CORRECTIVE ACTION PLAN MODIFICATION (CP-28)

Petro America, LLC
Ohatchee General Store
ADEM Facility ID: 21308-015-004640
UST Incident Number: UST17-07-02
5110 Alabama Highway 77
Ohatchee, Alabama 36271
(Calhoun County)

February 21, 2025

Prepared for:
Petro America, LLC
3054 Arbor Bend
Hoover, Alabama 35244

Prepared by:
SPHERE 3 ENGINEERING, INC
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Hoover, Alabama 35216
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SPHERE 3 File: PA.OGS.28

SPHERE 3
ENGINEERING, INC

CERTIFICATION PAGE

I certify under penalty of law that this Corrective Action Plan and all 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.

Signature

Greg Hoagland, P.E.

21581

Registration Number

February 21, 2025

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I. ADEM UST INCIDENT FORMS

Underground Storage Tank (UST) Release Fact Sheet

GENERAL INFORMATION:

SITE NAME: **Ohatchee General Store**

ADDRESS: **5110 Alabama Highway 77, Ohatchee, Calhoun County, AL**

FACILITY I.D. NO.: **21308-015-004640**

UST INCIDENT NO.: **UST17-07-02**

RESULTS OF EXPOSURE ASSESSMENT:

How many private drinking water wells are located within 1,000 feet of site?	**None**
How many public water supply wells are located within 1 mile of site?	**None**
Have any drinking water supply wells been impacted by contamination from this release?	**Yes***
Is there an imminent threat of contamination to any drinking water wells?	**No**
Have vapors or contaminated groundwater posed a threat to the public?	**No**
Are any underground utilities impacted by the release?	**No**
Have surface waters been impacted by the release?	**No**
Is there an imminent threat of contamination of surface waters?	**No**
What is the type of surrounding population?	**Residential/Commercial**

CONTAMINATION DESCRIPTION:

Type of contamination at site: {**X**} Gasoline {**X** } Diesel { } Waste Oil
{ } Kerosene { } Other _____

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

Max. benzene/MTBE/naphthalene concentrations measured in soil:
1.340 mg/kg benzene / 0.140 mg/kg MTBE / 4.240 mg/kg naphthalene

Max. benzene/MTBE/naphthalene concentrations measured in groundwater:
46.600 mg/L benzene / 0.704 mg/L MTBE / 20.000 mg/L naphthalene

*** - private water well PRW-1 was abandoned on April 5, 2021**

ADEM 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:	Ohatchee General Store
SITE ADDRESS:	5110 Alabama Highway 77
	Ohatchee (Calhoun County) Alabama 36271
FACILITY I.D. NO.:	21308-015-004640
UST INCIDENT NO.:	UST17-07-02
OWNER NAME:	Petro America, LLC
OWNER ADDRESS:	3054 Arbor Bend, Hoover, Alabama 35244
NAME & ADDRESS OF PERSON COMPLETING THIS FORM:	Greg Hoagland, P.E. SPHERE 3 Engineering, Inc.
	3433 Sierra Drive; Hoover, Alabama 35216

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.	☒	☐

CLASSIFICATION	***DESCRIPTION***	***YES***	***NO***
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.	☐	☒
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:

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:	C.2

II. INTRODUCTION

General

SPHERE 3 Engineering, Inc. (SPHERE 3) was retained by Petro America, LLC to prepare a Corrective Action Plan (CAP) Modification for their Alabama Tank Trust Fund (ATTF) Underground Storage Tank (UST) incident UST17-07-02 associated with their facility known as Ohatchee General Store, located at 5110 Alabama Highway 77 in Ohatchee, Alabama (see Figures 1 and 2). The objective of the CAP Modification is to design a Soil Vapor Extraction (SVE) and Groundwater Pump & Treat (P&T) corrective action system to efficiently remediate the subsurface soils and local groundwater to the Site Specific Target Levels (SSTLs). The CAP Modification has been prepared in accordance with the Alabama Department of Environmental Management (ADEM) regulation R: 335-6-15-.08, .27 and .29 and the Alabama UST Release Investigation and Corrective Action Guidance Manual. Costs associated with development and implementation of the CAP Modification are eligible for reimbursement by the ATTF.

III. PROPOSED REMEDIATION METHODS

Soil, Free Product, and Groundwater Remediation Methods

As part of the CAP Modification discussions, SPHERE 3 recommended a combination of a SVE and a P&T system to remediate the subsurface soils and local groundwater. The design of the SVE and a P&T system will be conservatively interpreted from the pilot testing data generated at facilities with a similar lithology.

The source area generally appears to be located in the vicinity of monitor wells MW-1, MW-2, MW-7 and MW-13. If piloted, P&T would likely yield a respectable reach (radius of influence) of approximately 30 feet. Data collected during previous assessments at the site indicate that soil impacts extend to a depth of approximately 20 feet below ground surface (bgs). If piloted in a single Type II monitor well constructed with a screen to expose the entire column of impacted soils, SVE would likely yield a limited radius of influence of 20 feet. Long term, sustained application of SVE technology in an appropriately designed network of Type II monitor wells would likely yield a more favorable influence of as much as 25-30 feet.

SVE technology is particularly effective when applied to granular and semi-granular lithologies. Granular soils exhibit higher absolute porosity values, which is the leading indicator of the success of a SVE application. The success of a SVE application is determined predominantly from the measured distribution of the applied vacuum. In consistent lithologies, the applied vacuum is

typically distributed in a radial pattern. The radial distribution of the applied vacuum is commonly referred to as the "radius of influence".

A typical practice of defining the radius of influence of a SVE pilot study is to measure the distance to which a pressure change (or induced vacuum) of 1% of application vacuum can be observed. For practical purposes, this distance may be determined by plotting of the curve of the induced vacuum pressure at each observation point versus the distance to that observation point as measured radially from the application point. From this curve, the radius of influence is identified as the intersection of the curve and the corresponding radial distance at which 1% of the application pressure is noted.

In coarse, granular soils (gravels and sands), the radius of influence can be as large as 80-100 feet. The presence of silts and clays retards the distribution of the vacuum and commonly reduces the radius of influence to a range of 15-40 feet. In lithologies consisting predominantly of clays, the distribution of vacuum is usually prevented. For this facility, a conservative radius of influence of 20 feet will be estimated.

A typical extraction rate (per application point) for a 20 feet distribution is approximately 25-35 cfm for an application pressure of approximately 40-50 inches of H_2O.

SVE and P&T System Design

For the abatement of the source area soils, SPHERE 3 proposes the construction of a SVE system and associated vacuum well network consisting of nine (9) vacuum extraction wells. For the abatement of the source area groundwater and recovery of the source area free product, SPHERE 3 proposes the construction of a P&T system and associated pumping well network consisting of six (6) 4-inch recovery wells.

The proposed pumping well network will consist of existing Type II recovery wells RW-19 and RW-20 and four (4) newly constructed recovery wells (see Figure 8). The four (4) new recovery wells will be installed as depicted on Figure 8. Each new recovery well will be installed to a depth of 20 feet bgs, constructed with 4-inch diameter PVC well materials including 15 feet of well screen with 0.01-inch slots. Soil sampling is proposed. Each newly installed pumping well will be developed, allowed to recharge for a minimum of 48 hours, and purged and sampled for dissolved COCs. The initial dissolved COCs concentrations will establish a baseline data set used to measure the progress of the Corrective Action system.

All pumping wells will be enclosed in a flush mount nominal 24-inch x 24-inch painted steel, traffic rated, bolt-down manhole. Each manway will be secured in a minimum 36-inch x 36-inch concrete pad poured about the center of each well. A schematic of a typical pumping well construction is presented in Figure 9.

Each pumping well will be equipped with a submersible total fluids pneumatic pump with a discharge capacity of approximately 4.8 gallons-per-minute (gpm). Compressed air will be delivered to each pump through a dedicated 1-inch diameter conduit constructed of schedule 40 PVC materials (below grade) and schedule 80 PVC materials (above grade). The fluids generated

by each pump will be returned to the pumping system through a separate conduit constructed of both 1.5-inch diameter schedule 40 PVC materials.

