary to prevent direct contact with substance, and workers must keep face away from the source while collecting ambient air samples to avoid potential inhalation exposures and splash hazards.

3.1.2.2 Oxygen Release Compound® (ORC) and ORC Advanced®

ORC® and ORC Advanced® are forms of enhanced aerobic bioremediation which supplies oxygen to accelerate the biodegradation of soil and groundwater contaminants. Both materials are a white powder that gets mixed with water and injected in subsurface soils. Once mixed, these

materials have a pH of 10 [ORC] and 11-13 [ORC Advanced], making them a significant skin and eye irritant. Symptoms of exposure include: cough, sore throat, nose bleeds (extended exposures), eye watering and redness, eye lesions (extended exposures), nausea and vomiting if ingested and skin irritation.

Control Measures: When in powder form, this material is to be treated as a nuisance dust. Avoid creating dusty environments during the mixing process. When dealing with unknown dust concentrations, wear air-purifying respirator with P-100 HEPA filter until product becomes slurry mixture. Wear nitrile, neoprene or rubber gloves for hand protection and safety glasses or goggles for eye protection. Avoid storing oxidizers near combustible materials, other strong oxidizers, strong acids or other strong chemical agents. etc. (see safety data sheet for complete list of incompatibles).

3.1.2.3 Ozone

Ozone is a pale, blue gas with a distinctive odor similar to that of chlorine bleach and can be smelled at relatively low concentrations. It is a powerful oxidizer injected into subsurface soils for the treatment of contaminants such as MTBE, BTEX, hydrocarbons – aliphatic and polyaromatic, diesel fuel, chlorinated solvents, VOCs, and pesticides. Symptoms of exposure include: dryness of mouth, coughing, irritation to nose, throat and chest; difficult breathing, headache, and fatigue; eye irritation causing pain, lacrimation (tears) and inflammation.

Control Measures: Because ozone is injected into subsurface soils, worker exposures will likely result from a release at the monitoring wellhead, sparge point or other similar avenues that will lead the substance to ground surface. Workers must consistently air monitor sparge points and monitoring wells for evidence of ozone leakage. Collections must occur at the wellhead (source) as well as within the breathing zone of the worker. Ozone rapidly coverts into O_2, CO_2 and other less toxic molecules but exposure limits can be triggered at the wellhead so workers must keep face away from the source while collecting the sample until it can be confirmed that the sample is acceptable for worker exposure.

Although this system has built-in safety features which shut down the system if a leak is detected, sometimes ozone concentrations can build up inside the mobile ozone trailer. Workers should use caution when opening door and should keep door open while in use to allow for ventilation.

3.1.2.4 RegenOx A and B™

RegenOx™ is an oxidizing compound comprised of two parts (A and B) that is injected into subsurface soils as part of in-situ remediation. Part A is a white, odorless powder with a pH of 10.5 and is the oxidizer/catalyst component of this mixture. Part B is a blue/green, odorless liquid with a pH of 11 and is the activator complex. Both parts are mixed together prior to subsurface injection. The mixing of these materials is a relatively safe process but exposures can result in skin, eye, respiratory and gastrointestinal irritations. Symptoms include: coughing, shortness of breath, irritation to mucous membranes, nose and throat; skin and eye itching/redness; vomiting and diarrhea associated with ingestion [Part A] and irritation to mouth, esophagus and stomach [Part B].

Control Measures: When mixing materials, wear protective clothing such as neoprene, rubber or PVC gloves for hand protection and goggles or face-shield for eye protection. Avoid storing oxidizers near combustible materials, other strong oxidizers, acids, bases, salts of heavy metals, reducing agents, etc. (see safety data sheet for complete list of incompatibles).

3.1.3 Particulates and Fibers

Particulates are commonly referred as particulate matter and consist of pieces of solid matter suspended in a gas or liquid. Particulate matter can occur naturally or be man-made. Fibers consist of continuous filaments or elongated pieces like those similar to thread. Fibers are used to produce various materials such as paper, rope, and clothing. The common types of particulates and fibers encountered by personnel are outlined in the following sections.

3.1.3.1 Aluminum Oxide

Aluminum oxide is a byproduct generated by ozone remediation systems. Condensation forms on aluminum metal parts which when combined with oxygen creates a white, odorless, crystalline powder scale which can build up on metal parts of the system and presents a potential contact, inhalation, and/or ingestion exposure to workers. Aluminum oxide is a noncombustible solid, is not considered carcinogenic, and may include symptoms such as irritation of eyes, skin, and respiratory system.

Control Measures: To eliminate contact exposures, workers must wear chemical-resistant gloves and aprons to remove powder scale buildup from aluminum piping during routine system maintenance. Workers should avoid creating dust buildup of this substance, and when this cannot otherwise be avoided, workers must upgrade to respiratory equipment with P-100 filter to prevent inhalation of this material.

3.1.3.2 Asbestos

Asbestos is a naturally-occurring fibrous material used in many products due to its attractive features. Asbestos has tensile strength, can easily be woven, and is heat and chemical resistant. It is most commonly found in roofing shingles, floor and ceiling tiles, textiles, coatings, paper and cement products, piping insulation and friction products such as automobile clutch, brake and transmission parts. The three most common forms of asbestos include:

- **Amosite (brown asbestos)**. Amphibole fiber formation (straight, needle-like fibers). Originated in Africa and used industrially as a fire retardant in thermal insulation, used in cement sheeting and is also found in ceiling tiles.
- **Chrysotile (white asbestos)**. Serpentine fiber formation (curled fibers). Is less friable (less-likely to be inhaled) than other types of asbestos and therefore viewed by many to be the safest type of the asbestos, which is why it is the most common form of asbestos used in the U.S. mostly in the form of building materials.
- **Crocidolite (blue asbestos)**. Amphibole fiber formation (straight, needle-like fibers). Originated in South Africa and Australia and used for thermal and chemical insulation as well as construction piping and water casings. Is considered to be the most dangerous type of asbestos.

When asbestos is disturbed through repairs, remodeling or demolition, airborne fibers can be inhaled by workers causing respiratory diseases such as lung cancer, asbestosis and mesothelioma – all of which have a latency period between exposure and onset of symptoms. These respiratory diseases are chronic in nature and generally irreversible. Smokers are more susceptible to the damaging health effects of asbestos exposures. Symptoms of asbestos exposure include: shortness of breath, difficult breathing or swallowing, persistent coughing that progressively worsens, wheezing and hoarseness, coughing up blood, pain or tightening in the chest, swelling of face or neck, loss of appetite, weight loss, fatigue or anemia.

Control Measures: Asbestos-containing areas must be identified by signs, which will likely be found when working at larger industrial and commercial facilities. In these cases, workers must avoid these areas and take all necessary precautions to prevent disturbing any materials within these areas. In most cases, potential asbestos exposures will be in the form of sample collection as part of environmental site assessments performed on commercial properties. Personnel must be certified asbestos inspectors to perform these collections. In some cases, demolition of structures potentially containing asbestos materials may be supervised. At a minimum, the designated PPM-representative must be asbestos certified; however, the demolition and air monitoring requirements will be subcontracted to an appropriately state-certified contractor.

Because the sample collection process disturbs asbestos-containing materials (ACM) or potential asbestos-containing materials (PACM), workers must wear air-purifying respiratory protection in the form of half-mask respirator with P-100 high efficiency particulate air (HEPA) filters and must also wet the sample area with a soap-water mixture to reduce the dispersion of fibers. *Note: asbestos-containing materials will be presumed until otherwise verified through laboratory analysis. Buildings constructed prior to the 1980s have a greater likelihood of containing asbestos. PACMs must be treated as if they contain asbestos, and the greatest level of control should be used when collecting samples*.

3.1.3.3 Heavy Metals

Numerous heavy metals bind naturally to soils; therefore, dusty environments can introduce these hazards to workers. Heavy metals are poisonous to humans and can cause severe health effects due to their proven or suspected carcinogenic characteristics. Common heavy metals encountered through company-related processes include:

- **Aluminum**. A silvery-white, malleable, ductile, and odorless solid (metal); combustible as a solid (although takes effort), but easily ignitable when in fine dust form which can cause explosions; can cause damage to the eyes, skin and respiratory system; symptoms include: skin, eye and respiratory irritation.
- **Arsenic**. A silver-gray or tin-white metal commonly associated with under-ground storage tanks; noncombustible in solid form but presents slight explosion hazard in dust form when exposed to flame; is considered potential lung and lymphatic system carcinogen and can also affect liver, kidneys and skin through inhalation, skin absorption, skin/eye contact and ingestion exposures; symptoms include: respiratory irritations such as ulceration of nasal septum, dermatitis, gastrointestinal disturbances, hyperpigmentation (darkening) of the skin, and peripheral neuropathy (problem with nerves that carry information to and from the brain and spinal cord which can result in pain, loss of sensation and inability to control muscles).
- **Barium**. A silvery-white metal that exists naturally in the environment; because it is very reactive in its natural state, it is often combined with other elements such as oxygen, carbon and sulfur; it has many uses, but one likely exposure source is that it is used by the oil and gas industry to make drilling mud, which lubricates the drill and simplifies the process when drilling through rock; barium in its natural state is highly flammable and reacts violently with water; may cause irritation of skin, eye, nose, throat and upper respiratory tract, allergic reactions, and central nervous system damage; symptoms include: corneal damage including blindness, poisoning, dermatitis, and skin, eye and throat burns.
- **Cadmium**. A soft, bluish-white metal commonly associated with underground storage tanks; noncombustible in solid form but will burn in powder form; is considered potential prostate and lung carcinogen and can also affect respiratory system, kidneys and blood through inhalation and ingestion exposures; symptoms include: pulmonary

edema (fluid in air sacs of lungs) which causes difficult breathing, cough, chest tightness, substernal pain, headache, chills, muscle aches, nausea, vomiting, diarrhea, loss of smell, emphysema, proteinuria (protein in urine), and mild anemia.

- **Chromium**. A hard, steel-gray metal commonly associated with underground storage tanks; noncombustible in solid form but finely dispersed dust particles will rapidly burn when exposed to a flame; chromium is not considered a likely carcinogen, but does affect skin, eyes and respiratory system through inhalation, ingestion and contact exposures; symptoms include: skin and eye irritation and lung fibrosis (scarring of the lungs).
- **Copper**. A soft, malleable reddish-orange metal commonly associated with underground storage tanks; noncombustible in solid form but may ignite when in powder form; copper is not considered a likely carcinogen, but does affect skin, eyes, respiratory system, liver and kidneys through inhalation, ingestion and contact exposures; symptoms include: skin, eye and pharynx irritation, nasal septum perforation, metallic taste, and dermatitis.
- **Iron**. A lustrous metal with a grayish tinge commonly used in industry in the construction of machinery, tools, automobiles, ships and building components; it is the most commonly used of all metals and can also be found in numerous dietary sources; elevated iron in the blood can react with peroxides to produce free radicals that can damage DNA, proteins, lipids and other cellular components; upon exposure, iron can cause skin, eye, mucous and respiratory irritations; it is also flammable as a fine dust.
- **Lead**. A soft, gray metal commonly associated with underground storage tanks, paints and coatings; noncombustible in solid form; lead is not considered a likely carcinogen, but does affect eyes, gastrointestinal tract, central nervous system, kidneys, blood and gingival tissue (soft tissue of the mouth surrounding the teeth) through inhalation, ingestion and contact exposures; symptoms include: eye irritation, weakness, exhaustion, insomnia, facial pallor (paleness), weight loss/anorexia, malnutrition, constipation, abdominal pain, colic, anemia, gingival lead line, tremor, paralysis of wrist and ankles, encephalopathy (various brain disorders), kidney disease, and hypertension.
- **Magnesium**. A strong, silvery-white, light-weight metal that exists naturally in the environment; because it is very reactive in its natural state, it is often combined with other elements to form magnesium oxide, various salts, and other industrially-important compounds; magnesium is the third most commonly used metal; because it is light-weight, it is widely used in manufacturing numerous electronics; upon exposure, magnesium can cause skin and eye irritations; it is also flammable as a fine dust.
- **Mercury**. A silver-white, liquid metal associated with underground storage tanks, batteries, fluorescent bulbs, thermometers and thermostats; noncombustible liquid; mercury is not considered a likely carcinogen but does affect skin, eyes, respiratory system, central nervous system and kidneys through inhalation, skin absorption, ingestion and contact exposures; symptoms include: skin and eye irritation, cough, chest pain, difficult breathing, bronchitis, pnuemonitis (lung inflammation), tremor, insomnia, irritability, indecision, headache, weakness, exhaustion, stomatitis (inflammation of lining within the mouth), salivation, gastrointestinal disturbance, weight loss/anorexia, and proteinuria (protein in urine).
- **Selenium**. Crystalline, red to gray solid that is considered to be combustible when in fine dust form; elemental selenium is rare – it is most commonly produced as a byproduct of refining copper or producing sulfuric acid; selenium can cause damage to the skin, eyes, respiratory system, liver, kidneys, blood and spleen; symptoms include:

skin, eye, nose, and throat irritations, visual disturbance, headache, chills, fever, difficulty breathing, bronchitis, metallic taste, garlic breath, gastrointestinal disturbance, dermatitis, and skin and eye burns.

- **Silver**. A white, lustrous metal that is noncombustible in solid form but can become flammable when in dust form. Silver can cause damage to the nasal septum, skin and eyes. Symptoms include: blue-gray eyes, nasal septum, throat and skin, ulceration of skin, and gastrointestinal disturbance.
- **Zinc**. A bluish-white metal commonly associated with underground storage tanks and used as an anti-corrosion agent; zinc is commonly found in common cold lozenges and over-the-counter cold remedies, as a dietary supplement and also within common foods such as beans, nuts, whole grains and pumpkin/sunflower seeds; zinc is commonly considered non-toxic but in abundance can result in gastrointestinal irritation through ingestion exposures; symptoms include: loss of appetite, nausea, vomiting, stomach cramps, diarrhea and headaches.

Control Measures: Soils should be wet and kept damp to reduce the amount of airborne dust concentrations generated. Providing sufficient ventilation, wearing safety glasses with side-shield protection and wearing dust masks or respiratory equipment with P100 filter are other alternatives for working in dusty environments. Most PPM jobsites can be mitigated using wet methods only. Workers should use additional precautions when using both wet methods and power tools or corded equipment to avoid electrical shock. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion.

3.1.3.4 Nuisance and Concrete Dust

Dust generation is a common occurrence when working with contaminated soils and when mixing or dismantling concrete. In most cases, activities that result in dust accumulation are subcontracted making them more susceptible to these respiratory hazards than PPM personnel. Generally, dust accumulation is minimal, but the SSO must ensure that subcontractors are using effective controls to minimize dust accumulation, and that they are also equipped and wearing the appropriate protective equipment when performing these tasks. Contaminants associated with common job-related dusty environments include:

- **Total and respirable dust**. Dust found in the air that can cause breathing difficulties if inhaled. OSHA has established permissible exposure limits (PELs) for both total and respirable dusts to regulate worker exposures. Respirable dust is defined as dust particles less than 10 micrometers in diameter, which is too small to be visible. Symptoms of exposure can include coughing, wheezing and breathing difficulties.
- **Concrete dust**. Commonly generated through core drilling and jack-hammering through concrete. Also, small areas of concrete can be replaced by workers who may generate dusts from bags of cement as part of the mixing process. Trace amounts of crystalline silica, alkaline compounds and hexavalent chromium are found within cement. OSHA has established PELs for Portland cement to regulate worker exposures. Symptoms of exposure can include coughing, wheezing, eye irritations and in severe cases silicosis.

Control Measures: Soils should be wet and kept damp to reduce the amount of airborne dust concentrations generated. Providing sufficient ventilation, wearing safety glasses with side-shield protection and wearing dust masks or respiratory equipment with P100 filter are other alternatives for working in dusty environments. Most PPM jobsites can be mitigated using wet methods only. Workers should use additional precautions when using both wet methods and

power tools or corded equipment to avoid electrical shock. Wet cement can also cause skin burns so workers should wear goggles, aprons or long-sleeved clothing, and hand protection when mixing cement. Wash skin immediately and thoroughly if exposed to wet cement.

3.1.4 Volatile and Semi-Volatile Organic Compounds

Volatile organic compounds (VOCs) are a broad group of materials that have the ability to vaporize (change from a solid or liquid into a gas) with an increase in ambient temperature. Some example VOCs include: paints and lacquers, paint thinners, pesticides, solvents and degreasers, glues/adhesives and petroleum fuels. Semi-volatile organic compounds (SVOCs) include phenols and polycyclic aromatic hydrocarbons (PAHs), which have a higher boiling point than water and may vaporize with an increase in ambient temperature. VOC/SVOCs are not known for acute toxicity but have significant chronic health effects because concentrations are often low and symptoms are slow to develop, which is why several VOC/SVOCs are suspected or known carcinogens. Common VOC/SVOCs are outlined in the following sections.

3.1.4.1 Chlorinated Compounds

A chlorinated solvent is a type of organochlorine, which is an organic compound (contains carbon) that also contains chlorine. They are found in a variety of products and used as part of the dry cleaning process due to its ability to dissolve materials such as fats and greases. Workers are most likely to be exposed to these chemicals as part of soil and groundwater assessment and remediation associated with dry cleaning contaminants. Chlorinated solvents can be environmentally persistent and tend to evaporate easily making inhalation the primary route of worker exposure. However, workers may additionally be exposed to chlorinated solvents through ingestion, absorption and skin/eye contact. Common chlorinated solvents encountered through company-related processes include:

- **Carbon tetrachloride**. A noncombustible, colorless liquid with ether-like odor; considered a potential carcinogen with damaging effects to the central nervous system, eyes, lungs, liver, kidneys, and skin; symptoms include: skin and eye irritation, central nervous system depression, nausea, vomiting, drowsiness, dizziness, and incoordination.
- **Chloroform**. A noncombustible, colorless liquid with pleasant odor; considered a potential carcinogen with damaging effects to the liver, kidneys, heart, eyes, skin, and central nervous system; symptoms include: skin and eye irritation, dizziness, mental dullness, nausea, confusion, headache, weakness, exhaustion, anesthesia, and enlarged liver.
- **Methylene chloride**. A combustible, colorless liquid with chloroform-like odor; considered a potential carcinogen with damaging effects to the eyes, skin, cardiovascular system, and central nervous system; symptoms include: skin and eye irritation, weakness, exhaustion, drowsiness, dizziness, numb and tingling limbs, and nausea.
- **Perchloroethylene (Tetrachloroethylene)**. A noncombustible, colorless liquid with mild chloroform-like odor; when in a fire, it decomposes to hydrogen chloride and phosgene; considered a potential carcinogen with damaging effects to the eyes, skin, respiratory system, liver, kidneys and central nervous system; symptoms include: skin, eye, nose, throat and respiratory irritation, nausea, flushed face and neck, dizziness, incoordination, headache, drowsiness, skin redness, and liver damage.

- **Trichloroethylene**. A combustible, colorless liquid with chloroform-like odor; will burn when exposed to flame, but is difficult to burn; considered a potential carcinogen with damaging effects to the eyes, skin, respiratory system, heart, liver, kidneys, and central nervous system; symptoms include: skin and eye irritation, headache, visual disturbance, weakness, exhaustion, dizziness, tremor, drowsiness, nausea, vomiting, dermatitis, cardiac arrhythmias, parasthesia (tingling or numbness of the skin), and liver injury.
- **Vinyl chloride**. A combustible, colorless gas or liquid (below 7º F) with pleasant odor at high concentrations; considered a potential carcinogen with damaging effects to the liver, central nervous system, blood, respiratory system, and lymphatic system; symptoms include: weakness, exhaustion, abdominal pain, gastrointestinal bleeding, enlarged liver, pallor or cyanosis of extremities, and frostbite (as a liquid).

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

3.1.4.2 Isopropyl Alcohol

After bailers and reusable sampling equipment is decontaminated with alconox® solution, it is then sprayed with isopropyl alcohol. Also referred to as isopropanol, isopropyl alcohol is a colorless, flammable liquid commonly known as rubbing alcohol. It is considered a skin, eye and respiratory system irritant that causes damage through inhalation, ingestion and skin/eye contact exposures. Symptoms of overexposure include: irritation of eyes, nose and throat, drowsiness, dizziness, headache and dry, cracking skin.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Increase frequency of air monitoring if action limits are triggered and remove or isolate all ignition sources if flammability limits are triggered. Thoroughly wash exposed skin and hands upon completion of handling to avoid skin/eye irritations.

3.1.4.3 Methyl-Tertiary Butyl Ether (MTBE)

MTBE is a colorless, flammable liquid with an ether-like odor used as a fuel additive to reduce emission gases such as ozone and carbon monoxide. At one point gasoline could consist of as much as 10-15% MTBE but has since been replaced with ethanol and other additions less harmful to humans and the environment. MTBE poses a concern because it is considered a potential human carcinogen, can easily travel through soils, and is very soluble in water creating larger contaminant plumes than other gasoline constituents. It is also more resistant to biodegradation making it more environmentally persistent. MTBE is considered a skin, eye, respiratory and central nervous system irritant with symptoms that include: skin, eye and mucous membrane irritation, dizziness, nausea, headache, intoxication, loss of balance and coordination, unconsciousness, coma, respiratory failure and death.

Control Measures: Avoid prolonged exposures to oil mist, liquid or vapor. Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective

equipment. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

3.1.4.4 Organic Hydrocarbons

Total petroleum hydrocarbon (TPH) is a broadly used term referring to a large family of compounds that originate from crude oil. Crude oil is a naturally-occurring, flammable liquid comprised of a complex mixture of various hydrocarbons. It is recovered through oil drilling, but can be refined and separated into other substances such as gasoline, kerosene, diesel and lubricating oils. TPH is generally comprised of hydrogen and carbon; hence the term "hydrocarbon". Because there are so many different mixtures, TPH is divided into groups or fractions, and each fraction consists of hydrocarbons that exhibit similar soil and groundwater traits. Fractioning TPH is beneficial in the risk assessment process because certain fractions may be eliminated as contaminants of concern. Common petroleum-based chemicals encountered through company-related processes include:

- **Gasoline**. Gasoline is extracted from crude oil through a distillation process. It is comprised primarily of aliphatic hydrocarbons, but also includes some aromatic hydrocarbons such as benzene and toluene to increase octane ratings. Additional additives such as tetraethyl lead and methyl-tertiary butyl ether (MTBE) were added to gasoline to enhance performance and reduce harmful carbon monoxide exhaust emissions and reduce smog. Due its harmful effects to human health and the environment, neither additive is currently used and has been replaced instead with alcohols such as ethanol or methanol.

  Gasoline is used primarily as a fuel source but can also be used as a solvent. Components of gasoline are considered to be carcinogenic, and because gasoline is highly volatile, inhalation of vapors is always a concern for workers. Gasoline is also a skin and eye irritant, its vapors are highly flammable, and it is a major source of pollution gas (i.e., 1 U.S. gallon of gasoline produces 19.4 pounds of carbon dioxide, a greenhouse gas). Gasoline is comprised of the following four constituents:

  → Benzene – a colorless, flammable liquid with a sweet odor; makes up on average 0.62% to 1% of gasoline; is considered a known carcinogen with damaging effects to skin, eyes, respiratory system, blood, central nervous system and bone marrow, which can result in anemia (decreased red blood cell count making one weak and tired), decreased white blood cell count (difficult to fight off infections), and low blood platelet count (excessive bleeding); benzene causes damage through inhalation, skin absorption, ingestion and contact exposures; symptoms include: drowsiness, dizziness, headaches, confusion, tremors, skin/eye irritations, redness and blistering of the skin, vomiting, stomach irritation, convulsions, rapid heart rate, unconsciousness, leukemia (long-term) and death (large doses).

  → Toluene – a colorless, flammable liquid with benzene-like odor (smells like paint thinner); can produce damaging effects to skin, eyes, respiratory and central nervous systems, liver and kidneys; toluene causes damage through inhalation, skin absorption, ingestion, and contact exposures; symptoms include: eye and nose irritation, weakness, exhaustion, confusion, euphoria, dizziness, headaches, dilated pupils, lacrimation (tears), anxiety, muscle fatigue, insomnia, parathesia (tingling or numbness of the skin), dermatitis, and liver/kidney damage.

→ Ethylbenzene – a colorless, flammable liquid with aromatic odor (smells like gasoline); is considered a potential human carcinogen that can produce damaging effects to skin, eyes, respiratory and central nervous systems; ethylbenzene causes damage through inhalation, skin/eye contact and ingestion exposures; symptoms include: irritation of the eyes, skin and mucuous membranes, headaches, dizziness, dermatitis, narcosis (unconsciousness) and coma.

→ Xylene – colorless, flammable liquid with sweet, balsam-like odor; is a mixture of ortho-, meta- and para-xylene isomers that releases carbon monoxide gas when burned; can produce damaging effects to skin, eyes, respiratory and central nervous systems, gastrointestinal tract, blood, liver and kidneys; xylene causes damage through inhalation, skin absorption, ingestion and skin/eye contact exposures; symptoms include: irritation of skin, eyes, nose and throat, dizziness, excitement, drowsiness, incoord-ination, staggering gait, corneal vacuolization, anorexia, nausea, vomiting, abdominal pain and dermatitis.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Increase frequency of air monitoring once action limits are triggered to ensure that all ignition sources are removed or isolated when flammability limits are triggered. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

- **Kerosene**. Kerosene is a source of fuel refined from crude oil that is heavier than gasoline but lighter than diesel. It is a colorless to yellowish oily liquid used in households as a lamp oil and used industrially as jet fuel for aircraft and rocket engines. Kerosene has a strong odor, is highly flammable, and causes damage to the eyes, skin, respiratory system, and central nervous system. Workers may be exposed to liquid kerosene and its vapors through inhalation, ingestion, skin and/or eye contact. Symptoms include: irritation of eyes, skin, nose and throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; and chemical pneumonitis (aspiration liquid). Kerosene is commonly referred to as paraffin in other countries.

  Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Increase frequency of air monitoring once action limits are triggered to ensure that all ignition sources are removed or isolated when flammability limits are triggered. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

- **Diesel/polycyclic aromatic hydrocarbons (PAHs)**. Diesel is a source of fuel refined from crude oil and used in diesel trucks, boats, school and city buses, trains, cranes, farming equipment, emergency response vehicles and power generators. Diesel is an attractive fuel source because it is less volatile and emits smaller amounts of greenhouse gases (CO and CO_2); however, during combustion it does release large amounts of soot which can lead to acid rain, smog and poor health conditions. PAHs are found in crude oil and

soot and are also a by-product of petroleum processing or combustion, specifically the incomplete burning of oil and gas. Common PAH constituents include: acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)-fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h) anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. The regulated PAH constituents are outlined below:

→ Coal tar pitch volatiles - PAH components anthracene, benzo(a)pyrene, chrysene, phenanthrene, and pyrene, all of which have the same chemical description, target organs, and regulatory threshold limits are not addressed by NIOSH as individual components. Instead, they are classified and regulated as coal tar pitch volatiles. Coal tar pitch volatiles may vary slightly but are described as combustible, black or brown amorphous residues and are considered a potential human carcinogen with damaging effects to respiratory system, skin, bladder, and kidneys. Symptoms include: dermatitis and bronchitis.

→ Naphthalene – Naphthalene is a combustible, colorless to brown solid with an odor or mothballs that causes damaging effects to eyes, skin, blood, liver, kidneys, and central nervous system. Symptoms include: eye irritation, headache, confusion, excitement, discomfort, nausea, vomiting, abdominal pain, bladder irritation, profuse sweating, jaundice, blood in urine, renal failure, dermatitis, optic and cornea damage.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Increase frequency of air monitoring once action limits are triggered to ensure that all ignition sources are removed or isolated when flammability limits are triggered. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

- **Hydraulic and lubrication oils**. Oils used for internal combustion engines to lubricate moving parts, prevent corrosion and to cool the engine. Lubricating oils are made from crude oil but also include additives to improve certain properties. Lubricating oils can be highly flammable and can cause irritation of nose, throat and lungs, headaches, dizziness, nausea, vomiting and diarrhea.

  Control Measures: Avoid prolonged exposures to oil mist, liquid or vapor. Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

3.1.4.5 Pesticides

A pesticide is another type of organochlorine commonly used for crop dusting agricultural farmland not only to kill insects, rodents and germs, but is also used for weed and mildew control. The term “pesticide” includes a broad category of chemicals that can be further broken down into insecticides, rodenticides and fungicides. Some older and more recently banned pesticides (such as DDT) tend to be environmentally persistent. Workers are potentially exposed to

pesticides as part of the assessment or remediation of impacted farmland as well as commercial pesticide manufacturing and/or storage facilities. Similarly to chlorinated solvents, pesticides can be volatile making inhalation the primary route of worker exposures. However, workers may additionally be exposed to pesticides through ingestion, absorption and skin/eye contact. There are numerous pesticides tested as part of assessment and remediation of impacted sites; however, the following pesticides are OSHA-regulated materials that pose a potential health risk to workers:

- **Aldrin**. A noncombustible, colorless to dark-brown crystalline solid with mild chemical odor; may dissolve in flammable liquids; formerly used as an insecticide and is considered a potential carcinogen with damaging effects to the central nervous system, kidneys, liver, and skin; symptoms include: headache, dizziness, nausea, vomiting, vague feeling of discomfort, jerking of limbs, convulsions, coma, hematuria (blood in urine), and azotemia (blood containing high levels of urea, creatinine and other nitrogen-rich compounds).
- **Dichlorodiphenyltrichloroethane (DDT)**. A combustible, colorless crystals or off-white powder with a slight aromatic odor; considered a potential carcinogen with damaging effects to the eyes, skin, central nervous system, liver, kidneys, and peripheral nervous system; symptoms include: skin and eye irritation, tingling and numbness of tongue, lips and face, tremor, anxiety, dizziness, confusion, vague feeling of discomfort, headache, weakness, exhaustion, convulsions, partial loss or impaired movement of hands, and vomiting.
- **Dieldrin**. A noncombustible, colorless to light-tan crystals with a mild chemical odor; used as an insecticide and is considered a potential carcinogen with damaging effects to the central nervous system, liver, kidneys, and skin; symptoms include: headache, dizziness, nausea, vomiting, vague feeling of discomfort, sweating, jerking of limbs, convulsions, and coma.
- **Endrin**. A noncombustible, colorless to tan, crystalline solid with a mild chemical odor; may dissolve in flammable liquids; used as an insecticide with damaging effects to the central nervous system and liver; symptoms include: epileptic-like convulsions, stupor, headache, dizziness, abdominal discomfort, nausea, vomiting, anorexia, insomnia, aggressiveness, confusion, drowsiness, weakness, and exhaustion.
- **Heptachlor**. A noncombustible, white to light-tan crystals with a camphor-like odor; may dissolve in flammable liquids; used as an insecticide and is considered a potential carcinogen with damaging effects to the central nervous system and liver; symptoms provided for animals only and include: tremor, convulsions, and liver damage.
- **Lindane**. A noncombustible, white to yellow crystalline powder with slight, musty odor; may dissolve in flammable liquids; causes damaging effects to skin, eyes, respiratory system, central nervous system, blood, liver, and kidneys; symptoms include: skin, eye, nose and throat irritation, headache, nausea, convulsions, respiratory difficulty, cyanosis, aplastic anemia, and muscle spasm.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

3.1.4.6 Polychlorinated Biphenyls (PCB)

Polychlorinated biphenyls (PCBs) are a mixture of numerous chlorinated compounds and are commercially sold under the trade name Aroclor® 1242 (contains 42% Cl^-) and Aroclor® 1254 (contains 54% Cl^-). It is a colorless to light-yellow, oily solid or liquid with no known taste or smell and can volatilize to a vapor with a slight increase in temperature. PCBs were used as coolants and lubricants in transformers, capacitors and electrical equipment because they do not burn easily and are good insulators. Production in the U.S. was discontinued in 1977 due to its environmental persistence and damaging health effects. PCBs do not easily break down, bind strongly to soil, accumulate in fish and marine life, and can travel far distances in air.