The compressed air and recovered fluids headers will be buried in a series of excavated trenches and directional borings. The excavated trenches will be dug to approximately 24 inches deep and 24 inches wide. A nominal 3 inches of self-compacting bedding material (3/4" crushed stone) will be placed at the base of the trenches. After installation of the header piping, a nominal 4 inches of 3/4" crushed stone will be placed over the header pipes. The uppermost portion of the trenches will be backfilled with 6 inches of 3,500 psi concrete (or re-compacted soils to complete the trenches excavated within a landscaped area). Cross Sections A-A' (see Figure 12) is a diagram of a typical compressed air and recovered fluids header trench.

All compressed air headers will be individually plumbed to a common manifold. Each individual leg of the compressed air manifold will be constructed with 1-inch diameter schedule 80 PVC materials. Each leg of the compressed air manifold will be equipped with an isolation (ball) valve and a pressure gauge. A schematic of a typical compressed air manifold is presented as Figure 11.

The compressed air manifold will interface a series of schedule 80 PVC pipes plumbed from an upright 10-horsepower (hp) air compressor capable of producing adequate compressed air to each of the proposed pumps. The air compressor will likely require 230-volt three phase power. The compressor motor will be mounted at a distance of at least 18 inches above the finished grade to satisfy all explosion hazard criteria. The air compressor will be equipped with a high-pressure pop-off valve, an automatic condensation drain valve, a coalescing filter, and an electrical thermal overload switch.

All recovered fluids headers will be individually plumbed to a common manifold. Each leg of the recovered fluids manifold will be constructed with 1.5-inch diameter schedule 40 PVC materials. Each leg of the recovered fluids manifold will be equipped with a check valve and a section of clear PVC piping for observing each pumping well's production. A schematic of a typical recovered fluids manifold is presented as Figure 11.

The recovered fluids manifold will interface an oil/water separator through a series of schedule 40 PVC pipes. The separator will remove any free product and discharge the groundwater at a total BTEX concentration of 10 mg/L or less. The oil/water separator will have a 20 gpm capacity and will be equipped with a 20 micron coalescing filter, a weir, and gravity skimmer. The skimmer will interface with a 55-gallon free product storage tank equipped with a liquid level shut-off switch.

Groundwater treated in the oil/water separator will flow under gravitational conditions to a shallow tray air stripper. The stripper will be equipped with an explosion-proof blower, likely requiring 230-volt three-phase power. The blower will be equipped with a high (vacuum) pressure spring valve, a high (positive) pressure shut-off switch, and an electrical thermal overload switch. The blower will force clean ambient air through the stripper trays as the groundwater flows downward under gravitational conditions. The stripper will remove the dissolved BTEX at 99.9% efficiency. Groundwater treated in the air stripper will be pumped through a particulate (silt, iron and calcium) filter to ultimately to the final outfall. Emissions control monitoring is specified in report section *V. Operations & Maintenance Activities*.

The SVE vacuum well network has been designed using the radius of influence estimated as 20 feet. The conceptual design consists of nine (9) vacuum points, which are located in the areas where the highest soil COCs concentrations exist. The SVE vacuum well network will consist of existing Type II monitor wells MW-1, MW-2 and MW-7 and six (6) newly constructed Type II SVE monitor wells (see Figure 8). The six (6) new SVE monitor wells will be installed as depicted on Figure 8. Each new SVE monitor well will be installed to a depth of 20 feet bgs, constructed with 2-inch diameter PVC well materials including 15 feet of well screen with 0.01-inch slots. Soil sampling is proposed. Each newly installed vacuum well will be developed, allowed to recharge for a minimum of 48 hours, and purged and sampled for dissolved COCs. The initial dissolved COCs concentrations will establish a baseline data set used to measure the progress of the Corrective Action system.

Each vacuum well will yield approximately 20-30 cfm of air/vapors. A vacuum header will connect just below the top of well casing to each vacuum extraction well using 2-inch diameter schedule 40 PVC materials. Each vacuum well will be enclosed in a flush mount nominal 8-inch diameter, traffic rated, bolt-down typical well cover. Each well cover will be secured in a minimum 24-inch x 24-inch concrete pad poured about the center of each well. A schematic of a typical vacuum well construction is presented in Figure 9.

Each vacuum header will be constructed with 2-inch diameter schedule 40 PVC materials. A typical section of a vacuum header piping will be twenty (20) feet in length with a 4-inch (long) bell-shaped, slip coupling. Header piping couplings will be sealed with PVC bonding agents to reduce the risk of short circuitry. Each header will be individually plumbed to a common manifold. Each leg of the extraction manifold will be equipped with an isolation (ball) valve and a vacuum pressure gauge. A schematic of a typical SVE manifold is presented as Figure 10.

The extraction header piping will be buried in a series of excavated trenches and directional borings. The trenches will be excavated approximately 24 inches deep and 24 inches wide. A nominal 3 inches of self-compacting bedding material (3/4" crushed stone) will be placed at the base of the trenches. After installation of the header piping, a nominal 4 inches of 3/4" crushed stone will be placed over the header pipes. The uppermost portion of the trenches will be backfilled with 6 inches of 3,500 psi concrete (or re-compacted soils to complete the trenches excavated within a landscaped area). Cross Sections A-A' (see Figure 12) is a diagram of the proposed vacuum header trench.

Prior to reaching the SVE vacuum blower, the recovered vapors will advance through a moisture separator to remove air moisture. The moisture separator (200-gallon capacity) will be equipped with an automatic high liquid level shut-off switch to prevent fluids from entering the blower. A particulate filter, vacuum gauge, and vacuum-relief valve will be installed between the moisture separator and the blower.

The blower size will be selected by comparing various blower performance curves to the application pressure and the anticipated extracted airflow rate. The estimated extracted airflow was estimated to be approximately 30-45 cfm per vacuum well. As the vacuum well network will consist of nine (9) vacuum wells, the blower should be capable of producing a flow rate of approximately 315 cfm (9 wells x 35 cfm) at a vacuum pressure of 50 inches of H_2O (40 inches of H_2O for the application

pressure and an additional 10 inches of H_2O to overcome the friction generated from the header piping, fittings and particulate filters. The blower will likely require 230-volt three phase power.

In consideration of the physical properties of the local subsurface soils, which will substantially govern the volumetric air emissions of a proposed SVE system, emissions generated from the operation of the blower will be controlled with vapor-phase carbon. The extracted vapors will be advanced through the carbon under negative pressure conditions. The carbon will be stored in two (2) 1,000-pound capacity vessels arranged in parallel. Actual system emissions (prior to vapor-carbon treatment) will be determined at system start-up. Emissions control monitoring is specified in report section *V. Operations & Maintenance Activities*.

All SVE and P&T equipment components will be housed within a portable, heated equipment building approximately 16 feet in length, 8.5 feet wide, and 8 feet tall. The portable building will have an access door and removable wall panels to aid in servicing and maintaining the system equipment. The system building, emissions control components, and the vacuum, compressed air and recovered fluids manifolds will be secured within a gated equipment compound. The equipment compound will be constructed with galvanized fencing materials. The perimeter fencing will be constructed to a height of 6 feet high (minimum) and capped with continuous strands of barbed wired. The perimeter fencing will be finished with all-weather privacy slats and an 8-foot (double panel) access gate. The perimeter fence of the compound will be supported with 2" diameter galvanized fence posts spaced on 8 feet (maximum) centers. Within the compound, the equipment enclosure will rest upon a crushed stone base. Details of the equipment compound construction are illustrated on Figure 13.

The equipment compound will be serviced with a 200-amp, 3-phase electrical service extending aerially from an existing utility pole to the north end of the building. Telecommunications service required for the system telemetry module will be achieved through the area's cellular network.

The SVE system will consist of a 19.4-horsepower regenerative vacuum blower capable of producing a 500 ACFM airflow at an operating pressure of 50 inches of H_2O, an air water separator and an emission control component. The P&T system will consist of nine (9) downhole pneumatic pumps capable of producing 4.8 gpm, a 10-horsepower air compressor, a shallow tray SA20 stripperator, rated for up to 20 gallons per minute, and a coalescing oil/water separator, a particulate filtering component, and a polishing carbon component. The system will be equipped with an integrated telemetry system, which may be used to remotely monitor and limitedly control the system.

The treated groundwater effluent generated by the P&T system will be discharged, under the State's General National Pollutants Discharge Elimination System (NPDES) permit, to a local storm sewer which empties into an unnamed tributary of Logan Martin Lake, which is located approximately 9,000 feet west of the facility at an approximate elevation of 465 feet above mean sea level (amsl). See Figure 1. A NPDES permit application will be executed upon approval of the CAP.