Workers are likely to be exposed to PCBs through damaged or burning transformers, known/suspected site contamination, or ingestion of contaminated fish. PCBs can also be found in pre-1977 fluorescent light fixtures, electrical devices (TVs and appliances), and hydraulic oils. Worker exposures are likely to occur through inhalation, absorption, ingestion and contact causing damaging effects to the skin, eyes, liver and reproductive system. Symptoms include: eye irritation, chloracne (acne-like skin condition in adults), liver damage, and reproductive effects.

Control Measures: Air monitor site conditions to ensure assigned action limits are not triggered. Immediately report any triggered action limit to the safety department and be prepared to temporarily shut down jobsite to incorporate control measures (i.e., stand upwind of concentrations) or upgrade protective equipment. Wear hand protection when handling contaminated soils/groundwater and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

3.1.5 Other/Unknown Chemicals

3.1.5.1 Activated Carbon

Also referred to as activated charcoal, this material comes in various forms but is most often purchased by PPM in granular form (occasionally purchased in pellet form). Activated carbon is a porous material that is effective in the adsorption of gases/vapors and is commonly used as part of the groundwater treatment process. This material is non-toxic but can be irritating to the skin and eyes. Loose granules can also present a slip hazard and dusts can accumulate when replacing spent carbon with unspent carbon.

Control Measures: Keep granules inside storage bag or carbon vessel and immediately remove spilled granules from the work area to prevent slipping. Wear appropriate protective clothing such as gloves and safety glasses when working with/near this material to prevent skin and eye contact. Keep dust generation to a minimum using a porta vac and be prepared to wear a dust mask or half mask with P-100 HEPA cartridge when dusts cannot otherwise be mitigated.

3.1.5.2 Alconox®/Liquinox®

Alconox® (powder) and Liquinox® (liquid) are detergents used to decontaminate bailers and equipment to prevent cross-contamination of samples. Detergents generally can be skin or eye irritants that can cause itching, pain, redness or burning.

Control Measures: Keep face away from solution when mixing and wear safety glasses with side-shield protection or goggles depending upon the degree of splashing. Wear hand protection when handling this product and wash hands prior to eating, drinking or other forms of hand-to-mouth contact to prevent accidental ingestion and contact irritations of skin/eye.

3.1.5.3 Descaling Agents (Analytix AN-754GH)

Various chemicals may be used to prevent the accumulations of scaling along monitoring well walls. These descalers may vary by office location; however, most of these chemicals exhibit similar characteristics. They are typically acidic in nature and may be extremely corrosive to skin, eyes, and respiratory system.

Control Measures: Keep face away from solution when handling and wear safety glasses with side-shield protection or goggles depending upon the degree of splashing. Use safe precautions when handling material and make every effort to avoid direct contact with this material through the use of protective clothing and equipment such as chemical-resistant gloves, goggles and aprons. Avoid inhaling any fumes that may arise from these chemicals.

3.1.5.4 GoJo® Natural Orange™ Pumice Hand Cleaner

GoJo® Natural Orange™ is a nonhazardous sanitizer used to clean hands, face, and exposed skin from dust, sludge, or other residues that may be encountered through the inspection process. This cleaning agent is not likely to produce adverse effects for most workers; however, some may be sensitive to this substance and reactions can consist of skin and eye irritations that can cause itching, pain, redness or burning.

Control Measures: Keep cleaning agents away from eyes and avoid continued use if you experience adverse skin reactions. If reactions persist after the substance is discontinued and cleaned from the affected area, seek prompt medical attention.

3.1.5.5 Magnaflux Soundclear® Gr. 60

Magnaflux Soundclear® Gr. 60 is an ultrasonic couplant (a bonding gel) that is applied to the transducer of the ultrasonic thickness meter, which when applied to the exterior wall of storage tanks, can establish the thickness of the tank wall.

Control Measures: Keep gel away from eyes and skin, and avoid continued use if you experience adverse eye/skin reactions. If reactions persist after the substance is discontinued and cleaned from the affected area, seek prompt medical attention. Use appropriate sanitation precautions to avoid accidental ingestion. Inhalation is not anticipated; however, respiratory irritations may occur if not handled properly.

3.1.5.6 Unknown Chemicals and/or Concentrations

Workers do not often come into contact with unknown chemicals and/or chemical concentrations. Although rare, workers may potentially encounter unknowns during drum characterizations as requested by a particular client. When the client cannot identify the material(s) inside a drum or other container, this material(s) is to be treated as an extremely hazardous substance using the highest level of safety precautions including, but not limited to, personal protective clothing/equipment. When working with known chemicals at unknown concentrations, the same level of safety precautions must be implemented to preserve worker safety and wellbeing. These situations are considered an immediately dangerous to life and/or health (IDLH) environment.

Control Measures: When this type of work is proposed by a client, it must be presented and approved by Authorizing Principals, Shawn Ivey or Zane Hood. Due to the increase in safety precautions, a site-specific HASP must be generated by the HSD, which may require additional time to prepare. Never open a drum/container that does not belong to PPM if the contents or concentrations are unknown.

3.1.6 Chemical/Physical Properties

The following table outlines the chemical and physical properties associated with the most common volatile or semi-volatile constituents encountered by PPM.

Chemical Name	VP[1]	VD[2]	SG[3]	Sol[4]	FP[5]	LEL[6]	UEL[7]
Diesel	0.009 psia	>1	0.83-0.88	Negligible	125	0.6	7.5
Gasoline	38-300	3-4	0.72-0.76	Insoluble	45	1.4	7.6
Benzene	75	2.8	0.88	<1	12	1.2	7.8
Toluene	21	4	0.87	<1	40	1.1	7.1
Ethylbenzene	7	4	0.87	<1	55	0.8	6.7
Xylene	9	4	0.86	<1	81	1.1	7.0
MTBE	245-256	3.1	0.74	4.8	-17	1.6	8.4
Ozone	>1 atm	1.7	2.14	<1	N/A	N/A	N/A

1 – Vapor Pressure (mmHg) – the higher the VP, the more likely it is to change from a liquid to a vapor with an increase in temperature.
2 – Vapor Density – how heavy the material is in air; anything >1 will sink into worker breathing zone; anything <1 will rise.
3 – Specific Gravity – how heavy the material is in water; anything >1 will sink in water; anything <1 will float on water.
4 – Solubility (%) – how likely the material is to be dissolved in water.
5 – Flash Point (°F) – lowest temp that material vapors will ignite/burn.
6 – Lower Explosive Limit (%) – lowest concentration in which vapors will ignite.
7 – Upper Explosive Limit (%) – highest concentration in which vapors will ignite.

3.2 PHYSICAL HAZARDS AND CONTROLS

3.2.1 Combustion/Flammability

The three elements needed to produce a fire are: combustible material, oxygen, and ignition source (heat). As part of most projects, the presence of gasoline (flammable contaminant) within an outdoor environment (sufficient oxygen content) when combined with the use of heavy equipment (electrical source) provides all three elements necessary to produce a flammable setting. Fires can also be the result of overloading circuitry and improper chemical storage.

Control Measures: Monitor ambient site concentrations to ensure flammable action limits are not triggered. Oxidizers are capable of releasing oxygen and generating heat so store them away from combustible materials. Do not overload power outlets. Remove foot heaters or other electrical devices if they trip ground fault circuit interrupters (GFCI) or produce burnt smell and/or smoke. Use ABC-rated fire extinguisher to extinguish fire or follow company evacuation procedures when warranted.

3.2.2 Compressed Gas

Compressed gases such as acetylene and oxygen may be used to operate cutting torches. Cylinders can become projectiles if they are not secured and/or stored properly. Improper handling of cylinders can also result in muscular sprains/strains, falls, bruising, or broken bones. Other hazards may include chemical burns, explosion fire, poisoning, and cold burns due to container mishandling. In addition, utility gas lines are often buried onsite nearby areas where drilling, trenching or other similar surface disturbances are likely to occur. Contact with a subsurface gas line could result in an explosion, fire, and other significant physical bodily injury.

Control Measures: Only qualified workers appropriately trained in compressed gas safety are permitted to work with compressed gases. Keep compressed gas cylinders upright and secured when in storage, transit or use. The valve protection cap must remain in place when not in use and during storage and should only be removed when the cylinder is secured and/or ready for use. Never drag or slide a compressed gas cylinder, drop a cylinder, or subject cylinders to strikes from other objects as this may cause damage to the valves. Store in a climate-controlled environment away from heat sources, heavily traveled paths, and emergency exits and store

other combustible materials in a separate location away from compressed gas cylinders. Smoking is prohibited near compressed gases. Keep empty and full cylinders segregated and replace empty cylinders promptly. Restrict unauthorized access to compressed gases and visually inspect containers weekly.

3.2.3 Concrete Coring and Cutting

The use of jackhammers and coring equipment is necessary to cut through concrete when conducting subsurface work. The use of this equipment is extremely loud, creates dusty environments and can create projectiles out of broken pieces of concrete.

Control Measures: Wet affected areas of concrete to reduce amount of dust generated; however, avoid creating large puddles of water as some equipment being used is corded and can create electrical hazards. If dust continues to be a problem, workers must wear air-purifying respirator with P-100 HEPA filter. Use vacuum-based core drills or secure the base of the core drill to concrete when working on uneven surfaces. Know where the manual shut-off switch is located and if not within reaching distance of worker, someone must be present at electrical outlet to unplug equipment should it be necessary. Operator and any worker required to be within 10 feet of coring/cutting process must wear face shield over safety glasses with side-shield protection to protect against flying particles.

3.2.4 Contaminated Water/Splash Hazards

Beware of splash hazards posed by purging and/or development of groundwater monitoring wells. Chemical splash hazards may also be encountered during drum sampling of known contaminants. Contaminants are likely to vary; therefore, the chemical hazards section of this plan should be referenced to address the hazards posed by the contaminant.

Control Measures: Workers must wear safety glasses with side-shield protection. Goggles may be necessary depending upon the degree of splashing. Goggles are required when moving containers of or working with severe eye irritants, acids or caustics.

3.2.5 Cuts and Lacerations

Acetate liners used for soil collections must be cut to collect the sample. Also, tubing materials used when groundwater sampling or used for air monitoring must be cut in various lengths. Shears or tube cutters are alternatives to using knives or other blades; however, there may be instances in which the use of knives or blades cannot be avoided.

Control Measures: Always use sharpened blades as dull blades can require more applied force. Wear leather or Kevlar® gloves to protect hands. Secure the object being cut keeping free hand out of the way and always cut away from the body. If cut must be made towards the body, cut the object at an angle away from the body. Utility knives must have a self-retracting blade and should not be stored in pockets of clothing.

When collecting soil samples, workers should rely upon the subcontractor to cut the sample liners whenever possible. When workers must cut the liners, the following specific instructions are required:

- Secure the liner to a stable structure (i.e., the truck tailgate or portable table).

- Use the proper cutting tool for the job (see photo); subcontractors often have this tool.
- Cut the liner perpendicular to the body – avoid cutting towards the body.

3.2.6 Driving Safety

Most company-related field activities occur offsite and require personnel to drive from the office to the jobsite. Collision with another vehicle or into a structure can result in property damage, worker injury or even a fatality.

Control Measures: Drivers must have valid state license to drive and must be classified appropriate to the type of vehicle he/she will be required to operate (i.e., vehicles with gross vehicle weight rating [GVWR] >10,000 lbs or any vehicle/trailer combination GVWR >10,000 lbs requires a commercial driver's license). Additional safety precautions for driver safety include, but are not limited to, the following:

- Obey all federal and state traffic laws (i.e., speed limits, yielding, etc.)
- Plan route to site in advance to avoid traffic congestion, construction, road closures, inclement weather or other similar forms of delay
- Perform pre-use inspection to ensure vehicle is fueled and in good working order
- Ensure all materials are secured
- Avoid distractions such as changing radio stations, reading texts or emails, eating, drinking, or other similar functions
- Pull over to take or make a phone call even when using hands-free devices
- Texting while driving is strictly prohibited by PPM and is a law in several states
- Drive defensively - yield to aggressive drivers, slow down when driving through adverse weather conditions or when driving through school zones

3.2.7 Drowning

Water bodies where the potential for drowning exists includes: oceans, rivers, lakes, seas, gulfs, bays, ponds, wetlands, bayous, streams or other similar water sources. Work over or near these types of water bodies is rarely encountered, and routine company job tasks do not usually result in the use of a boat. However, when they arise, jobs of this nature do pose a risk of drowning. When sample collections are anticipated to occur from within a boat, this will likely take place in various locations of the water body with varying or unknown depths, currents, floating and subsurface debris, and/or other similar hazards.

Control Measures: Tasks requiring work over or near water where the potential for drowning could occur requires a minimum of two workers. Use a boat with a flat, stable surface to reduce the potential for rollover. In addition, workers must wear a U.S. Coast Guard-approved life preserver at all times when inside the boat or when otherwise performing a task where the potential for drowning still exists. Once over water, movement within the boat should be minimized, and workers must use caution when collecting the sample. Workers must be equipped with buoys or other similar means to extract any individual that should fall into the water.

3.2.8 Electrical

3.2.8.1 Subsurface and Overhead Utilities

Typical jobsites will pose both subsurface and overhead utility hazards. Also, remediation systems are electrically operated and pose similar electrical hazards. Contact with power lines or exposed electrical wires can result in electric shock, severe skin burns and electrocution. Electrical wires are generally insulated as a first line of defense; however, tears or damage to the insulated material can directly expose workers to the wire. Other utility lines may be present at common jobsites and include water, sewer, natural gas, telephone and fiber optic. A punctured

natural gas line can spontaneously combust and cause a massive explosion. In addition, active retail gas stations contain subsurface product lines running from the tank pit to the dispenser islands and the layout of these lines can often be difficult to determine. Damage to some utilities may not necessarily pose a safety risk but damage to these structures can disrupt normal business functions and be very costly.

Control Measures: Treat all electrical lines and wires as active and avoid contact. Keep all equipment at least 10 feet away from all overhead power lines unless they have been isolated or shielded by the local energy company. Add an additional 0.4 inches to this distance for every 1 kV in excess of 50 kV. Follow all clearance procedures outlined within the company's written Subsurface Clearance program, which includes but is not limited to the following measures:

Pre-Work Clearance (Offsite and Onsite Preparations)

- Request as-built drawings and/or obtain specialized knowledge of subsurface utility/structural locations from the client or property owner.
- Pre-plan borehole locations and visually review with client or property owner.
- Contact state one-call 48-72 hours (state-specific time requirements vary) to mark utility locations prior to field work; make secondary notices if site not marked.
- Contact additional local utility providers that do not subscribe to one-call to mark utility locations prior to field work; make secondary notices if site not marked.
- Hire private utility locators to identify presence of subsurface structures in addition to or in the absence of other clearance methods.
- Perform visual site observations for indicators of subsurface utilities/structures.
- Locate all emergency shut-off devices and isolate the work area.
- Identify and avoid critical zones (*any area within 10 feet of UST system)* or obtain principal approval when there are no other alternatives to avoidance.
- Follow clearance procedures for critical and non-critical zones.