The groundwater effluent will be sampled (monthly) and reported in accordance with the ADEM Permits and Services Division permit requirements. At a minimum, the General NPDES permit requires the following discharge specifications:

pH:	6.0 to 8.5 standard units (su) daily minimum/maximum;
Oil & Grease:	15 mg/L daily maximum;
MTBE:	report the daily maximum in μg/L;
Benzene:	15.5 μg/L daily maximum;
Toluene:	8,723 μg/L daily maximum;
Ethylbenzene:	1,244 μg/L daily maximum;
Total Xylenes:	report the daily maximum in μg/L;
Flow:	report the daily maximum in gpd.

To improve the system's ability to meet the requirements of the State's General NPDES permit, the groundwater processed by the system will be treated with an oil/water separator, an aggressive, high-volume air stripper, and a triple-bag suspended mineral and particulate filter. System discharge control monitoring will be specified in report section *V. Operations & Maintenance Activities.*

A 3-inch diameter schedule 40 PVC discharge (effluent) line will be constructed from the equipment compound to an outfall location within a median located approximately 100 feet west of the proposed equipment compound (see Figure 8).

Emissions generated by the proposed SVE system, will be controlled with vapor-phase carbon granules. SVE influent air samples (prior to vapor-phase carbon treatment, one at each vacuum well) and a SVE exhaust air sample (after vapor-phase carbon treatment, emissions) will be collected at system start-up and each month of operations. The results of the SVE air influent and emission samples will be included in each Corrective Action System Effectiveness Monitoring Report (SEMR). The SVE air emissions will be controlled using two (2) replenishable 1,000-pound carbon vessels arranged in parallel. Compliant to ADEM Air Department regulations, emissions of volatile organic compounds (VOCs) shall not exceed 2,000 pounds life-time or 15 pounds per day at maximum rate of 3 pounds per hour. For gasoline UST remediation projects, VOCs are equivalent to gasoline range (C-12 to C-6) organics. System emissions control monitoring will be specified in Section *V. Operations & Maintenance Activities.*

Estimated Duration of Clean-up

The estimated time (or duration) of clean-up has been based on the removal of free product dissolved COCs. The remediation of the subsurface plume will be governed by the system's ability to capture and treat the local groundwater and free product within the footprint of the highest concentrations of dissolved COCs. According to Figure 6, the areal extent of the dissolved COCs plume with an estimated concentration of 1 milligrams per liter (mg/L) benzene or greater (which includes the estimated aerial extent of free product) has a surface area of 6,525 square feet (ft^2).

As specified, nine (9) groundwater pumping wells are proposed. Assuming uniformity of the subsurface soils, consistency of the horizontal and vertical groundwater velocities and that each pump will capture groundwater at the same efficiency, each pump will have an ultimate capture area of 725 ft^2/pump

According to the lateral distribution of the dissolved COCs plume, a estimated local Darcy velocity of roughly 3.5 feet/year can be assumed. Assuming a uniform thickness of the dissolved COCs plume, an equal, consistent drawdown at each pump, and assuming the capture area water gradient will as much as double due to the pumping influence, a unit availability of 153.9 ft^2/year/pump can be estimated as the circular area defined by the "pumping influenced" Darcy velocity $[(3.5 \text{ feet} \times 2)^2 \times \pi]$.

The estimated time for clean-up may be expressed in consideration of the ultimate capture area of each pump and the unit availability of the LPH/DPH plume:

$$\text{Duration}_{\text{Clean-up}} = \text{Area}_{\text{Capture}} \div \text{Availability}_{\text{Darcy (Pumping Influenced)}}$$

$$\text{Duration}_{\text{Clean-up}} = 725 \text{ ft}^2\text{/pump} \div 153.9 \text{ ft}^2\text{/year/pump}$$

$$\text{Duration}_{\text{Clean-up}} = \sim 4.7 \text{ years}$$

This duration calculation also assumes that all soil-to-groundwater leaching process will be eliminated with the activation of the SVE blower.

Construction and Equipment Costs Comparisons

To provide a competitive cost analysis for the purchase of the Corrective Action system equipment associated with the Corrective Action system, SPHERE 3 solicited two (2) separate bids for the equipment purchase.

The equipment bids were solicited from Sepco of Madison, Mississippi and MK Environmental of Lombard, Illinois. The quotes were received as follows:

- MK Environmental $94,970.00
- Sepco $185,849.00

The equipment quotes are presented in Appendix A. Each bid includes comparable equipment components, which meet or exceed the specifications proposed herein. Therefore, of the bids received, SPHERE 3 recommends the equipment proposed by MK Environmental.

In an effort to conduct a competitive cost comparison for the installation of the proposed Corrective Action system, SPHERE 3 solicited a quotes from Curtis Service, Inc. of Oneonta, Alabama and All Star Construction of Orange Beach, Alabama. The comparison is as follows:

- Curtis Service, Inc. $69,500.00
- All Star Construction $74,150.00

and includes:

1. construction of the SVE, compressed air, and recovered fluids header network trenches;
2. construction of the treated water (NPDES) effluent conduit and outfall;
3. construction of the SVE, compressed air, and recovered fluids manifolds;
4. construction of the equipment compound and support timbers, and;
5. crane placement and anchoring of all equipment.

The construction services quotes are presented in Appendix A. The quotes include comparable materials and services, which met or exceeded the specifications proposed herein.

The construction of the electrical service will require an electrician experienced in Class 1, Division 1 construction, operating under a separate license, permit and inspection procedures. For an electrical service quote, SPHERE 3 invited Tortorice Electrical Service, Inc. of Trussville, Alabama, an extensively experienced ATTF corrective action system construction company, to provide a quote. The quote from Tortorice Electrical is provided in Appendix A:

- Tortorice Electrical Service, Inc. $9,500.00

Because substantial fluctuations are possible in the costs of materials generated by processes which rely on the use of crude oil products or include copper, all installation and electrical service construction bids are guaranteed for only 30 days.

SPHERE 3 and its personnel will provide the materials necessary for and the construction of:

1. the manifolds to system enclosure connections;
2. the vapor phase carbon (from the SVE blower) connection;
3. the exhaust stack at the effluents of the vapor phase carbon vessels;
4. the particulate filter (from the air stripper) connection, and;
5. the treated water discharge connection.

Required Utilities

The proposed SVE and P&T components will require 200 amps of 3-phase, 230 volts of electricity, supplied through a closed delta transformer arrangement. The area is serviced by Alabama Power Company (APCO). SPHERE 3 personnel have notified APCO of the probable requirements. In response, APCO representatives have stated that he believed that a APCO equipment upgrade would not be required but could not make an absolute statement until an assessment of the existing APCO equipment could be made by their engineers. The APCO assessment cannot be conducted until an official order for service is made.

In the past, SPHERE 3 has received electrical service construction costs ranging from $800.00 to $17,000.00. Most electrical service construction quotes tend to come in closer to the bottom of that range and many are provided at no additional cost. In that consideration, SPHERE 3 has opted to estimate the APCO service construction cost as $0.00 (zero dollars). If a cost is incurred as part of the APCO construction, the amount charged by APCO plus the standard passthrough charge will be sought for reimbursement and an addendum will be prepared upon receipt of the APCO invoice.

The proposed Corrective Action system will also require a telecommunications service. Telecommunications service will be achieved through the area's cellular network.

Operations Permitting

The proposed Corrective Action system will require Notices of Intent (NOIs) filed with the ADEM Air Division and the ADEM Permits and Services Division (NPDES Permit). The NOIs will be filed immediately upon approval of the CAP by the ADEM – UST Corrective Action Section.

IV. RATIONALE FOR SELECTION OF REMEDIATION ALTERNATIVES

Selection of the site remediation methods is based on a number of factors. Several of the main factors considered for the selection of the remedial action system include the exposure assessment, the site hydrogeology, the feasibility of implementing a selected corrective action based on previously conducted Corrective Action, cost, operation and maintenance, disposal options, and site location.

While a Multiphase Extraction (MPE) application is widely believed to be a more aggressive technology, P&T technology can generate a larger and more consistent reach (radius of influence) in long term applications. That extended reach will prove beneficial in affecting the dissolved plume beneath the fuel island area, while the supplementation of a SVE application addresses soil COCs and residual free product at the source areas.