Subsurface Clearance Procedures

- Clear all boreholes horizontally to 110% of the diameter of the widest digging instrument intended for use starting in all four cardinal directions (NSEW) then fully covering the entire circumference of the area.
- Clear all boreholes vertically to minimum 4-foot depth BGS unless greater depths are specified by the Office Manager/Principal.
- Use company-approved clearance methods (for drilling/probing) in order of preference outlined as follows:
  1) Blunt-tip push probe
  2) Tiered approach – use push probe for vertical clearance, then use digging tools (i.e., hand auger or post-hole diggers) to clear horizontally to same depth previously cleared vertically; then use push probe to further advance vertically; continue until depth-requirement is achieved
  3) Hand auger and/or post-hole digger – used only when push probe cannot otherwise be advanced vertically due to soil type(s)
- Use flat-edge shovel to clear for trenches/excavations when in areas of marked or suspected subsurface utilities/structures; clear area until utility/structure is located; if not located within depth-requirement, proceed with trenching/excavating.

3.2.8.2 Electrical Tools and Power Cords

Assorted power tools may be required for certain tasks. Power tools can be battery operated or otherwise have an electrical power cord, which can be plugged into an electrical outlet. Due to this factor, energy can be controlled by plugging or unplugging the cord and does not require energy isolation. The electrical wires are typically insulated; however, kinks or cuts made to the

power cord jacket can expose workers to these electrical wires resulting in electric shock or electrocution.

Control Measures: Perform an initial inspection to ensure tools and cords are in good working order and immediately discard or label damaged tools/cords to prevent use until repairs or replacements can be made. Additional safety precautions for electrical protection include, but are not limited to, the following:

- Only use electrical outlets and matching cords with grounding wire (3-prong).
- Never remove grounding prong to accommodate a 2-prong electrical outlet.
- Electrical cords should be rated for hard or extra hard use.
- Insulated jackets should show no evidence of kinks, cuts or tears; any sign of wear (frayed insulation or exposed wires) requires immediate labeling of the cord as "damaged" and must be immediately removed from the work area.
- Avoid placing electrical cords or tools in pools of water or other wet areas.
- All portable or temporary wiring must be protected by GFCI.
- Avoid using tools or cords that trip the GFCI.
- Do not run over cords or place them through doors, windows or other pinch points.

3.2.8.3 Lockout/Tagout

Remediation systems are electrically-operated systems that may require energy isolation as part of operation, maintenance or repairs. According to 29 CFR 1910.147(a)(2)(ii), energy must be isolated when 1) a worker must remove or by-pass safety guards or devices; or 2) a worker must place a body part at the point of operation or where a danger zone exists in the operating cycle. These requirements do not apply to corded equipment as this power source can be isolated by unplugging the equipment. It also does not apply to other pressurized systems for gas or steam if it can be proven that continuity of service is essential or that shut down of the system is impractical.

Routine operations and maintenance procedures typically do not trigger the requirements for energy isolation. However, it should be noted that during certain system or component repairs, these criteria may be triggered and the locking and tagging of the system and/or its components is necessary to prevent the unintentional startup of the system.

Control Measures: Locking and tagging of the system must be conducted in accordance with company requirements outlined within its written Lockout/Tagout program. An itemized procedure list for system deactivation and reactivation are posted at all remediation systems.

3.2.9 Hand and Power Tools

The electrical hazards posed by the use of power tools have previously been addressed. However, other hazards are posed by the use of hand or power tools. Removing or by-passing safety guards can expose a worker to the piercing, cutting, crushing or rotating hazards of mechanical equipment. Improper posture or repetition of hand tools can lead to musculoskeletal disorders as outlined within the previous section.

Control Measures: Use equipment in accordance with manufacturer guidelines and according to its intended purpose. Always select the appropriate tool for the job and refrain from making adjustments. Never remove or bypass safety guards. Perform an initial inspection to ensure tools are in good working order and immediately discard or label damaged tools to prevent use until repairs or replacements can be made. Keep tools stored appropriately to prevent rust or other signs of weathering. Wear appropriate head, eye, hand, and foot protection at all times. Avoid wearing jewelry or loose-fitting protective gloves/clothing that could become entangled in moving parts of the tool.

3.2.10 Illumination

Most company-related tasks will be conducted during normal, daylight hours; however, some tasks may be required to be conducted at night. When these instances occur, visibility will be decreased making the jobsite and the task more dangerous. In addition, the overall visibility of workers to drivers, equipment operators, etc. may be decreased.

Control Measures: The National Cooperative Highway Research Program (NCHRP) Report 498: Illumination Guidelines for Nighttime Highway Work outlines a set of guidelines for adequate lighting when working at night. Workers should adhere to these requirements to ensure appropriate visibility during all phases of the project. The three categories outlined by the NCHRP include the following:

- Level I illuminance is necessary in areas where the work crew is in motion, moving from spot to spot. Required for low accuracy tasks that may involve the use of slow-moving equipment, and where large objects must be visible.
- Level II illuminance is necessary in areas on or around construction equipment. A higher degree of lighting in this area will provide a safer environment for equipment operators allowing them to perform tasks that require a moderate level of accuracy.
- Level III illuminance is necessary for tasks that require a higher level of visual acuity or difficulty.

Sample tasks and the illumination requirements for those tasks are outlined below:

Sample Tasks (Not All-Inclusive)	Illumination Levels	Average Minimum Maintained Illuminance
All work operation areas; setup of lane or road closures, lane closure tapes, and flagging stations	Level I	54 lux (5 foot-candles)
Areas on or around construction equipment; asphalt paving, milling and concrete placement and/or removal	Level II	108 lux (10 foot-candles)
Pavement or structural crack/ pothole filling; joint repair, pavement patching/repairs; installation of signal/electrical/ mechanical equipment	Level III	215 lux (20 foot-candles)

Note: A foot-candle (fc) is defined as a unit of illumination that is equal to one lumen per square foot, or 10.764 lux.

Increased lighting can be provided using portable light plant towers, balloon lighting, roadway luminaires mounted on temporary poles, and factory-installed lights on equipment. Workers should select a light source and position it in a manner that reduces the amount of glare. When conducting night tasks on or near road system right-of-ways, workers must additionally adhere to appropriate state DOT roadway and traffic control requirements. Reflective clothing/vests are required when working at night or decreased illumination.

3.2.11 Ladder Safety

3.2.11.1 Portable Ladder Safety

Portable ladders are commonly used when replacing spent carbon with inactivated granular carbon or to access stationary aboveground storage tanks for inspections and/or maintenance. Carbon vessels consist of 55-gallon drums or other vessels that commonly range from 8-30 feet in height. It should be noted that carbon vessels can exceed 30 feet but these vessels are not common to current company processes. As part of this change-out process, workers must climb

portable ladders at heights greater than 4 feet and they must do so carrying 50-lb sacks of granular carbon or other materials.

Control Measures: Falls from ladder use are exempted from the fall protection standards (29 CFR 1926.500-503). Instead falls from ladders are outlined within 29 CFR 1910.23, which does not require the use of personal fall arrest system when working at elevations in excess of 4 feet (general industry). Use buddy system when able or check in periodically with the office to relay status. Use a portable A-frame ladder and ensure that it is locked in place. Place ladder on level, compact ground surfaces and avoid wet areas. Never place ladder near entrance/exit or other pathway that could interfere with ladder usage. Use ladder for its intended purpose and in accordance with manufacturer's guidelines. Use two hands when ascending or descending.

3.2.11.2 Fixed Ladder Safety

Fixed ladders may be used at client facilities to access rooftops or other similar elevated walking/working surface. This is often necessary with asbestos and/or lead sample collections, vacuum events, aboveground tank inspections and industrial compliance.

Control Measures: Falls from ladder use are exempted from the fall protection standards (29 CFR 1926.500-503). Instead falls from ladders are outlined within 29 CFR 1910.23, which does not require the use of personal fall arrest system when working at elevations in excess of 4 feet (general industry). According to OSHA requirements, fixed ladders must have cages, wells, ladder safety devices, or self-retracting lifelines when the climb is less than 24 feet but the top of the ladder is greater than 24 feet above lower levels. When a fixed ladder is greater than 24 feet, it must be equipped with one of the following: ladder safety devices or self-retracting lifelines with rest platforms at intervals not to exceed 150 feet. When able and it does not otherwise introduce additional safety hazards, personnel may be required to use personal fall arrest system. This will be determined on a case-by-case basis.

3.2.12 Material Handling and Back Safety

It is common for workers to transport materials such as hand or power tools, bailers, sampling containers and monitoring equipment from the office to various site locations. Workers are also likely to relocate drums or other chemical storage containers. Materials may be heavy putting strain on the back, or they may be large or bulky and obstruct vision during transport.

Control Measures: When lifting or relocating heavy or large items, mechanical devices should be used as a first line of defense. When mechanical means are not available, workers should use the buddy system to lift and transport loads in excess of 50 lbs or load that obstruct view of travel. When lifting an object, workers should bend at the knees and lift with the legs – avoid applied pressure to the back as muscle strain will likely occur. Keep loads close to the body and avoid twisting while carrying loads. Ensure travel paths are free of obstructions prior to lift and relocating materials.

3.2.13 Mobile Equipment

3.2.13.1 Heavy Equipment and Machinery

Various types of heavy equipment are necessary to perform routine tasks such as drilling, geoprobing (direct push), mobile vacuum, trenching, excavating, remediation system installations and removals, underground storage tank removals, and other similar tasks. The use of this type of equipment is mostly subcontracted, and PPM requires its subcontractors be adequately trained to safely operate these types of heavy machinery. Other forms of heavy equipment such as forklifts, skid steers, and core drills can be operated by company personnel. PPM requires that operators of these types of equipment be deemed competent by the company through safety, instructional and observational training and/or operator experience. Also,

equipment must be inspected by a competent prior to use, documented and returned to the safety department for recordkeeping. Hazards associated with the use of heavy equipment include, but are not limited to, the following:

- Pinching, rolling, crushing, rotating hazards from equipment, hoses and connections
- Contact with overhead or underground utilities gas lines, power lines, etc.)
- Falling loads
- Hydraulic or pressurized equipment parts
- Swing radius of equipment
- Operator blind spots
- Hot equipment parts

Control Measures: Use equipment in accordance with its intended purpose. Machinery must be grounded prior to use and equipped with emergency stop devices. Workers must locate and test these devices prior to using the equipment. When the equipment is in use, one worker must be readily available to engage emergency stop devices unless other workers remain away from the equipment while in operation. Equipment must remain at least 10 feet away from any overhead utility line unless the line has been otherwise isolated or shielded from accidental contact. Derricks/masts of mobile equipment must be lowered prior to relocating equipment from one location to another while onsite. Personnel who work with or near rotating or other moving parts are prohibited from wearing jewelry, loose clothing or other similar means that could become entangled within the equipment. Long hair should be tied back and protective clothing should fit securely. Workers should not collect samples or otherwise place hands in or near augers when it is rotating, and workers must also avoid climbing mast of equipment when it is in operation. Wheels should be chocked and hand brakes set to secure equipment when at rest.

Contact with hot parts must be avoided and it should be noted that metal parts become extremely hot with sun exposure, which can cause significant skin burns. Workers are prohibited from working beneath elevated loads and must avoid any area impacted by the swing radius of operating equipment unless a spotter is used. Additionally, workers must be aware of operator blind spots which may also require the use of a spotter.

3.2.13.2 Aerial and Scissor Lifts

Use of aerial and/or scissor lifts is a rare occurrence. Workers anticipated to use such equipment will require additional training beyond what is provided through policy/procedural safety orientation(s) and annual refresher. Aerial and scissor lifts are not synonymous and are covered under two separate OSHA regulations. Regulatory requirements for aerial lifts can be found in §1926.453, while requirements for scissor lifts (defined by OSHA as a mobile scaffolding system) can be found in §1926.452(w). This equipment can reach elevations in excess of 4 feet triggering fall protection. It should be noted that per OSHA guidelines, aerial lifts require the use of personal fall arrest systems in conjunction with the use of a guardrail system, while scissor lifts require the use of personal fall arrest systems only in the absence of a guardrail system.

Control Measures: Use of aerial and scissor lifts is strictly prohibited unless approved in advance by the safety department. Additional regulatory training and competency assessment(s) will be required in making this determination.

3.2.14 Noise

OSHA regulates worker exposures to noise. The established action limit for an 8-hour workday is 85 decibels (dB), a time-weighted average (TWA). Levels at or in excess of this limit can cause hearing loss, which depending upon exposure can be a temporary or permanent loss. Noisy

environments can also interfere with worker communication and comprehension, which poses additional safety risks.

Noise exposures can be measured using sound level meters or noise dosimeters. Certain work-related processes considered to be noisy include but are not limited to the following:

- Remediation systems – systems vary, but noise levels have been measured ≥90 dB
- Heavy equipment operation (including vac trucks) – have been measured ≥120 dB
- Use of power tools – sound levels vary (electric drill – 95 dB, power saw 110 dB, power drill – 130 dB, pneumatic drill – 120 dB)
- Work conducted nearby high traffic roadways – typical freeway traffic is 70 dB; however, large 18-wheelers have been measured ≥90 dB
- Coring and cutting of concrete – use of jackhammers or coring equipment have been measured ≥130 dB

Control Measures: Download NIOSH Sound Level Meter or similar app on any smart phone to assess noise levels. Sound level meters may also be used to assess noise levels. Document noise levels using PPM's Occupational Noise Monitoring Report and return to the HSD upon completion of the project. In the absence of monitoring equipment, workers who must shout at a co-worker 5 feet away are likely triggering regulatory threshold limits for noise exposures. Those environments ≥85 dB require the use of administrative controls or protective equipment. Administrative measures such as limiting work hours within noisy environments should be the first line of defense used to control worker exposures to noise levels in excess of 85 dB. When this cannot be achieved use hearing protectors such as earplugs, canal caps or ear muffs to protect worker hearing.

3.2.15 Repetitive Motion

Some tasks require a degree of repetition that may put strain on muscles and joints of the body. Poor posture can also put a similar degree of strain on the body. Typical symptoms of repetitive motion strain do not necessarily occur immediately (i.e., they can appear at rest during sleep) and include but are not limited to the following:

- Tingling, swelling or numbness of wrists, knees, elbow or other joints
- Sharp, piercing pain
- Loss of flexibility or muscle strength

Control Measures: Avoid performing repetitive tasks that target specific parts of the body for extended periods of time. Recognize symptoms promptly and vary job task for a while. Stretching and flexibility exercises can strengthen muscles over time. Report any signs or symptoms of repetitive motion strain to the HSD immediately. These injuries progressively worsen so prevention is imperative.

3.2.16 Scaffolding

Use of scaffolding systems, which includes walking, working, assembling, disassembling, and/or other similar uses, is a rare occurrence. Workers anticipated to work on or near scaffolding systems will require additional training beyond what is provided through policy/procedural safety orientation(s) and annual refresher. Scaffolding systems will most commonly be encountered at a client facility and should be avoided.

Control Measures: Use of scaffolding systems is strictly prohibited. Work requiring the use of a scaffolding system will be subcontracted to appropriately qualified contractors.

3.2.17 Slips, Trips, and Falls

Open boreholes generated through drilling or direct push as well as improper materials storage can pose tripping hazards. In addition, typical groundwater monitoring activities can result in open monitoring wells producing the same results. Trenching and excavating jobs can result in large, open earth depressions of varied depths and widths in which workers, tools or equipment could potentially fall. Activated carbon replacements, asbestos/lead sampling, aboveground storage tank inspections and/or maintenance, and use of catwalks may require work at elevations ≥4 feet, which may require additional safety measures such as the use of fall protective equipment (i.e. full-body harness and lanyard). *Note: Only personnel who have received additional fall protection training are considered competent for performing these tasks – all other workers are prohibited from working at elevations ≥4 feet without additional training and certification.*

Areas surrounding tank systems are likely to contain aboveground piping, pumps, loading platforms, retaining walls/berms, and other similar features which may require the worker to walk on and/or over in order to gain access to certain areas of the tank for inspection. Walking on or around surfaces associated with drainage structures (i.e., sumps, canal ditches, etc.) may also create slip, trip and fall hazards.

Control Measures: Store all materials away from work areas until ready for use and keep all travel paths unobstructed. Walk around materials – never walk over them. Use secured, steel sheet plates or wood to cover open boreholes. Use company truck and cones to isolate traffic from open monitoring wells. Heavy equipment, barricades and caution tape must be used to isolate open excavations from vehicular traffic and unauthorized personnel. Use full-body harness and lanyard to tie-off to stable structure when working on walking/working surfaces at elevations ≥4 feet (refer to Section 3.2.19). Refer to Section 3.2.11 for fall hazards associated with the use of ladders.

3.2.18 Traffic and Secluded Areas

Most petroleum remediation activities occur at active retail gasoline facilities, which expose workers to vehicular traffic. In some cases, work may be required within roadway right-of-ways or workers may be required to cross highways to perform work on an adjoining property or within a median. Secluded areas are not typical of most field-related projects; however, they do exist on occasion. Workers required to perform tasks at remote locations should be aware that these locations may be unlawfully inhabited and/or have the potential for illegal activities.

Control Measures: Use buddy system when working in high traffic areas as first line of defense, especially on spill bucket closures, groundwater sampling, or other similar tasks that require workers to bend, kneel or sit at or slightly above ground level which greatly decreases worker visibility. When these conditions are triggered, the buddy system will require one worker to stand nearby the other worker to create a unit whereby the observer has the primary responsibility of ensuring the safety of the worker with decreased visibility. When working upright, the buddy system will permit workers to separate only to distances that are clearly visible to both workers in a manner that ensures both can continuously monitor the other during all phases of the task. For example, during the sample collection, workers must fill vials or other containers at the vehicle so that they remain in an upright position during collection. Collections at the well are prohibited unless workers are together as a unit because when workers are separated, this process generally requires the worker to bend or kneel, which decreases the visibility of that individual. In addition, the worker is no longer in a position to observe his/her co-worker voiding the effectiveness of the buddy system. If operating as a unit, one worker may observe while the other collects the sample at the well.

When the buddy system cannot be implemented, use the company vehicle and cones to clearly define and block traffic from your work area. Relocate vehicle and cones when work area changes. Workers must wear high visibility safety shirts or ANSI Class II vests to increase visibility even when using additional safety precautions. Reflective clothing/vests are required when working at night or decreased illumination. Additional illumination requirements for night work can be found in Section 3.2.10. When conducting night tasks on or near road system right-of-ways, workers must additionally adhere to appropriate state DOT roadway and traffic control requirements. When working in secluded or unsafe areas, the following measures are required:

- Schedule work during daylight hours.
- Contact local police department and inquire about security.
- Never go to site alone; use buddy system.
- Notify manager or co-worker regarding your location, estimated time to perform duties and anticipated time of return; make intermittent calls throughout the day.
- Have cell phone readily available and pre-set to 911.
- Carry whistle and pepper spray as alternate methods of defense.
- Wear work clothes and protective equipment to identify you are there in a professional capacity.
- Park vehicle nearby and never exit the vehicle if anyone or anything appears suspicious.

Note: The use of the buddy system as outlined above applies to traffic hazards only and should not be incorporated universally without additional discussion and management approval. For instance, the use of the buddy system as required when conducting emergency response is clearly specified by OSHA §1910.120 in a manner that opposes the previously outlined requirements. In the absence of regulatory direction, PPM will adhere to this definition of the buddy system.

3.2.19 Walking/Working Surfaces

3.2.19.1 Elevated Walking/Working Surfaces

Activated carbon replacements, asbestos/lead sampling, and aboveground storage tank inspections and/or maintenance may require work at elevations ≥4 feet. In addition, use of catwalks may exist at heights ≥4 feet. According to §1910.21, a catwalk is considered a runway which is defined as a passageway for persons, elevated above the surrounding floor or ground level, such as a footwalk along shafting or a walkway between buildings. When working on multilevel surfaces, any floor deteriorations or openings must be obstructed to prevent inadvertent falls from an elevated surface. Also, when working on multilevel structures, such as the roof of a tank, openings within the walking/working surface can cause collapse and/or extreme falls. Working at elevated heights can create fall hazards that can result in a fatality or serious physical impairment. Due to these risks, tasks such as these may require additional safety measures such as the use of fall protective equipment (i.e. full-body harness and lanyard). Falling objects from a catwalk to a lower level is another hazard commonly associated with elevated walking/working surfaces. *Note: Only personnel who have received additional fall protection training are considered competent for performing these tasks - all other workers are prohibited from working at elevations ≥4 feet without additional training and certification.*

Control Measures: Walking/working surfaces located greater than 4 feet (general industry) above ground surface requires fall protection in the form of a guardrail system to protect against inadvertent falls from elevated heights. Use barriers to isolate floor openings to prevent inadvertent trips and/or falls through such openings. Holes and openings must always be covered when not otherwise needed to perform a task. To protect workers from falling objects, runways must include toeboards, screens, guardrail system, debris nets, catch platforms, canopy structures, or barricades. Workers on lower levels must also wear hard hats at all times. Runways should consist of a nonskid surface material or grating, handrail supports for 200 pounds of force,

and means of egress that is permanent and stationary (ex. fixed ladders or stairs). Workers should wear laced footwear with rubber soles to give better foot and ankle support and to reduce the likelihood of slips.

3.2.19.2 Uneven Walking/Working Surfaces

Uneven walking and/or working surfaces are not uncommon. Sites with minimal grounds-keeping can disguise potholes, which could result in trips/falls or foot injuries. Dense vegetation can also disguise dips and potholes. Using limbs, branches, or other similar debris to cross over streams creates an unstable ground surface that can become structurally unsafe after repeated use. Aboveground storage tank lids may be domed and unlevel posing additional hazards in the inspection process.

Control Measures: When work is to be performed at an inactive facility, bring weed eaters and sprayer to address overgrown vegetation. When grounds keeping is the responsibility of the client, the Project Manager should call in advance and request site maintenance be performed prior to PPM's arrival onsite. Workers should also wear laced, steel-toed boots which gives better ankle support than slip-on safety footwear. When working in highly vegetative areas that must be accessed, workers should use mechanical equipment to clear cut access paths or use other hand tools. Avoid walking over vegetation or other debris that may become unstable after repeated use.

3.2.19.3 Unstable Soils and Cave-Ins

Soil is an extremely heavy material, and may weigh more than 100 pounds per cubic foot. A cubic yard of soil may weigh more than 2,700 pounds. That is nearly one and a half tons, the equivalent weight of a car. Furthermore, wet soil or rocky soil is usually heavier. The human body cannot support such heavy loads without being injured. The primary hazard associated with a trench or excavation is a cave-in. Common excavations consist of an average depth of 10-15 feet, and when soils cave-in on or around a worker, it will generally result in death.

Control Measures: Any trench or excavation ≥4 feet in depth must have the following protective measures implemented:

- Perform visual inspections prior to start of work daily and conduct additional inspections warranted by changes in site conditions.
- Provide onsite competent person with the knowledge and authority to correct any noted hazards derived from daily visual inspections.
- Keep all tools, materials, equipment and workers at least 2 feet away from edge of trench/excavation.
- Ladder or other means of egress in accordance with 29 CFR 1926.651(c)(2) must be provided by the subcontractor and be present onsite at all times – PPM requires a ladder be present onsite under these conditions regardless of whether a worker enters the trench/excavation.
- When controls are used and workers are required to enter a trench/excavation, ladders must be placed so that workers are not required to travel lateral distances greater than 25 feet.

OSHA requires that any trench/excavation with a depth ≥4 feet use engineering controls to prevent cave-ins. In addition, OSHA also requires that any trench/excavation with a depth ≥20 feet use a qualified engineer to determine the appropriate engineering control. *Note: Under no circumstances must any individual enter a trench/excavation with a depth of 4 feet or greater without the use of engineering controls. In addition, no equipment requiring an individual to be placed on or inside the equipment during its operation is permitted inside the trenched/excavated area. Soil packing and obtaining samples must be conducted through alternative methods.*

3.2.20 Weather

3.2.20.1 Heat Stress

Heat is a common concern for states in the southern U.S. and the use of personal protective clothing only adds to this stress. Heat stress can occur in as little as 15 minutes. Symptoms are generally progressive but some exceptions do apply. Some symptoms of heat stress may not arise, may go unnoticed or may occur simultaneously depending on the degree of progression and the awareness level of the worker. The following symptoms are associated with heat stress:

- Heat rash – skin rash caused by plugged sweat ducts due to perspiration
- Fainting – blood is not circulated properly to the brain and typically results from extended periods of standing in conjunction with immobility
- Dehydration – extreme water loss; workers will experience thirst
- Heat cramps – leg or stomach muscle cramps due to loss of sodium and potassium through perspiration
- Heat exhaustion – profuse sweating and clammy skin
- Heat stroke – core body temperature rises to life-threatening condition (104°F)

Control Measures: Heat stress can occur very rapidly; therefore, workers must be alert to the signs and symptoms and should be additionally aware of sluggishness or behavioral changes in their co-workers. Workers should be acclimated to their environment and breaks should be taken as necessary to replenish fluids and cool down core body temperature. Alternate workers as necessary to keep work going. Remove excess protective clothing and break in a shaded, cool area. Any worker exhibiting symptoms of heat stress will be prohibited from performing additional duties for the remainder of the day.

3.2.20.2 Cold Stress

The degree of coldness depends upon temperature, wind and wetness. When exposed to colder climates, the body loses heat faster than it can be generated. Prolonged exposures can rapidly use up the body's stored energy resulting in the following:

- Trench foot – injury to feet when immersed in water for prolonged periods resulting in reddening of skin, numbness, leg cramps, swelling, tingling pain, blisters or ulcers, bleeding under skin, and gangrene
- Chilblain – damage to capillary blood vessels in skin resulting in redness and itching mostly on cheeks, ears, fingers and toes; possible blistering, inflammation and ulceration in extreme cases
- Frostbite – injury caused by freezing of the skin, reduced blood flow to hands/feet, numbness, tingling or stinging, aching, bluish or pale, waxy skin which may lead to amputation
- Hypothermia – body loses heat faster than it can generate it resulting in (early symptoms) shivering, fatigue, loss of coordination, confusion and disorientation; (late symptoms) no shivering, blue skin, dilated pupils, slowed pulse and breathing and loss of consciousness

Control Measures: Workers should be acclimated to their environment, wear multiple layers of clothing, remove wet or damp clothing promptly and breaks should be taken as necessary to drink warm fluids and warm core body temperature. Alternate workers as necessary to keep work going. Any worker exhibiting symptoms of cold stress will be prohibited from performing additional duties for the remainder of the day.

3.2.20.3 Adverse Weather Conditions

Adverse weather conditions can include heavy rainfall, thunderstorm, lightning, hail, snow, tornado watch/warning, tropical storm or hurricane advisory to name a few. These types of weather conditions interfere with travel and field work. Workers who attempt to drive under these conditions put themselves at risk.

Control Measures: Follow local weather advisories and postpone work as necessary. Weather conditions can change rapidly while onsite. Carry NOAA weather radios when in the field to monitor changes in weather. Be prepared to use stop-work authority as necessary to address changes in weather. Plan your escape route in advance and be prepared to move to higher ground and/or evacuate. Never drive through flooded roads.

3.3 BIOLOGICAL HAZARDS AND CONTROLS

3.3.1 Insects and Mosquitoes

Insects and mosquitoes are prominent in just about any work location. Large ant beds as well as other insect nests such as hornets, wasps, yellow jackets and bees can be found as early as spring. They can reside in trees, high vegetative areas, holes within the ground or within piles of trash and debris.

Mosquitoes can carry infectious diseases such as West Nile virus and Zika virus, which can cause long-term debilitating illnesses, birth defects, or fatality. They are most active at dusk or dawn. Symptoms vary and can appear between 3-14 days after a bite.

- West Nile: (mild symptoms) – fever, headache, body aches, nausea, vomiting, and swollen lymph glands or skin rash on chest, stomach and back; symptoms may last for several days to a few weeks; occurs in up to 20% of people infected; (severe symptoms) – high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis; symptoms may last for several weeks and neurological symptoms may be permanent; occurs in 1 out of 250 people infected.
- Zika: mild fever, skin rashes, muscle and joint pain, and conjunctivitis (pink eye) that usually last between 2-7 days; can cause severe birth defects in offspring of pregnant women.

Control Measures: PPM contracts a professional spraying company to spray for insect nests; however, workers should carry pest-control materials as necessary and keep extra cans of wasp, hornet, bee and ant spray as a secondary precaution. Workers required to carry allergy treatments such as an epinephrine injection (epipen) must keep this nearby at all times, and co-workers must know the location of this treatment should it be needed. To prevent mosquito bites, use insect repellant containing DEET, wear long-sleeved shirts and long pants and remove any standing water from buckets or barrels where mosquitoes can lay their eggs.

3.3.2 Ticks and Spiders

Spiders can be found in highly vegetative areas, in and around remediation systems and in other similar areas. Black widow spiders are commonly found inside well vaults, beneath a system in dark crevices and other similar dark spaces.


Black Widow


Brown Widow


Brown Recluse

Ticks can be encountered in highly vegetative areas with limited grounds keeping. Ticks are external parasites and there are more than 800 different species. Deer ticks carry Lyme disease, but <5% of all tick bites result in Lyme infection. Symptoms of Lyme infection include: flu-like illness with red skin rash that occurs within 3 weeks of bite. Rash should be circular and can increase daily. Symptoms of exposure should be reported immediately to the safety department and medical attention should be sought as necessary.

Control Measures: PPM contracts a professional spraying company to spray for spiders when also spraying for insects. Avoid placing hands and arms in dark spaces that cannot be seen. Use caution when opening well vaults or when working in other dark places. Do post-job body inspection and remove ticks immediately.

3.3.3 Rodents, Reptiles and Roaming Animals

The southeast U.S. is home to various species of venomous snakes. Venomous snakes will likely be found beneath piles of debris, near bodies of water or in high or heavily vegetative areas. They generally have a triangular-shaped head, elliptical pupils, and some have rattlers. A few common species of venomous snakes are identified below.


Southern Copperhead


Water Moccasin

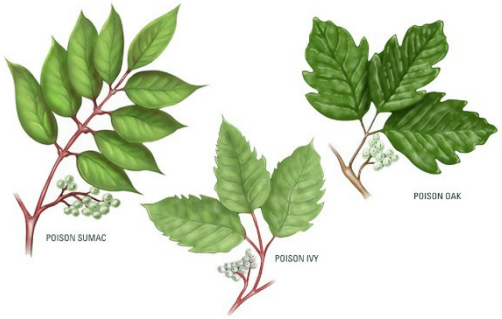

E. Diamondback Rattler


Coral Snake

Facilities located near lakes, rivers, bayous, streams or that otherwise have ponds may have alligators present. Alligators will come out of the water and onto land surface to build nests for their eggs or to sunbathe. They are also known to lie beneath the water's surface in wait when they are preparing to attack and they may not be visible to workers. Highly vegetative areas and areas with trash or debris can be home to rodents such as rats or mice. Remediation systems provide warmth in colder climates and it is not uncommon to find rodents and other animals within or around the unit. Sites located in populated areas may have wandering animals. Pets may be trained to attack when approached, may have mange (parasitic skin diseases) or may carry other diseases.

Control Measures: When working in or around bodies of water, be aware of any indicators of alligator presence, which require immediate evacuation of the area. General awareness and caution must be used when working in highly vegetative areas. Never place hands or other parts of body in an area that is not clearly visible. Snake guards/chaps should be worn when working in suspected snake-infested areas. Workers must avoid wandering animals – they may appear to be a pet; however, they can carry diseases and they may bite or scratch.

3.3.4 Poison Plants



Heavily vegetative areas may have poisonous plants such as poison ivy, oak or sumac, which produce a poisonous sap called urushiol. Typically the first exposure to these plants may not result in any symptoms as this is classified as a "sensitization period". Future exposures to these plants will then produce bumps often mistaken for mosquito bites until they begin to ooze. This is spread by scratching affected areas and touching other unaffected areas.