V. OPERATIONS AND MAINTENANCE ACTIVITIES

Routine Operations and Maintenance

To maintain the integrity of the system during operation, the routine operations and maintenance (O&M) will be scheduled to include seven (7) site visits per quarter. The O&M activities will begin the week following the initial start-up, "dial-in" and initial air quality sampling activities included with system installation and will be implemented according to the following schedule of tasks:

Visit One:	General Maintenance
Visit Two:	Progress Maintenance
Visit Three:	General Maintenance
Visit Four:	General Maintenance
Visit Five:	Progress Maintenance
Visit Six:	General Maintenance
Visit Seven:	Quarterly Cleaning, Vapor Sampling, and Groundwater Monitoring

Where the tasks are defined as follows:

General Maintenance:

1. Field measure the emission rate at the exhaust of the SVE Blower;
2. Collection of ambient temperature and barometric pressure;
3. Collection of applied vacuum pressure data at each extraction point and vacuum well;
4. Collection of SVE exhaust temperature and flow conditions data;
5. Collection of SVE vacuum reduction temperature and flow conditions data;
6. Cleaning and Disposals as necessary;
7. System operation adjustments as necessary;

Progress Maintenance:

8. All included in a General Maintenance visit;
9. Collection of SVE influent air samples from each vacuum well (a total of 9);
10. Collection of a SVE exhaust sample;
11. Analysis of the SVE influent air samples for BTEX, MTBE and TPH;
12. The collection of an influent (pre-treatment) and effluent water sample (post-treatment);
13. The laboratory analysis of the influent and effluent water sample for BTEX/MTBE/Naphthalene by method 8260B. The effluent sample will also be analyzed for pH (measured in the field), Oil & Grease, and possibly total Lead;
14. The collection of volumetric flow data of the effluent water (NPDES discharge);

Quarterly Cleaning, Vapor Sampling, and Groundwater Monitoring:

15. All included in a Progress Maintenance visit;
16. Collection of groundwater elevations from all facility monitor wells;
17. Collection of groundwater samples from select or all facility monitor wells;
18. Analysis of each groundwater sample for BTEX, MTBE and naphthalene by method 8260B, and;
19. Thorough cleaning of the compound area.

Periodically, the system's oil/water separator and air stripper (the stripperator) will require evacuation of oily sludge and precipitated mineral deposits. The sludge and mineral deposits occur as part of the normal operation of the stripperator and must be conducted by vendor with the capacity to manage and dispose of such waste. The frequency of the sludge and mineral evacuation will be determined after the system has been operational of a period of approximately 60 days. Initially, funding for cleaning the stripperator will be requested in the form of an addendum to a current ATTF Cost Proposals. As the cleaning frequency is confirmed, the costs will be included in the appropriate ATTF Cost Proposals.

Operations and Maintenance Personnel

The General & Progress Maintenance routines will be performed by an experienced, qualified technician who is familiar the particular system. The same technician and an accompanying support technician will perform each quarterly monitoring event. All on-site personnel will be qualified as a Hazardous Materials Handling representatives trained under the OSHA standard 29 CFR 1910.

VI. PROPOSED REPORTING REQUIREMENTS

A schedule of implementation will be submitted within fifteen (15) days of the approval of the CAP. All data and findings associated with the operations & maintenance of the corrective action system will be reported in quarterly reports.

VII. SCHEDULE OF IMPLEMENTATION

The CAP will be implemented within 60 days of approval.

VIII. QUALITY ASSURANCE/QUALITY CONTROL PLAN

Air Sampling

Air samples are collected utilizing a "Pulse Pump" (air sampling) pump. The pump is primed, prior to collection of each sample, to displace any trapped air or gases with the targeted air make-up. The air is drawn in and exits through polyethylene tubing. The sample is stored a Tedlar® air/gas sampling bag. The pump is also used to extract air/gases from a vacuum and drive them into a field screening instrument. The air sample collection and screening protocols are described below.

Air Screening

Air screening is conducted to provide a field indication of the levels of hydrocarbon gases in vapor phase. The air/gases are screened with a Photoionization Detector (PID) equipped with a methane filter. As stated above, the air/gases are driven into the PID with the air sampling pump. The samples are immediately screened at ambient conditions and the data recorded onto a headspace analysis worksheet.

The field screening test form contains the following information:

1. The project name (client and location);
2. Table number;
3. Personnel collecting the samples;
4. Field screening instrument used and I.D. number;
5. Calibration information;
6. Description of field screening method;
7. Sample identification information; and
8. Field screening data including time collected, time screened, ambient temperature, and field screening reading;

Air Sampling Protocols

Each air sample is submitted for laboratory analysis of BTEX, MTBE and TPH (GRO) by EPA method 18. The air samples are transferred, along with an ample supply of ice, in a cooler to an analytical laboratory following appropriate preservation and chain-of-custody protocols. Preservation protocols are not required for BTEX, MTBE and TPH analysis of air samples.

Soil Sampling

Soil samples are collected from all soil exploration borings following one of the following ASTM Standard Methods: D-1452 (Practice for Soil Investigation and Sampling by Auger Borings); D-1586 (Method for Penetration Test and Split -Barrel Sampling of Soils); or D-1587 (Practice for Thin-Walled Tube Sampling of Soils) (Note: samples collected from the upper 5 feet of each boring are collected with hand auger equipment). Soil samples are typically collected on either a continuous basis or on five-foot centers (i.e. samples intervals 3'-5', 8'-10', 13'-15', etc.). Each soil sample is divided into two portions. One portion is prepared for field screening and one portion is prepared for analytical testing. The soil sample collection and screening protocols are described below.

Soil Screening

Soil screening is conducted to provide a field indication of the relative levels of soil constituent concentrations. In the event that the boring depth is dependent upon the results of the soil screening (vertical extent investigations), the soil samples will be field screened immediately upon collection. Otherwise, the soil samples will be allowed to equilibrate to ambient conditions greater than 60 degrees Fahrenheit for at least one hour prior to soil screening.

The portion of the soil sample collected for field screening is placed in a pint or quart mason type glass jar until the jar is approximately half full. The top of the jar is then sealed with aluminum foil and a threaded lid ring. The sample is screened by puncturing the aluminum seal with the instrument probe and measuring the headspace of the ambient samples. The instrument currently used by SPHERE 3 is a PID. The PID are calibrated prior to headspace sampling and rechecked upon completion of headspace analysis each day. The PID is calibrated to a benzene standard.

Generally, the soil samples with the highest PID readings collected from the unsaturated zone are selected for analytical testing. If groundwater is not encountered in the boring, two soil samples are analyzed from each boring. Typically the deepest soil sample and the sample yielding the highest field screening value are selected for analytical testing. Additional soil samples may be selected for analytical testing, depending on site specific conditions.

Soil Sampling Protocol

All undisturbed soil samples are collected using either split spoon sampler (ASTM D-1586) or a Shelby Tube sampler (ASTM D-1587) (Note: soil samples collected from the upper 3 feet in each boring are collected with hand auger equipment). The sampling is conducted by advancing the borehole to the desired depth using a flight auger or hollow-stem auger. A clean split spoon or Shelby tube sampler is then advanced to the bottom of the hole and hammered or pushed into the soil. The sampler is then retrieved. The split spoon samples are removed by opening the split spoon and removing the sample using a clean stainless steel knife. The Shelby tube samples are removed with a hydraulic extruder. After being removed from the sampler, the sample is then placed on disposable foil-lined sample catchers for classification and analytical preparation. Upon completion of the sample collection, the boring is advanced to the depth of the next sample using the hollow stem or flight augers and the sampling procedure is repeated.

The soil samples selected for analytical testing are placed in laboratory grade container and submitted for appropriate COCs analysis. The sample jars are packed full with soil in an effort to minimize headspace. Each container is sealed with a Teflon® lined cap. Each sample jar is labeled, placed in bubble pack and an airtight "Ziploc" bag, and immediately stored, along with an ample supply of ice, in a cooler. Each sample label includes the site location, sample identification number, name of collector, date and time of collection, and parameter(s) requested (if space permits).

All sample handling is conducted with disposable latex gloves. Between individual samples, all disposable items are discarded and all non-disposable equipment (knives, spatulas, cheese cutters, split spoon samplers and Shelby Tube samplers) are decontaminated utilizing the following procedure:

1) Rinse with potable water to remove bulk solids;
2) Wash with laboratory-grade detergent and potable water solution;
3) Rinse with deionized water;
4) Wash with isopropanol; and
5) Rinse with deionized water.

The soil samples are transferred, along with an ample supply of ice, in a cooler to an analytical laboratory following appropriate preservation and chain-of-custody protocols. Preservation protocols for COCs soil samples include maintaining samples temperatures at or below 4 degrees Celsius at all time. Additional preservatives are not necessary for soil samples.

Groundwater Sampling
Groundwater samples are collected approximately 7 to 14 days after monitor well development. Collecting groundwater samples from monitor wells includes the following activities: 1) gauging for the presence of LPH; 2) measurement of static water level; 3) calculation of standing water volume; 4) well purging; 5) sample collection; and 6) equipment cleaning. The results of the sampling activities are recorded on a monitor well sampling record form. The details of these six activities are described in the following sections.

Free Product Measurements
Free product thicknesses (if present) are measured prior to purging and sampling the well with a hydrocarbon/water interface probe. The thickness is measured by lowering the probe slowly into the well until a tone is heard (Note: an intermittent tone indicates the presence of water and a constant tone indicates the presence of free product). The first point, as the probe is lowered into a well, at which a constant tone is first heard, is considered as the top of the free product. The distance from the top of the PVC well casing to the top of the free product is recorded. This distance is confirmed by re-measuring. The probe is then slowly lowered further into the well until an intermittent tone is heard. Upon hearing an intermittent tone, the probe is slowly pulled upward until the constant tone is heard again. This is considered the free product/water table interface. The distance from the top of the PVC casing to the free product/water table interface is recorded. This distance is confirmed by re-measuring.

The free product thickness is determined by calculating the difference between these two distances (Note: the interface probe measures product and water levels to an accuracy of +/- 0.01 feet). If free product is identified by the interface probe, a clear bailer is lowered in the well to collect a sample of the free product for a visual confirmation.

Static Groundwater Elevation Measurements
The static groundwater levels are measured with the hydrocarbon/water interface probe. The measurements are recorded as the distance from the top of the PVC well casing to the point at which an intermittent tone is emitted from the probe. This distance is confirmed by re-measuring. Subsequently, each measurements is converted to an elevation with respect to either an arbitrary elevation of 100 feet established at the site or to mean sea level as determined from the associated USGS topography map.

Calculations of Standing Water Volumes
The standing water volume in each well is calculated as the volume of a cylinder:

$$\text{Volume} = \pi \times \text{diameter}^2 \div 4 \times \text{height},$$

Where the diameter considered is that of the well casing and the height considered is the length of the water column present in the well.

Well Purging
The well purging process is implemented after the static water level is measured and the standing water volume has been calculated. Well purging is generally achieved with an appropriate bailer.

Well purging with a bailer is conducted by attaching new nylon line to the bailer then lowering the bailer in to the well until the bailer is submerged. The bailer is then retrieved from the well in such a manner that the bailer and nylon line does not come into contact with any potential source of hydrocarbon constituents. In order to determine the amount of water removed from the well, the contents of the bailer is poured into a graduated bucket. This procedure is repeated until three well volumes of water are removed or the well is purged dry.

Groundwater Sample Collection
Groundwater samples are collected from monitor wells not containing LPH. The bailer is lowered into the well to a depth were the bailer is completely submerged. The bailer is then retrieved from the well in such a manner that the bailer and nylon line does not come into contact with any potential source of hydrocarbon constituents. The water is then immediately poured slowly into the sample containers.

Each groundwater sample is submitted for laboratory analysis of BTEX, MTBE & naphthalene by method 8260B. The groundwater is poured slowly down the side of the sample vial to avoid aeration. The sample vial is a laboratory grade 40-ml glass vial with a Teflon® septum cap. Sample is added until a convex meniscus is formed at the top of vial. A Teflon® septum cap is placed and threaded secure on the container. The container is then upended and checked for the presence of trapped air. If air is present, more sample is added and the process repeated until an air-free sample is attained. The preservation of the BTEX, MTBE & naphthalene groundwater samples includes both ice and hydrochloric acid.

Following the collection of groundwater samples, each is labeled, placed in bubble pack and stored, along with an ample supply of ice, in a cooler. Each label includes the site location, sample identification number, name of collector, date and time of collection, and parameter(s) requested (if space permits). The cooler is then sealed and transported overnight to the laboratory follow appropriate chain of custody protocols.

Cleaning of Groundwater Sampling Equipment
All equipment used for sampling is either well dedicated or discarded following the completion of the groundwater sampling activities.

Chain-of-Custody

Sample custody begins with the subcontracted laboratory as sample kits are prepared and submitted to SPHERE 3. Responsibility for sample container materials and preparation lies with the subcontracted laboratory. Sample containers and kits are normally shipped to SPHERE 3 by common carrier. Upon receipt of the kits, SPHERE 3 personnel complete an inventory of its contents to determine adequacy for the sampling program. Sample bottles may be pre-labeled and contain proper preservative. The sample kits are then resecured until ready for use.

Field sampling operations do not normally involve a transfer of sample custody during the project activities. The samples will remain in the custody of the SPHERE 3 personnel until delivered to the subcontract laboratory or dispatched via common carrier for shipment. In cases where samples leave the control of SPHERE 3, such as shipment to a laboratory by a common carrier (e.g. airfreight), a custody seal(s) will be placed on the shipping container. These seals act as a deterrent against vandalism.

To establish the documentation necessary to trace sample possession from time of collection, a chain-of-custody record will be filled out and will accompany every sample. The record contains the following types of information:

- Sample number
- Signature of collector
- Date and time of collection
- Sample type (e.g., ground water, immiscible layer)
- Identification of well
- Number of containers
- Parameters requested for analysis
- Signature of person(s) involved in the chain of possession

Field and Laboratory Quality Control

SPHERE 3 conducts internal quality control checks of sampling procedures and laboratory analyses. Described below is the field and laboratory QA/QC program.

Field QA/QC Program

Groundwater samples may be warranted by means of a trip blank. A trip blank is a field blank that is transported from the laboratory to the sampling site, handled the same as other samples, then returned to the laboratory for analysis in determining QA/QC of sample handling procedures. The trip blank should be filled with distilled water in the laboratory at a frequency of one (1) per cooler.

The results of the analysis of the blanks will not be used to correct the groundwater data. If constituents are found in the blanks, an attempt to identify the source will be initiated and corrective action, including resampling, will be evaluated.

After completion of each sampling program, the field data package (field logs, calibration records, chain-of-custody forms, etc.) will be reviewed by the project manager for completeness and accuracy. The review will include but are not limited to the following:

- A completeness review of field data contained on water and soil sampling logs;
- A verification that sampler rinsate blanks, field blanks, and trip blanks were properly prepared, identified, and analyzed;
- A check on field analyses for equipment calibration and condition;
- A review of chain-of-custody forms for proper completion, signatures of field personnel, and the laboratory sample, custodian, and dates.

Laboratory QA/QC Program

The selection of a contract laboratory is typically based upon several factors including cost; laboratory certification; quality data and reporting; and turn-around time. The most critical factor in the selection of an analytical laboratory is the quality of analysis and reporting.

As an analytical report is received by SPHERE 3, validation of the analytical data package will be reviewed by the project manager. The review will include but not be limited to the following:

- A comparison of the Data Package to the reporting level requirements designed for the project, to ensure completeness;
- A comparison of sampling dates, laboratory extraction dates, and analysis dates to determine if samples were extracted and/or analyzed within the proper holding times;
- A review of analytical methods and required detection limits to verify confirmation with the established parameters;
- A review of the laboratory blank(s) to evaluate handling procedures. The preparation techniques and frequencies, and the analytical results (if appropriate) will be considered.

IX. SELECT REFERENCES

SPHERE 3 Engineering, Inc., April 2, 2018, *Preliminary Investigation Report (CP-1), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., October 3, 2018, *Secondary Investigation Report (CP-2), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., February 26, 2019, *Alabama Risk-Based Corrective Action (ARBCA) Tiers 1 and 2 Evaluation (CP-3), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., February 27, 2019, *Corrective Action Plan Evaluation (CP-4), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., March 6, 2019, *Additional Monitor Well Installation and Groundwater Monitoring Report (CP-5), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., July 3, 2019, *Corrective Action Plan (CP-9), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., March 31, 2020, *Additional Monitor Well Installation and Mobile Enhanced Multiphase Extraction Supplemented Groundwater Monitoring Report (CP-10), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., July 23, 2021, *Additional Monitor Well Installation and Private Water Well Abandonment Report (CP-18), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

SPHERE 3 Engineering, Inc., July 25, 2023, *High Resolution Site Characterization Report (CP-27), Ohatchee General Store; ADEM Facility ID: 21308-015-004640; UST Incident Number: UST17-07-02; 5110 Alabama Highway 77; Ohatchee, Alabama 36271*, unpublished report.