Control Measures: First line of defense is to be able to identify and avoid these plants. Weed killers should be used to minimize mowing and to eliminate exposure to poison ivy, oak or sumac. It should be noted that poisonous plants still thrive throughout the winter and they are more difficult to locate without their leaves. Workers should wear long-sleeved shirts and long pants tucked into boots when working in highly vegetative areas. Pre-medicated towelettes or lotions form a barrier on the skin and prevent adverse reactions. Rubbing alcohol can remove the oil resin up to 30 minutes after exposure, and antihistamines (non-drowsy) can also be taken post-exposure to minimize the reaction.

3.3.5 Bloodborne Pathogens

Sharps hazards come in various forms and may include hypodermic needles, cutting tools or equipment/machinery with sharp edges like box cutters, scissors, machinery blades, etc. Hypodermic needles are occasionally encountered at some jobsites. Needles may be used for insulin injections or drug use. Other sharps may become contaminated upon contact with infected sources. Life-threatening illnesses such as hepatitis or human immunodeficiency virus [HIV] (also referred to as bloodborne pathogens) may be transmitted via contaminated sharps so workers should be extremely cautious at all field locations. Also, bloodborne pathogens can be transmitted from an infected individual to another when providing first aid. All individuals and sharps must be treated as other potentially infectious materials (OPIM).

Control Measures: Never reach beneath the remediation system or stick hands in areas not clearly visible. Do a visual inspection before reaching for any component or item. Never recap a needle! Remove needles carefully using puncture-resistant gloves. Place them in plastic containers with a closed lid. Duct tape the lid before discarding. Drop off at community drop sites (where available). This type of waste is considered biohazardous waste; however, only healthcare facilities and medical waste industries are regulated. Be aware that the state of Florida requires disposal of this waste at established drop off locations, but all other states in which PPM has an office only recommend using these locations where available. Avoid contact with sharp edges of equipment/machinery, use cutting tools in accordance with manufacturer's guidelines, and always cut away from or perpendicular to the body. Use the concept of universal precautions for infection control. This concept is to treat all human blood and certain human body fluids as if known to be infectious for HIV, hepatitis B, and other bloodborne pathogens.

3.3.6 Infectious Illnesses

Infectious illnesses caused by viral, bacterial, fungal and parasitic agents are often transmitted by infected biological sources such as mosquitoes, humans, birds, pigs, ticks, etc. Such illnesses as influenza, swine and avian flu, coronavirus (COVID-19), HIV, Zika and West Nile virus, tuberculosis, and hepatitis, to name a few, can be acquired through occupational exposures.

Control Measures: Workers will be immunized, where appropriate and available, and personal protective equipment will be provided to eliminate or reduce potential contact with contaminated sources. Illnesses transmitted person-to-person that may result as an epidemic or pandemic event will be addressed through social distancing, telecommuting, and other recommendations or requirements outlined by state and federal agencies. The preventive measures warranted will be dictated by the illness type and mode of transmission; therefore, each situation will be evaluated on a case-by-case basis.

The current illness prevention measures in place to prevent or minimize the spread of COVID-19 include, but are not limited to, the following:

- Get vaccinated;
- Ensure worker temperature is ≤100.4°F;
- Maintain social distances of 6 feet or greater;
- Wear facemask in public settings and when social distancing cannot be maintained;
- Clean and disinfect hands frequently and after contact with commonly–touched sources;
- Clean and disinfect common areas such as restrooms, kitchen, and break areas;
- Clean and disinfect commonly shared vehicles, instruments, tools, or other similar materials; and
- Immediate isolation from others once potential COVID-19 symptoms develop, and management reporting to prevent contact with and spread of infection to others.

Note: Additional safety precautions for SARS-CoV-2 are outlined within PPM's Exposure Control and Response Plan for Coronavirus Disease 2019 (COVID-19) and must be implemented in accordance with the plan.

4.0 EXPOSURE MONITORING

As part of company-related processes, employees will or have the potential to be exposed to various chemical hazards. Chemicals that pose an inhalation hazard may not be considered a threat to worker health until a regulatory limit or more stringent company-imposed action limit is triggered. In addition, some chemicals can become flammable at certain limits. To ensure workers are not working within hazardous or flammable atmospheres, ambient air monitoring will be performed for any work-related process in which chemicals pose an inhalation hazard and have assigned regulatory limits for permissible worker exposures or are otherwise considered a potential fire hazard. Air monitoring will not be required when working with or near materials considered to be non-hazardous in nature or do not otherwise pose an inhalation or fire hazard to workers.

4.1 TERMINOLOGY/DEFINITIONS

In order to determine existing or potential worker overexposures to hazardous or flammable substances, workers must first understand common exposure terminology. Some commonly used exposure terms are defined in the following table:

Term	Definition
Action Limit	Company-assigned exposure limit assigned to a chemical that is more stringent than the regulatory or recommended exposure limit.
Ceiling Limit	Maximum concentration of a chemical a worker can be exposed to at any point during a work shift. This is an instantaneous reading.
Flammability/Explosive Range	The concentration range (LEL-UEL) of a combustible or flammable material (gas/vapor) that will burn or explode when introduced to an ignition source.

Term	Definition
Immediately Dangerous to Life and/or Health (IDLH)	Concentration of a chemical beyond which a worker will be capable of escaping death or permanent injury without help in less than 30 minutes.
Lower Flammability/ Explosive Limit (LFL/LEL)	The lowest concentration of a gas/vapor needed to produce a fire or explosion when exposed to an ignition source.
Permissible Exposure Limit (PEL)/Threshold Limit Value (TLV)	OSHA's regulatory exposure limit is the PEL, whereas the TLV is used to represent other published recommended exposure limits (NIOSH or ACGIH).
Short-Term Exposure Limit (STEL)	Maximum concentration of a chemical a worker can be exposed to without adverse effects over a 15-minute period (unless otherwise noted) not to exceed 4 times per work shift with 1-hr rest intervals between exposures.
Time-Weighted Average (TWA)	Maximum concentration of a chemical a worker can be exposed to without any adverse effect. Based on an 8-hr day/40-hr week.
Upper Flammability/ Explosive Limit (UFL/UEL)	The highest concentration of a gas/vapor needed to produce a fire or explosion when exposed to an ignition source.

4.2 ESTABLISHING EXPOSURE AND FLAMMABILITY LIMITS

4.2.1 Exposure Limits

For any material that has an established regulatory or recommended exposure limit, PPM has established a more conservative action limit. It is the company's intention to take some form of action before a worker is exposed at regulatory or recommended levels. The exception to this concept applies only to contaminants with very low exposure limits and also to the detection capabilities of air monitoring equipment.

Action limits are established on a case-by-case basis and in accordance with general industry practice. When ambient air concentrations trigger action limits, engineering, administrative or work practice controls should be incorporated to eliminate the exposure or reduce worker exposures to an acceptable limit. When this cannot be achieved, workers will be required to upgrade personal protective equipment.

4.2.2 Flammability Limits

PPM has adopted general industry practice by setting its flammability action limits to be 10% of the regulatory limit. Since lower and upper explosive limits are provided as a percentage, PPM has additionally converted the flammability ranges of commonly encountered combustible and flammable materials into parts per million (ppm). Regardless of the volatile monitoring equipment used, workers will be able to determine when a given work environment is or becomes a flammable environment. Workers must also recognize that when working in environments in which chemical concentrations >UEL, as effective control measures are introduced the chemical concentration will again fall back into the flammability range and ignition sources must be eliminated until concentrations once again fall below the material's assigned LEL.

4.3 REGULATORY EXPOSURE LIMITS

Whenever an action, regulatory or recommended exposure limit is triggered, workers must be prepared to immediately report site conditions to management, to develop and implement alternative control measures, to evacuate the site when warranted and/or be prepared to upgrade personal protective equipment (i.e., wear respiratory protection). In order to wear respiratory protection, workers must first be medically cleared by a physician, be fit-tested to a

specific respirator and have received training in accordance with the procedures outlined within the company's Respiratory Protection program. To ascertain eligibility, workers must receive authorization from the safety department prior to using a respirator.

Action, regulatory, and/or recommended exposure limits assigned to routine chemicals commonly encountered by workers are outlined within the following table:

Constituent	Toxicity					Fire
	Action	PEL/TLV	STEL	Ceiling	IDLH	LEL-UEL
Activated carbon	--	--	--	--	--	--
Alconox® [nuisance dust]	5	5	--	--	--	--
Aldrin[pesticide]	0.25	0.25	--	--	25	--
Aluminum[metal]	5	5	--	--	--	--
Aluminum oxide[nuisance dust]	5	5	--	--	--	--
Ammonia[base]	50	50	35†	--	300	15,000-28,000
Arsenic[metal]	0.01	0.01	--	--	5	--
Analytix AN-754GH	--	--	--	--	--	--
Asbestos	0.1	0.1	1	--	--	--
Barium[metal]	0.5	0.5	--	--	--	--
Benzene	1	1	5	--	500	1,200-7,800
n-Butane	400	800	--	--	--	1,600-8,400
Cadmium[metal]	0.005	0.005	--	--	9	--
Calcium hydroxide[base]	5	5	--	--	--	--
Carbon dioxide[dry ice]	2,500	5,000†	30,000	--	40,000	--
Carbon tetrachloride	2	2†	--	25	200	--
Chloroform	2	2†	2 [60-min]	50	500	--
Chromium[metal]	0.5	0.5	--	--	250	--
Coal tar pitch volatiles[PAH]	0.2	0.2	--	--	80	--
Copper[metal]	1	1	--	--	100	--
DDT[pesticide]	1	1	--	--	500	--
Dieldrin[pesticide]	0.25	0.25	--	--	50	--
Diesel	100[skin]	100[skin]	--	--	--	600-7,500
Dust [Total]	15	15	--	--	--	--
Dust [Respirable]	5	5	--	--	--	--
Dust [Portland Cement]	50	50	--	--	--	--
Endrin[pesticide]	0.1	0.1	--	--	2	--
Ethylbenzene	100	100†	125†	--	800	800-6,700
Gasoline	100	300†	500†	--	--	1,400-7,600
Heptachlor[pesticide]	0.5	0.5	--	--	35	--
Hexane	50	50†	--	--	1,100	1,100-7,500
Hydrochloric acid[HCl]	--	--	--	5	50	--
Hydrogen peroxide[30-50%]	1	1	--	--	75	--
Hydrogen Sulfide[H_2S]	1	1	--	10	100	4,000-44,000
Iron[metal]	--	--	--	--	--	--
Isobutylene	--	--	--	--	--	1,800-9,600
Isopropyl alcohol	200	400†	500†	--	2,000	2,000-12,700
Kerosene	50	100	--	--	--	700-5,000
Klozur[sodium persulfate]	5	5	--	--	--	--
Lead[metal]	0.05	0.05	--	--	100	--
Lindane[pesticide]	0.5	0.5	--	--	50	--
Liquinox®	--	--	--	--	--	--

Constituent	Toxicity					Fire
	Action	PEL/TLV	STEL	Ceiling	IDLH	LEL-UEL
Lubricating oils[motor oil]	--	--	--	--	--	--
Magnesium[metal]	--	--	--	--	--	--
Mercury[metal/vapor]	0.1[skin]	0.1†[skin]	--	0.1†[skin]	10[skin]	--
Methane	--	--	--	--	--	5,000-15,000
Methylene chloride	25	25	125	--	2,300	13,000-23,000
MTBE	50	50	--	--	--	1,000-8,000
Muriatic acid[HCl]	--	--	--	5	50	--
Naphthalene[PAH]	10	10†	15†	--	250	900-5,900
Nitric acid	2	2†	4†	--	25	--
NXT[Klozur – sodium persulfate]	5	5	--	--	--	--
Oil[crude]	0.2[mg/m³]	0.2[mg/m³]	--	--	--	1,000-8,000
ORC®/ORC Advanced®	5	5	--	--	--	--
Ozone	0.05	0.1†	0.3†	0.1	5	--
PCB	0.5[skin]	0.5[skin]	--	--	5	--
Perchloroethylene[PERC]	25	25†	--	150[cap]	150	--
Phosphoric acid[H_3PO_4]	1	1†	3†	--	1,000	--
Potassium hydroxide[base]	2	2†	--	2	--	--
Propane	500	1,000	--	--	2,100	2,100-9,500
RegenOx A or B™	--	--	--	--	--	--
Selenium[metal]	0.2	0.2	--	--	1	--
Silver[metal]	0.01	0.01	--	--	10	--
Sodium carbonate[base]	--	--	--	--	--	--
Sodium hydroxide[base]	2	2	--	2†	10	--
Sulfuric acid[H_2SO_4]	1	1	15†	--	15	--
Tetrachloroethylene[PERC]	25	25†	100	150[cap]	150	--
Toluene	100	100†	150†	300	500	1,100-7,100
Trichloroethylene	50	50†	200†	200	1,000	8,000-10,500*
Vinyl chloride	1	1	--	5[15-min]	--	3,600-33,000
Xylene	100	100†	150†	--	900	1,100-7,000
Zinc[metal]	--	--	--	--	--	--

NOTES:
† - More protective OSHA PELs vacated by the 11th Circuit Court of Appeals in July 1992; however, OSHA can enforce under the General Duty Clause. PPM will adhere to these exposure limits to ensure worker health and wellbeing is maintained.
Diesel, dusts, heavy metals, bases/alkalis, Trap & Treat BOS-200, and PCBs are all measured as mg/m³ – not ppm!
Asbestos is measured as number of fibers per unit air (f/cc); Portland cement is measured as million parts per cubic feet (mppcf).
Action limit and PEL are time-weighted averages over 8-hour work period. STEL is TWA over 4 15-min periods, with the exception of asbestos, which has a 30-minute excursion limit. Others are instantaneous readings.
PAHs - coal tar pitch volatile components of TPH-D include anthracene, benzo(a)pyrene, chrysene, phenanthrene and pyrene, all of which have the same permissible exposure and IDLH limits; therefore, all components lumped into one group. The only other regulated component of PAH is naphthalene which is a component of crude or refined oil and is listed separately from other PAHs.
Only the regulated pesticide components of EPA SWA-846 Methods 8080/8081 are included above.
Perchloroethylene (PCE) has a ceiling limit of 200 ppm for 5 minutes within any 3-hr period not to exceed 300 ppm but this has been capped at 150 ppm to match IDLH concentrations for this material. Trichloroethylene's flammability range is effective ≥77ºF.
Flammability ranges (LEL-UEL) are set at 10%.

Any constituent not otherwise specified above that is anticipated as part of company-related processes in which workers have the potential to be exposed must be immediately reported to the safety department and will require a site-specific HASP. This HASP will be generated and issued by the safety department and requires a 1-week advanced notice.