U.S. Geological Survey, 7.5-minute topographic map, Francis Mill, Alabama.

(Note: in addition to the reports listed above, numerous additional groundwater monitoring and/or Mobile Enhanced Multiphase Extraction reports have been submitted for the facility, from July 2019 to the present)

X. LIMITATIONS OF THIS PLAN

SPHERE 3 has prepared this Corrective Action Plan for facility known as Ohatchee General Store located at 5110 Alabama Highway 77 in Ohatchee, Alabama in accordance with the ADEM specifications.

The conclusions contained in this report are based upon conditions at the site during the field investigation and on the assumption that the exploratory borings are representative of the subsurface conditions throughout the site.

Reporting and interpretation is based solely on data obtained within this prescribed scope of work performed. Environmental conditions at this site not identifiable with this conducted work scope, if any, should not be considered the responsibility of SPHERE 3.

The only warranty made by SPHERE 3 in connection with the services provided is that we have used the degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty, expressed or implied, is made or intended.

XI. SITE HEALTH AND SAFETY PLAN

SPHERE 3 ENGINEERING, INC
3433 Sierra Drive • Hoover, Alabama 35216 • Phone: (205) 403-3317 • Fax: (205) 403-3318

SITE HEALTH and SAFETY PLAN
Corrective Action System Installation

SUBMIT TO: Mr. Greg Hoagland, P.E.; SPHERE 3 Engineering, Inc.; President

PROJECT NAME: Ohatchee General Store
Corrective Action System Installation

PROJECT NUMBER: PA.OGS.XX (where XX denotes the ATTF CP number)

DESCRIPTION OF WORK: Trenching, Excavating, Directional Boring, Construction

CLIENT CONTACT(S): Mr. Shafiq Samji
Petro America, LLC
3054 Arbor Bend
Hoover, Alabama 35244

PROJECT SITE LOCATION: Ohatchee General Store
5110 Alabama Highway 77
Ohatchee, Alabama 36271

PROJECT SITE CONTACTS: Ohatchee General Store
5110 Alabama Highway 77
Ohatchee, Alabama 36271
Cell: (256) 330-0130

PROJECT SUBCONTRACTORS:

Curtis Service Company	Tortorice Electrical
Mr. Michael Curtis	Mr. Charles Tortorice
Cell: (205) 212-8868	Cell: (205) 965-4066

PROJECT MANAGER: Greg Hoagland, SPHERE 3 Engineering, Inc.
Phone: (205) 403-3317 Cell: (205) 288-4896

ON-SITE MANAGER(S): Tres Bond, SPHERE 3 Engineering, Inc.
Phone: (205) 403-3317 Cell: (205) 288-7460

WORK SCHEDULE: Generally 7:00 a.m. through 5:00 p.m. each visit

SITE DESCRIPTION:
Located in Ohatchee, Alabama, the site and contiguous properties are of commercial and residential designation. The facility property is improved with an active convenience store, retailing sundry items and motor fuels. Refer to attached area map showing location.

PLANNED SITE ACTIVITIES:

1. Excavating;
2. Directional Boring;
3. Trenching, and;
4. General Construction.

KNOWN CHEMICAL HAZARDS:

Component	Location	Media	TWA TLV*	TLV STEL**
Petroleum Distillates	All Site	SWA	400 ppm	--
Gasoline	All Site	SWA	300 ppm	500 ppm
Benzene	All Site	SWA	0.1 ppm	5 ppm
Toluene	All Site	SWA	100 ppm	150 ppm
Xylenes	All Site	SWA	100 ppm	150 ppm
Ethylbenzene	All Site	SWA	100 ppm	125 ppm

Notes:

Values per American Conference of Government Industrial Hygienists (ACGIH) or, 20 CFR Part 1910 (OSHA) whichever is most stringent.
S - soil; W - water; A - air

* The Threshold Limit Value (TLV) is the time weighted average concentration for a normal eight-hour day and forty-hour work week, to which all workers may be repeatedly exposed, day after day, without adverse effect.

** The Short-Term Exposure Limit (STEL) is the concentration at which workers can be exposed continuously for a short period of time. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times in an eight-hour period. There should be at least one hour between each 15 minute exposure at the STEL.

OTHER SUSPECTED CHEMICAL HAZARDS:

No other known. If encountered or suspected, contact Office Safety Manager.

CONCENTRATION MEASUREMENT METHODS:

Activity	Location	Detector*	Survey Method**
Air/Gases Sampling	All Site	PID & LEL	Work area breathing zone
Borehole Installation and Sampling	All Site	PID	Work area breathing zone
Groundwater Sampling	Specific	PID	Sources

Notes:

PID - Photoionization Detector.

* Instruments to be calibrated daily.

** Readings to be taken at a minimum of one per hour and more frequently in more contaminated areas or during critical activities.

ACTION LEVELS:

Activity	Location	Action Level	Precaution
All On-Site	All Site	>50 ppm	Cease activities until levels decrease

POTENTIAL PHYSICAL HAZARDS:

1. Overhead electric lines.
2. Underground electric and natural gas lines, gasoline product transfer lines, etc. (Note: all known utility line locations will be marked by a line-locating company prior to initiating the site activities).
3. Falling objects from the drilling rig (i.e. augers, drill rods, slide hammer, etc.).
4. Potential for explosive conditions.

REQUIRED HEALTH AND SAFETY APPAREL AND PROCEDURES:

All project activities will be conducted under OSHA Health & Safety Level D. Protective equipment will include:

1. Hard hat
2. Safety glasses
3. Steel toe safety boots
4. Orange Safety Vest with Reflectant Tape
5. Sleeved shirt, long pants (coveralls optional).
6. Latex and/or nitrile gloves, if phase material encountered (Tyvek Suits optional).

Smoking is prohibited at the worksite and facility properties. Explosion proof or intrinsically safe equipment must be used in areas designated as hazardous (potentially explosive). At least one class ABC fire extinguisher will be placed in a safe area, accessible to site activities. Access to the work area will be restricted except to essential personnel. A safe distance will be maintained between the work area and public roads and appropriate traffic control will be implemented.

CONTINGENCY PLANS:

If the vapor levels in the general work area are found to meet or exceed any of the action levels, then work will be discontinued and the work site evacuated as directed by the Project Manager (SPHERE 3 representative). The work area periphery will be monitored by the On-Site Manager and work will resume when vapor levels drop below the action levels. If vapor levels continue to meet or exceed action levels, work will cease and the work site will be secured and evaluated. Work shall not continue until the Site Safety Plan is appropriately revised to meet the new conditions.

Should persistent safety hazards, accident or fire occur, take appropriate immediate action if required (i.e., extinguish the fire, give first aid, etc.) and contact emergency personnel immediately, and then contact appropriate SPHERE 3 Safety personnel.

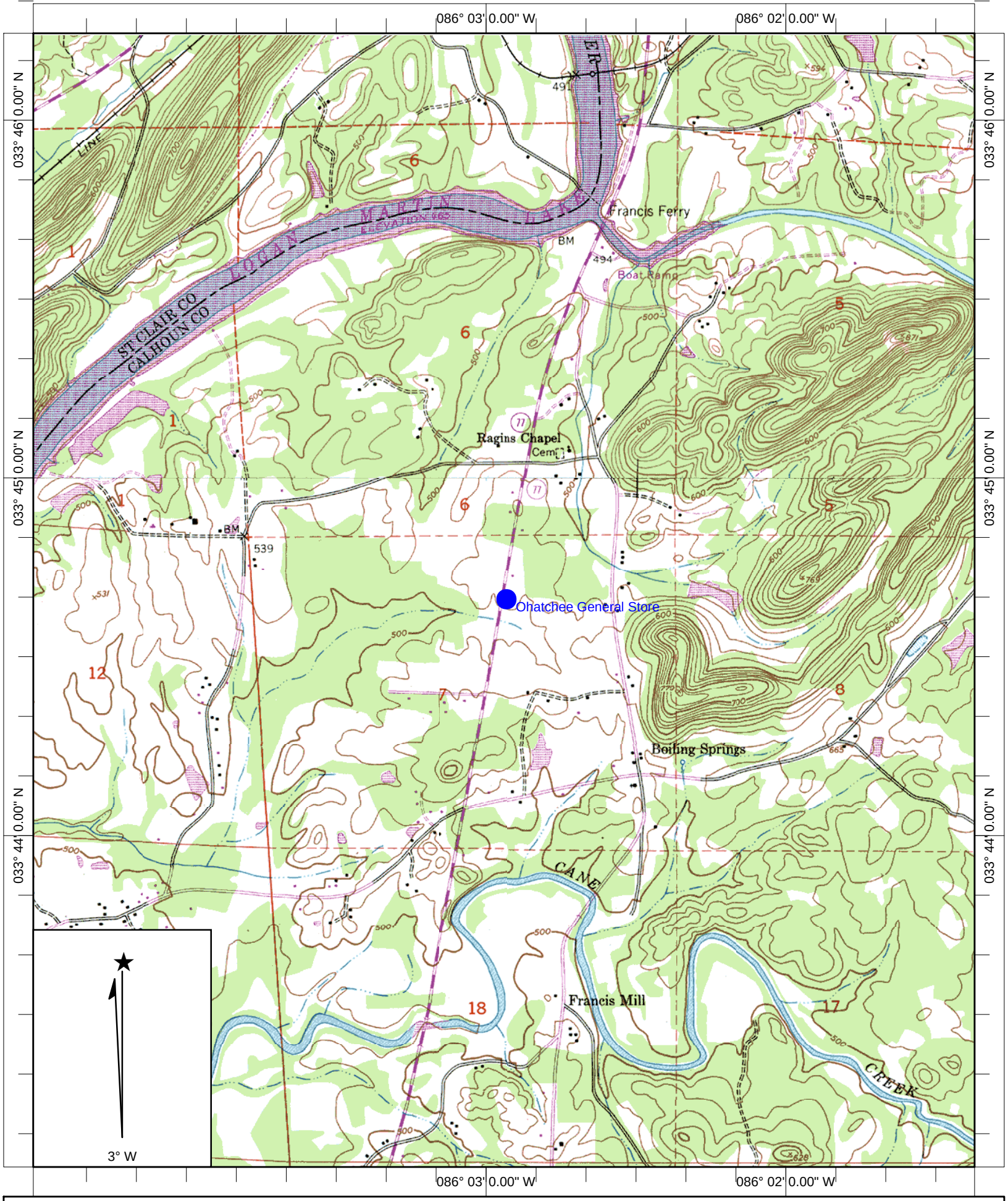
This plan does not override any existing client or site specific safety plan. All subcontractors used on these projects are required to submit safety plans applicable to their prescribed activities.

EMERGENCY CONTACTS AND PROCEDURES:
Should any situation or unplanned occurrence require outside or support services, the appropriate contact from the following list should be made.

In Case of Emergency, Dial **911**, other contacts listed below:

Agency	Person to Contact	Telephone
Fire & Rescue	Emergency Dispatcher	911
Police:	Emergency Dispatcher	911
Underground Utilities	Receptionist	1-800-292-8525
SPHERE 3 Project Manager	Greg Hoagland	(205) 403-3317
	Cell	(205) 288-4896

SPHERE 3
ENGINEERING, INC



Name: FRANCIS MILL
Date: 8/5/2011
Scale: 1 inch equals 2000 feet

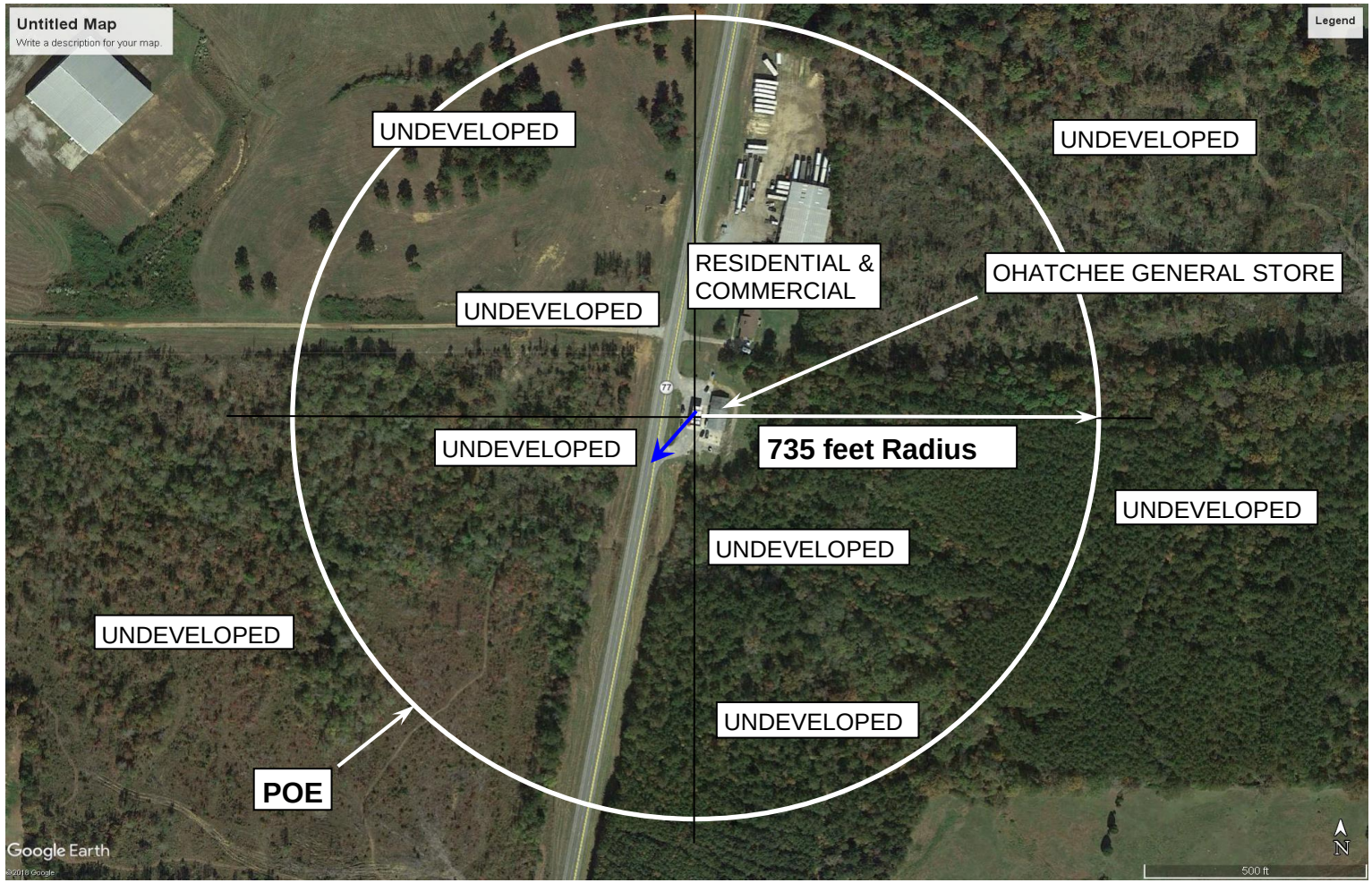
Location: 033° 44' 39.5" N 086° 02' 56.4" W
Caption: FIGURE 1
Ohatchee General Store
33,44',39.5"N; 86,02',55.6"W

CADD FILE NO.: PA.OGS

CHECKED BY

MEP

DRAWN BY



LEGEND

Source: Google Earth

POE - (Projected) Point of Exposure

Groundwater Flow Direction

DATE	NO.	REVISION	BY
03/12/18	2	Resized to 8.5"x11"	GTD
03/12/18	1	Border Adjustments	JGH