4.4 MONITORING EQUIPMENT AND CALIBRATION

Because PPM works with a variety of chemicals, not all constituents can be detected with one universal monitoring device. Some monitoring equipment can provide instantaneous readings, while others require laboratory analysis (wet method analysis). In addition, each monitoring device has its advantages and disadvantages. Some commonly used monitoring devices used by PPM include the following:

- **Organic vapor analyzers (OVA)**. This monitoring device is used to detect volatile and semi-volatile substances. Some OVAs used by the company include MiniRAE 2000 PGM 7600, GasTech®, RKI Eagle® photoionization detector (PID), and Micro FID® flame ionization detector (FID). The advantage of this monitoring device is that it is a direct-read instrument and provides instantaneous readings. Some disadvantages of this equipment are that it generally does not provide readings less than 1 ppm, it does not give percent LEL or provide oxygen content. OVAs generally detect a group of chemicals and do not indicate which compound is being detected.
- **Ozone meters**. This monitoring device is used to detect ozone gas and is also a direct-read instrument. The ozone meter used by some offices within the company is the EcoSensor Ozone Sensor A-21ZX. It is chemical-specific but has some interference from other oxidizing gases.
- **PortaSens II gas detector**. The monitoring device is a portable, direct-read gas leak detector that has the ability to measure a variety of different gases by simply inserting a gas-specific sensor. This instrument is lightweight and can measure gases such as acetylene, ammonia, carbon monoxide, fluorine, formaldehyde, hydrogen, hydrogen chloride, hydrogen cyanide, hydrogen peroxide, hydrogen sulfide, oxygen, ozone, phosgene, and sulfur dioxide. For a composite list of gases, refer to the manufacturer's website.
- **Portable air monitoring pumps**. These monitoring devices are used to assess continuous personnel and background exposures and are commonly used for sampling heavy metals, asbestos, silica or nuisance/respirable dusts. A common portable air monitoring pump used by the company is the SKC AirChek52®. Pumps are set to a specific flow rate of air (can be low volume or high volume) and contaminants are captured using a filter, which is later sent for laboratory analysis. Some advantages of this monitoring equipment are that these pumps are small, light-weight and portable. Some disadvantages of this monitoring equipment are that they do not provide instantaneous readings; exposures are unknown until laboratory results are received.
- **Personal monitoring badges**. These monitoring devices are used to assess continuous personnel exposures. They are light-weight, easy to use and can target specific constituents as opposed to a group of compounds. Badges must be sent to lab for analysis so they do not provide instantaneous readings. In addition, other constituents with similar chemical make-up can cause interference giving inaccurate exposures so samplers must be able to identify potential cross-interference prior to sampling.
- **Colorimetric indicator tubes**. These monitoring devices are used to assess continuous personnel exposures. Passive diffusion tubes are used when determining longer term exposures and workers need only break off the tip of the tube to initiate sampling. Pumps can also be used to draw in air and generally give a short-term exposure assessment during the period of time the air is extracted. Tubes are contaminant-specific and change color when in contact with the constituent giving an instantaneous reading.

Colorimetric tubes have a $^{+/-}$25% degree of error and chemicals with similar make-up can cause interference giving inaccurate exposures so samplers must be able to identify potential cross-interference prior to sampling.

To ensure it is in good working order, air monitoring equipment must be calibrated in accordance with manufacturer recommendations for each monitoring device. Workers must be aware that each office utilizes different monitoring equipment; therefore, readings from instruments calibrated with methane may not be the same as readings from instruments calibrated with hexane. Be sure to use the instrument's conversion tables as provided by the manufacturer when warranted. In addition, some metals can produce toxic gases when burned or exposed to open flames; therefore, the safety data sheet should be referenced when working with metal-contaminated soils.

4.5 SAMPLE COLLECTION

To appropriately determine exposures, samples must be collected within the breathing zone (shoulder level) of the worker, subcontractor or other affected pedestrian when relevant to site concentrations and location of these concentrations in relation to the general public. It should be noted that there may be times in which samples must be collected at the source (i.e., inside manhole) for technical purposes. These concentrations must be identified and reported as separate readings not indicative of worker exposures. Additional precautions must be taken to prevent impact to worker breathing zone during the sample collection when at or near the contaminant source. Depending on the concentrations in this given area or when impact to worker breathing zone cannot otherwise be avoided, respiratory protection may be required.

4.6 MONITORING FREQUENCY AND DOCUMENTATION

Ambient air monitoring is required prior to field work to establish a baseline and intermittently throughout the course of a project to compensate for changes in site conditions. Samples must be collected every two hours so long as concentrations are well below established action limits. Areas selected for monitoring must compensate for worker/subcontractor exposures, general public exposures, residential areas, potential nearby business exposures, etc. and may warrant numerous collection locations.

When there is a noted increase in ambient site concentrations, the sampling frequency must be increased to every 30 minutes until site conditions indicate a decreasing trend. If site concentrations are elevating at a rapid pace, continuous air monitoring must be conducted to ensure no threshold limits are triggered. This may require temporary postponement of site activities until concentrations can be reduced to an acceptable limit. Whenever any threshold limit is triggered, site activities must be halted and the safety department notified.

All monitoring areas, concentrations, sample collection times and/or notations (i.e., change in site conditions, contaminant source readings, etc.) must be documented using the company's Ambient Air Monitoring Report form. Forms must be completed fully and returned to the safety department for review upon completion of the project.

5.0 PERSONAL PROTECTIVE EQUIPMENT

5.1 PROJECT-SPECIFIC PPE REQUIREMENTS

Depending on the degree of the hazard(s) posed by field tasks, various levels of protective clothing and equipment may be required. Protective clothing and/or equipment required by routine tasks covered by this HASP are outlined further in the table below. Protective clothing and/or equipment not otherwise covered by this plan will require a site-specific HASP. Contact the HSD for further instructions.

Field Task	Protective Clothing/Equipment										
	Steel-Toed Shoes[1]	Safety Glasses[2]	High Visibility Shirt/ Vest[3]	Gloves[4]	Hearing Protector[5]	Hard Hat (Class E)[6]	Goggles/Face Shield[7]	Respirator (APR)[8]	Harness/Lanyard	Flotation Devices/ Buoys[9]	Fire Retardant Clothing[10]
Activated carbon replacement	X		X	X	X	X	X	X	X		
Asbestos inspections or sampling	X	X	X	X				X			
Chemical injection	X	X	X	X	X	X					
▪ Working with dry powder	X		X	X	X	X	X	X			
▪ Working with liquid/mixing w/H_20	X		X	X	X	X	X				
Compliance audits/visual inspections[Phase 1]	X	X	X								
DPT - drilling, geoprobing[Hand Auger]	X	X	X	X							
DPT - drilling, geoprobing[Heavy Equipment]	X	X	X	X	X	X					
Groundwater sampling	X	X	X	X							
Mobile vacuum event	X	X	X	X	X						
Mobile ozone	X	X	X	X	X						
Monitoring well plugging and abandonment	X	X	X	X	X	X					
Operation and maintenance of system	X	X	X	X	X						
Remediation system install/demobilization	X	X	X	X	X	X					
Spill bucket replacement/closure	X	X	X	X	X	X					
Trenching and excavating	X	X	X	X	X	X					
UST pull/closure	X	X	X	X	X	X					
Any work over or near water body		X		X			X			X	
Any work performed at oil and gas facility, terminals, or other similar property	X	X		X	X	X					X

1 – Steel-toed boots/shoes or equivalent ANSI-approved composite-toe footwear; rubber boots may be used when working within a boat or near a water body
2 – Safety glasses must be ANSI-approved and equipped with side-shield protection; prescription lenses are permitted if equipped with side-shield protection
3 – DOT Class II or III high visibility clothing or safety vests with exposure to traffic and/or mobile equipment
4 – Nitrile gloves for petroleum contamination; Kevlar®/leather gloves for cutting hazards; other chemical-resistant gloves needed for more stringent chemical hazards
5 – Ear plugs, canal caps or ear muffs when noise levels ≥85 dB
6 – Class E hard hats required for protection against electrical hazards
7 – Safety glasses must be upgraded to goggles or face shield when working with/mixing powders or when working with liquids that present splash hazard
8 – Air-purifying respirator (half-mask or full-face) required for all asbestos sample collections and when chemical threshold limits are triggered and control measures are ineffective
9 – Personal flotation devices (life jacket) must be U.S. Coast Guard-approved.
10 – Fire-retardant clothing is a client-specific requirement; clients within the oil/gas industry generally require fire-retardant clothing

5.2 REDUCTION OF PROTECTIVE CLOTHING AND EQUIPMENT

The use of protective clothing and equipment is mandatory at all times during the course of a project except when inside a designated break area. A break area will be assigned by the Site Safety Officer during the pre-entry safety briefing. The break area must be:

- Located a minimum of 50 feet away from the work zone
- Located where ambient concentrations are not > chemical detection limit
- Located out of the way of vehicular traffic and must not hinder any functions of other businesses

The break area must be clearly designated by posting cones, barricades, or caution tape. Affected personnel and subcontractors must be informed of the break area during the pre-work safety briefing. Only when inside the break area may protective clothing and/or equipment be

removed. If the conditions noted above cannot be met, the safety department must be contacted. Variances may be granted based on certain site conditions.

5.3 OTHER PROTECTIVE AIDS

Protective equipment can be used in a number of ways to draw attention to the worker or work area, to isolate the work area from unauthorized persons and/or traffic, or to identify the hazard(s) posed by the activity. Common examples of protective equipment used by PPM include, but are not limited to the following:

- Signs, posters, labels
- Cones, barricades, caution tape
- Heavy equipment/machinery or company vehicles
- Steel plate covers or wood for monitoring wells and/or holes
- First aid kit
- Flashing lights
- Flag extensions on cones for greater visibility
- Portable 10 or 20-lb ABC fire extinguishers
- Lockout/tagout devices
- Handheld eyewash bottles

6.0 SITE ACCESS, CONTROL, AND DECONTAMINATION

6.1 SITE ACCESS

Typical PPM jobsites occur in areas open and accessible to the general public. However, when working at unguarded gated facilities, workers must secure appropriate means of site access from the client. This can include a coordinated effort to meet the client at a designated date and time, or acquiring keys to the facility from the client. *Note: Personnel and/or subcontractors are prohibited from climbing over or crawling beneath site fencing to secure site access.*

6.2 DESIGNATED WORK ZONES

6.2.1 Non-Emergency Response Sites

Most offsite activities occur at jobsites either open to the public (i.e., retail gasoline stations) or controlled access to private facilities. In either case, routine business practices, especially those involved in the remediation process, occur after releases have been controlled. Under these conditions, the immediate work area will be defined using caution tape, cones, barricades, vehicles, equipment, or other similar means in order to prevent unauthorized entry of others into the work zone; create a barrier between hazards associated with the task(s) and the public, and eliminate the migration of potentially hazardous substances into clean areas of the property.

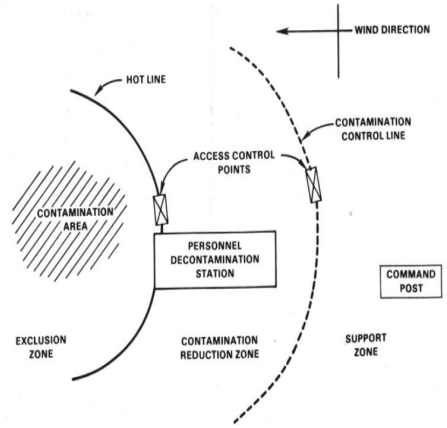
6.2.2 Emergency Response Sites

On occasion, PPM may be required to respond to an active chemical release. Jobsites with the following conditions meet OSHA's definition for a hazardous waste site:

- Uncontrolled releases of hazardous substances;
- Cleanup of RCRA sites;
- Hazardous waste operations at treatment, storage and disposal (TSD) facilities; and
- Emergency response operations for release, or potential threat of release, of hazardous substances.

Work performed at any jobsite that meets the definition of a hazardous waste site requires designated work areas to isolate hazardous work areas from unprotected persons, to prevent the migration of contamination, and to prevent the transfer of contamination through impacted protective clothing as well as monitoring and sampling equipment. Designated work areas include the following:

- Exclusion zone – the area denoting site contamination where heavy equipment operation and sample collection is likely to occur
- Contamination reduction zone – the area surrounding the exclusion zone where clothing and equipment is decontaminated to prevent the transfer of contaminants
- Support zone – any area not otherwise considered the exclusion or contamination reduction zone



6.3 AUTHORIZED PERSONNEL

Only authorized personnel are permitted within the work zone (non-emergency response) and/or exclusion or decontamination reduction zones (emergency response). An authorized person is considered to be any individual who has a relevant role or function in relation to the project, participates in onsite safety briefings, and signs the HASP acknowledgement form. Facility managers, client, agency representatives, and law enforcement or regulatory officials may refuse to participate in planned safety meetings or HASP review. As this situation arises, all equipment and job tasks should be temporarily halted to allow for onsite inspection and monitoring by these individuals. When unauthorized persons exit the defined work zone(s), all site activities may resume.

6.4 STOP-WORK AUTHORITY

The SSO has full stop-work authority and should use this authority under the following conditions:

- When a hazardous condition, unsafe behavior or other safety concern is noted
- When a near-miss or incident is reported
- When an unauthorized individual enters the designated work zone
- When lightning or other signs of inclement weather is noted within the area
- When a contaminant action limit is triggered
- When unexpected conditions arise that could warrant changes to safety procedures and/or scope of work

6.5 GENERAL SITE CONTROL AND SAFETY PRECAUTIONS

The following denotes simple procedures for maintaining site control and worker safety:

- Designated parking and pedestrian walkways in areas a reasonable distance away from active investigation
- Use buddy system whenever feasible
- Perform pre-job inspection to establish appropriate baselines and to visually inspect for obstacles, clearances, etc.
- Avoid smoking on the jobsite unless within authorized areas (i.e., break areas when deemed appropriate by the SSO for smoking)
- Use appropriate safety devices (i.e., cones, barricades, etc.) to clearly identify work zones and break areas
- Prevent unauthorized entry and use stop-work authority as necessary

- Perform post-job inspection to ensure all materials have been removed from the site; pay close attention to the vehicles to ensure animals or person(s) are not located beneath the vehicle and that all cab and toolbox doors have been secured

6.6 DECONTAMINATION PROCEDURES

In order to prevent the spread of contamination from impacted work zones, monitoring equipment, sampling equipment, and/or workers, decontamination must take place. Decontamination is defined as the removal or reduction of contaminants. Decontamination procedures vary based on the degree of site contamination as well as the contaminant(s) involved, and this process must take place within the contamination reduction zone. As impacted workers and equipment exit the exclusion zone, they must be decontaminated using appropriate detergent solutions. Disposal protective clothing must be discarded in garbage bags or lined containers for proper disposal.

Typical company functions require a low level of decontamination which involves the cleaning of bailers, purge materials and/or other similar equipment as samples are collected in various areas of a jobsite. Most chemicals in which workers are exposed are classified as skin and eye irritants; therefore, it is important for workers to remove contaminated clothing as soon as possible, flush eyes for a minimum of 20 minutes and use alconox®/liquinox® solution to wash impacted skin.

7.0 EMERGENCY RESPONSE

7.1 ALARMS AND ONSITE NOTIFICATIONS

To compensate for unexpected conditions and/or changes in existing site conditions, each jobsite must have an effective communication system in place. Workers are notified of emergencies through various forms of effective communication consisting of the following:

- Verbal communication – is generally the most effective form of communication for the majority of all job-related tasks associated with a project
- Hand communication – hand signals are used in place of verbal communication under the following conditions:
  - → When noise levels become elevated due to heavy equipment operation or other similar measures that prevent workers from hearing verbal communications
  - → When equipment operator's line of vision is obstructed
  - → Under any situation deemed necessary by the SSO
- Continuous horn blast of vehicle or air horn – used in lieu of verbal and hand communications due to:
  - → Large, dispersed work zones or multiple work areas that prevent overall effectiveness of other forms of communication
  - → Multiple site distractions that inhibit immediate worker attention
  - → Elevated noise levels that inhibit immediate worker attention

  One continuous blast is to be used so as not to confuse workers with other equipment sounds.

7.2 PERSONNEL ASSESSMENT AND EVACUATION

Once an alarm has been triggered, workers must be evacuate the work zone and meet in the designated area assigned during the pre-entry safety briefing. This location is determined by the SSO based on distance from existing hazards and verification that it is upwind of any chemical hazard source. Site evacuation is warranted under the following conditions:

- When ambient air concentrations meet or exceed an established action limit assigned for a constituent
- When new hazards not otherwise addressed within this safety plan are encountered
- When subcontractor, field personnel, clients, or regulatory officials violate the safety provisions outlined within this plan
- Upon client or regulatory agency request
- Under any condition the SSO deems unsafe

When evacuation is warranted, all field personnel and subcontractors will meet at the designated area for a preliminary head count, which is conducted by the SSO. Further provisions will be discussed at that time.

7.3 INCIDENT, NEAR-MISS, AND HAZARD RECOGNITION REPORTING

Incidents, near-misses or other noted hazards must be reported promptly to the safety department so that each case can be further investigated to determine the root-cause of the event in order to prevent future recurrences. An incident is defined as an occurrence that results in worker injury or property damage. Examples of an incident include, but are not limited to, the following:

- Underground storage tank (UST) puncture
- Auto-related accident regardless of fault
- Contact with overhead or subsurface utilities (i.e., water, sewer, telephone, fiber optic, power, transfer product lines, etc.)
- Chemical spill or release
- Slips, trips, or falls

A near miss is defined as an unplanned event that did not result in injury, illness or damage but had the potential to do so. Unexpected hazards may arise from unsafe acts or conditions or changes in site conditions. Incidents, near-misses and hazards must be reported to the safety department immediately once the site has been secured. The site is considered secured once all leaks have been properly contained, and the area has been evacuated and further isolated to prevent unauthorized entry. All reports must be made to the District Manager or can be made to the safety department directly. In addition, all reports must be documented using the Incident, Near-Miss and Hazard Recognition Report.

7.4 INJURY REPORTING AND CASE MANAGEMENT

Any incident that results in injury must be reported immediately to the HSD. Reported injuries or illnesses that warrant medical care must be managed by the safety department. In order to achieve this, all cases are evaluated for medical necessity. Whenever possible, workers are sent to the company's pre-established occupational medicine clinics that specialize in work-related injury care. Workers are permitted to seek medical attention (911) without prior company consent only when the injury appears to be life-threatening or when the injury requires immediate medical attention and contact with designated company officials cannot be achieved.

Workers who seek medical attention without company consent will be required to pay for their own medical care out-of-pocket. This provision also applies to follow up care when an injury/illness does not get better. Workers must additionally report changes in medical condition to the HSD, and additional medical evaluations must be coordinated by the company.

7.5 GENERAL MEDICAL CARE AND FIRST AID

It is company policy that all field workers be trained in adult CPR and first aid. Workers who have received this level of training should be prepared to administer care for minor injuries. Certified workers may additionally be called upon to provide care to more seriously injured persons while waiting for additional medical attention. If the victim is conscious, workers must indicate that they are certified and they must additionally obtain consent prior to administering care. Consent is implied when the victim is unconscious.

Some general emergency care provisions are outlined below (not all-inclusive):

Hazard Category	Hazard	Response
Chemical	Inhalation	Move worker to fresh air. If vomiting, dizzy or groggy, seek medical attention immediately. Administer CPR if certified.
	Dermal/Contact	Remove contaminated clothing and flush affected area with soap/water for ~20 minutes. Seek medical care if pain persists.
	Ingestion	Seek immediate medical attention. Do not give fluids to an unconscious person. Do not induce vomiting.
	Eye	Flush with copious amounts of water for ~20 minutes. Seek medical attention if pain persists.
Physical	Heat stress	Apply warm, damp heat and pressure to reduce pain in legs/ abdomen. Give electrolyte drinks by mouth, if conscious. Remove excess clothing and attempt to cool core body temperature promptly using cold water. Medical attention is warranted for extreme heat stress.
	Cold stress	Remove any wet clothing immediately and bundle in extra clothing and/or blankets. Drink warm fluids, if conscious. Attempt to warm core body temperature using heater or other methods. Medical attention is warranted for extreme cold stress.
	Sprain/strain	Use combination heat/cold therapies to reduce swelling and apply pain relief. Take an over-the-counter naproxen sodium (Aleve) or ibuprofen (Advil) for pain and inflammation. Seek medical attention if pain persists for more than a few days.
	Tingling/ numbness	Generally an indication of swelling but can lead to permanent nerve damage. Take an over-the-counter naproxen sodium (Aleve) or ibuprofen (Advil) for pain and inflammation. Seek medical attention if symptoms persist.
	Cuts/lacerations	Apply pressure to wound for blood to clot and use bandages to cover wound. Antibiotic creams can prevent infection. Seek medical attention for deep cuts that require stitches.
	Ringing in ears	Symptom of hearing loss, which will require medical testing to determine if this is a temporary or permanent hearing loss.
Biological	Needle stick	Immediately remove needle. Squeeze the area to extract blood from the wound. Seek immediate medical care and carry the needle with you to the medical clinic.
	Insect/spider/ tick/animal bite	Immediately remove insect or tick and pay close attention over the next few days for symptoms of delayed illness. Seek medical attention if noted. Seek medical attention for black/brown widow and brown recluse spider bites as well as animal bites.
	Poison plants	Pay attention for evidence of allergic reaction (itching, redness and irritation) and seek medical attention if over-the-counter remedies prove ineffective or if affected area spreads.

Hazard Category	Hazard	Response
Biological	Infectious Illness [COVID-19]	If potential COVID-related symptoms present while onsite, isolate yourself from other workers and maintain distances in much greater excess than 6 feet. Inform workers onsite (call them if necessary) to inform them of your current condition. Report your symptoms to management immediately. Minimize the amount of contact you have with commonly shared materials such as the vehicle, field paperwork, tools, etc. Self-quarantine until tested negative or upon management permission to return to work as based on CDC recommendations for symptoms approach.

***Caution**: Individuals with heart problems, on a "low sodium" diet, or who otherwise have blood pressure issues and work in hot environments should consult a physician for proper alternative care when working under these conditions.*

7.6 HAZARDOUS SUBSTANCE RELEASE

In the event that hazardous substances migrate from the work zone and potentially endanger unprotected personnel or the community, the area will be isolated and the spill contained and cleaned by authorized personnel. On-site activities will cease until the release is brought under control and the site is returned to its previous condition or otherwise poses no additional harm to site personnel. All hazardous materials must be containerized and labeled until it can be profiled and disposed in accordance with regulatory requirements at an approved landfill. Workers should reference the SDS for additional information.

7.7 REGULATORY, CLIENT, OR OTHER AGENCY NOTIFICATIONS

In the event of an emergency, all reporting must be made to your direct project or office manager and/or safety department. Other required client, regulatory or other agency notifications will be made by management within appropriate reporting deadlines.

8.0 WASTE MANAGEMENT

Under normal conditions associated with the remediation process, groundwater monitoring wells are purged of impacted groundwater and as part of the investigation process, impacted soils are stored within containers until these wastes can be profiled and disposed at an approved landfill. Other chemicals may be ordered for maintenance or to otherwise facilitate the remediation process. It is the company's objective to ensure all containers are in good condition and labeled appropriately so as to prevent any release of contaminated materials from these containers until it can be appropriately disposed.

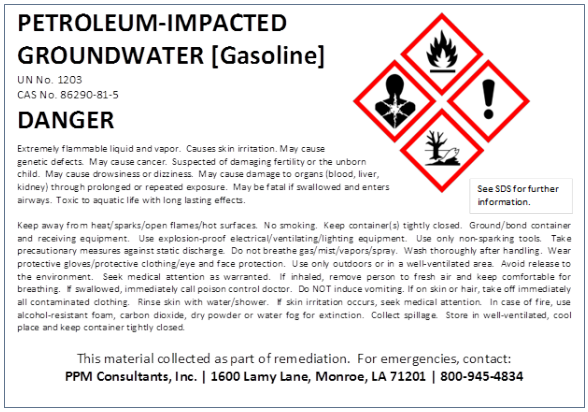
8.1 CONTAINER LABELING

All containers used by the company must be appropriately labeled – even when a waste is in accumulation or a material is still in use. Containers are defined by the company as any bucket, bottle, barrel, drum, jar, tote, can, box, crate, tank, or other similar means used to contain, store, and/or transport materials. Containers may be movable or stationary and can vary in weight and dimension; however, common containers used by the company include drums, totes, buckets, soil bags or super sacks.

8.1.1 Hazardous Material/Waste Labeling

Any hazardous material or waste container(s) must be labeled in accordance with 29 CFR 1910.1200 using a globally harmonized system (GHS) for chemical classification and labeling. Tags using the same GHS-format should be used for soil bags and super sacks. Each label must contain six required elements, which include the following:

- Product identifier – should match the product name on the safety data sheet
- Signal word – "danger" (severe) or "warning" (less severe)
- Hazard statements – phrase assigned to a hazard class used to describe the nature of the product's hazards
- Precautionary statements – a measure to minimize or prevent adverse effects that results from exposure
- Supplier identification – name, address, and telephone number of the supplier or manufacturer*
- Pictograms – graphical symbols used to convey specific hazard information visually


PETROLEUM-IMPACTED GROUNDWATER [Gasoline]
UN No. 1203
CAS No. 86290-81-5
DANGER
Extremely flammable liquid and vapor. Causes skin irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. May cause drowsiness or dizziness. May cause damage to organs (blood, liver, kidney) through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Toxic to aquatic life with long lasting effects.
See SDS for further information.
Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container(s) tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe gas/mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye and face protection. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Seek medical attention as warranted. If inhaled, remove person to fresh air and keep comfortable for breathing. If swallowed, immediately call poison control doctor. Do NOT induce vomiting. If on skin or hair, take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs, seek medical attention. In case of fire, use alcohol-resistant foam, carbon dioxide, dry powder or water fog for extinction. Collect spillage. Store in well-ventilated, cool place and keep container tightly closed.
This material collected as part of remediation. For emergencies, contact:
PPM Consultants, Inc. | 1600 Lamy Lane, Monroe, LA 71201 | 800-945-4834

Note: Hazardous materials ordered by PPM must have the manufacturer or supplier information posted on the containers; however, materials generated as part of the remediation process must identify PPM as the emergency contact.

8.1.2 Nonhazardous Material/Waste Labeling

Containers of nonhazardous materials and/or wastes must also be labeled. They will be labeled using the same labeling system as addressed within the previous section; however, workers should expect these labels to be less detailed since these materials are not likely to pose hazards. Continued use of this labeling system will permit workers to identify the contents of any container used by the company.

Once materials have been deemed as a waste, then non-hazardous waste labels must additionally be affixed to the container(s) so long as the material is truly considered to be a nonhazardous substance. Verbiage for this label template has been modified to meet the needs of the company, and workers are required to complete the label in accordance with the following requirements:

- Generator – PPM must never be identified as the generator; wastes are generated on behalf of the client and therefore, must have the client's name.
- Contact – PPM will be considered the contact; this will enable clients with multiple subcontractors to identify which of their contractors is generating the waste.
- Phone – Provide PPM's phone number in case of emergency (800-945-4834).
- Contents – Identify the material being stored within the container.
- Start date – Indicate the date that the material is first placed inside the container; if the container will be accumulating, worker must still provide a date and must also indicate that it is in accumulation.

8.2 CONTAINER STORAGE AND DISPOSAL

In accordance with company policy, all wastes must be stored within fenced remediation systems, behind buildings or in other inconspicuous areas so as not to be disturbed by unauthorized individuals. Wastes must also be profiled and disposed within 90 days of task completion. Drums that are in accumulation may reside onsite for a period no greater than 365

days. Materials in accumulation must be profiled and disposed at least once per calendar year to ensure container integrity. Variances to this policy must be approved by the District Manager or safety department in advance.

8.3 CONTAINER INSPECTIONS

Containers stored at sites with a remediation system undergo routine visual inspections. Inspections occur on a quarterly basis to ensure that container integrity is maintained and that there is no evidence of leakage, excessive rusting, bulging or other forms of container damage that could result in a release. Inspections are documented and retained by the safety department. Evidence of container damage is promptly addressed.

9.0 PERSONNEL/CONTRACTOR SAFETY REVIEW

This HASP and any corresponding JSA(s) must be outlined during a safety briefing that is to be held by the SSO. This safety briefing shall occur prior to the start of the project and consists of an entire review of all relevant sections of this safety plan as it relates to all phases of the project. Affected company personnel, subcontractors, clients, and/or regulators assigned to the project must participate in the safety briefing to gain access to the work zone. Changes or additions in site personnel will require an additional safety briefing be conducted with all affected person(s) to permit site access. Participants of the safety briefing will be required to sign a form to acknowledge they have received safety instructions and agree to abide by the provisions outlined within the HASP and JSA.

Additional tailgate meetings shall occur on a daily basis prior to the initiation of work activities. All authorized persons must attend the tailgate meeting held by the SSO to discuss the safety provisions affected by the task(s) to be performed for that day. Each participant will be required to sign the tailgate meeting log to acknowledge they have received safety instructions and agree to abide by those provisions reviewed during the tailgate meeting. ***No one should be permitted to participate in the tailgate meetings until a complete review of the HASP and corresponding JSA(s) has been completed!***

10.0 CONTRACTOR RESPONSIBILITY AND SUPERVISION

Subcontractors must abide by all safety procedures outlined within this plan, or they will be required to leave the premises until these procedures are implemented. Subcontractors will be permitted to operate under a separate safety plan as long as it meets the minimum requirements established by this HASP, has been reviewed and approved by the HSD in advance of the project's start date, and does not other otherwise conflict with the provisions of this HASP.

Subcontractors may not initiate work without the authorization of PPM, and all subcontracted work must be performed under the supervision of a PPM representative. Managers and field workers must coordinate schedules with the subcontractor(s) in advance of the project. All field processes must be shut down when a PPM representative leaves the jobsite unless otherwise approved by the District Manager; however, notations must be made within the HASP when this exception is granted.

Subcontractors must provide advanced notification when bringing additional chemicals not otherwise covered by this safety plan onto the jobsite. A safety data sheet must be provided to the HSD for review/approval before any chemical will be permitted onsite. If approved, any additional hazards, preventive measures, and emergency response procedures associated with the introduction of these substances must be incorporated into this HASP prior to the start of the project.

11.0 CONFINED SPACE

Confined space is defined by OSHA as any space that is "large enough and so configured that an employee can bodily enter and perform assigned work, has limited or restricted means for entry or exit, and is not designed for continuous employee occupancy." In accordance with this definition, PPM will not be conducting any field-related task that can be defined as confined space entry. PPM personnel have not been adequately trained for confined space entry; therefore, in the event site conditions warrant this type of work, a qualified contractor will be hired for this task.

12.0 LIST OF ABBREVIATIONS

ACM	asbestos-containing material
ANSI	American National Standards Institute
BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CFR	Code of Federal Regulations
CHMM	Certified Hazardous Materials Manager
CO/CO_2	carbon monoxide/dioxide
CSP	Certified Safety Professional
dB	decibel
DEET	N,N-diethyl-meta-toluamide
DOT	Department of Transportation
fc	foot-candle
FID	flame ionization detector
GFCI	ground fault circuit interrupter
GHS	Globally Harmonized System of Chemical Classification and Labeling
GVWR	gross vehicle weight rating
HASP	health and safety plan
HEPA	high efficiency particulate air
HIV	human immunodeficiency virus
HMIS	hazardous materials information system
HSD	Health and Safety Director
HSSE	health, safety, security and environmental
IDLH	immediately dangerous to life and/or health
JSA	job safety analysis
kV	kilo volt
LEL	lower explosive limit
LFL	lower flammability limit
MTBE	methyl-tertiary butyl ether
NCHRP	National Cooperative Highway Research Program
NIOSH	National Institute for Occupational Safety and Health
NOAA	National Oceanic and Atmospheric Administration
O_2/O_3	oxygen/ozone
ORC	oxygen release compound
OSHA	Occupational Safety and Health Administration
OVA	organic vapor analyzer
PACM	presumed asbestos-containing material
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
P.E.	Professional Engineer
PEL	permissible exposure limit
P.G.	Professional Geologist
PIC	Principal-in-Charge
PID	photo-ionization detector
PPM	PPM Consultants, Inc.
ppm	parts per million
SDS	safety data sheet
SS	Safety Supervisor
SSO	Site Safety Officer
STEL	short-term exposure limit
SVOC	semi-volatile organic compound
TPH	total petroleum hydrocarbon
TLV	threshold limit value
TWA	time-weighted average
UEL	upper explosive limit
UFL	upper flammability limit
VOC	volatile organic compound
UST	underground storage tank

SAFETY DATA SHEETS
AND
FIELD FORMS

Note: ***Safety data sheets and field forms are separate documents that can also be found on the PPM Server via the ipad. Locate the appropriate forms as dictated by the task and/or the Safety Supervisor, complete and return to the Safety Department for recordkeeping.***