SPHERE 3
ENGINEERING, INC

PETRO AMERICA, LLC
HOOVER, ALABAMA 35244

CORRECTIVE ACTION PLAN MODIFICATION
OHATCHEE GENERAL STORE (UST17-07-02)
5110 ALABAMA HIGHWAY 77
OHATCHEE, ALABAMA 36271

SITE VICINITY MAP

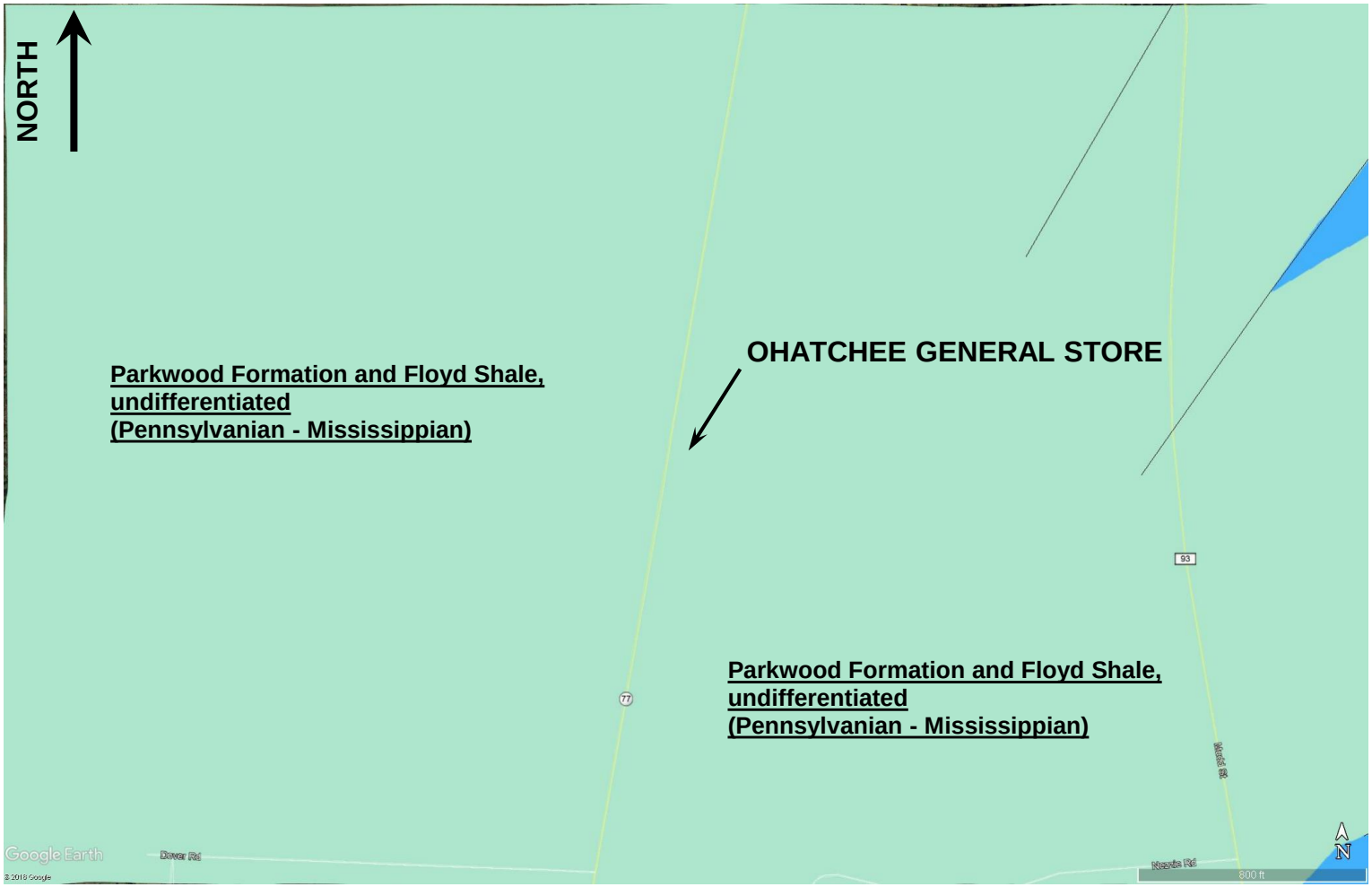
2
Figure

CADD FILE NO.: PA.OGS

CHECKED BY

MEP

DRAWN BY



LEGEND

Source: Google Earth

DATE	NO.	REVISION	BY
03/12/18	2	Landscaped	GTD
03/12/18	1	Border Adjustments	JGH

SPHERE 3
ENGINEERING, INC

PETRO AMERICA, LLC
HOOVER, ALABAMA 35244

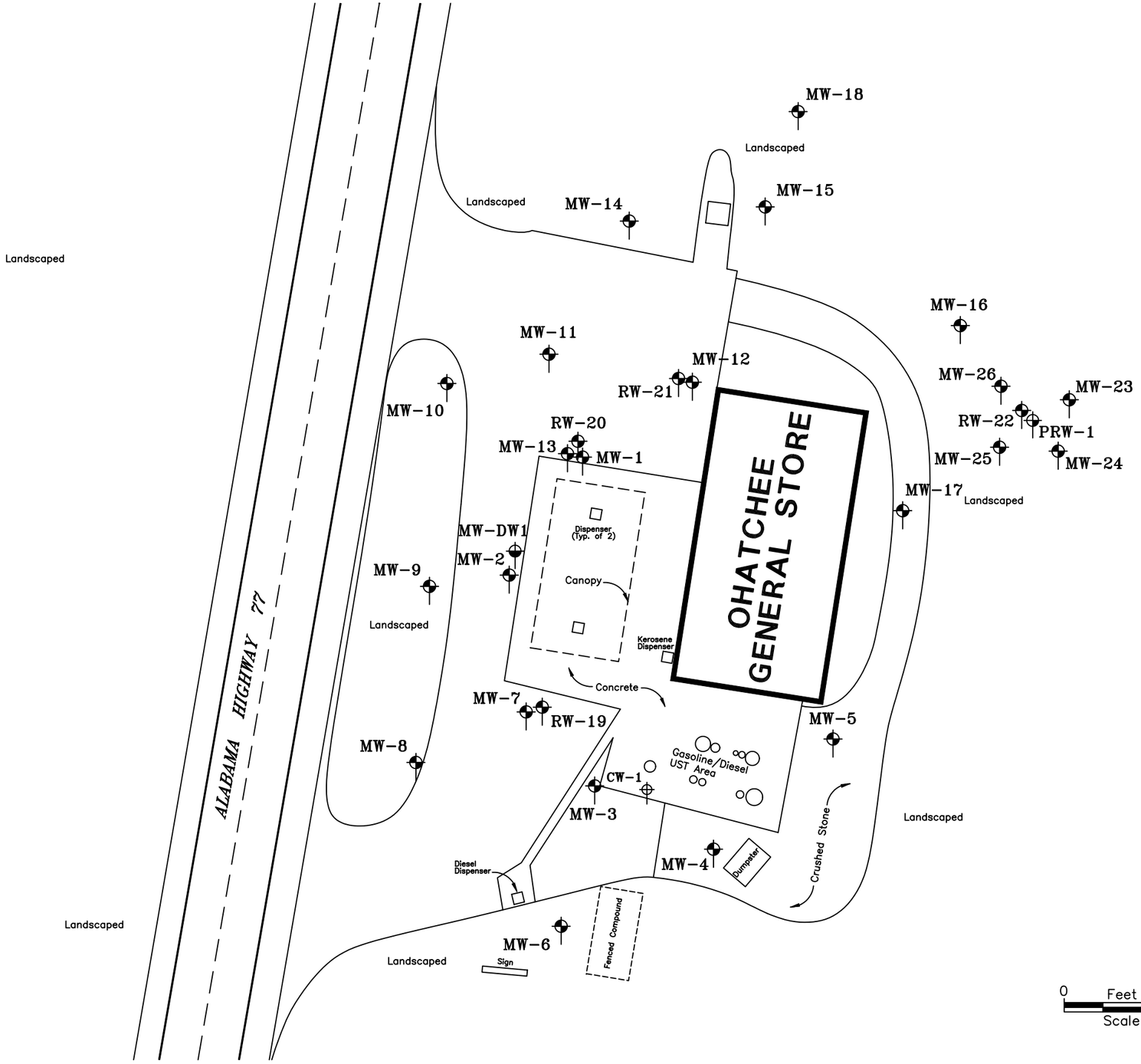
CORRECTIVE ACTION PLAN MODIFICATION
OHATCHEE GENERAL STORE (UST17-07-02)
5110 ALABAMA HIGHWAY 77
OHATCHEE, ALABAMA 36271

GEOLOGIC MAP

3
Figure

DRAWN BY | M.E.P. | CHECKED BY | | CADD FILE NO. PAT.OC

NORTH



LEGEND

- Soil Exploration Boring
- Soil Exploration Boring/Type II Monitor Well
- Soil Exploration Boring/Type III Monitor Well
- Properly Abandoned Private Well

0 Feet 30
Scale

SPHERE 3
ENGINEERING, INC

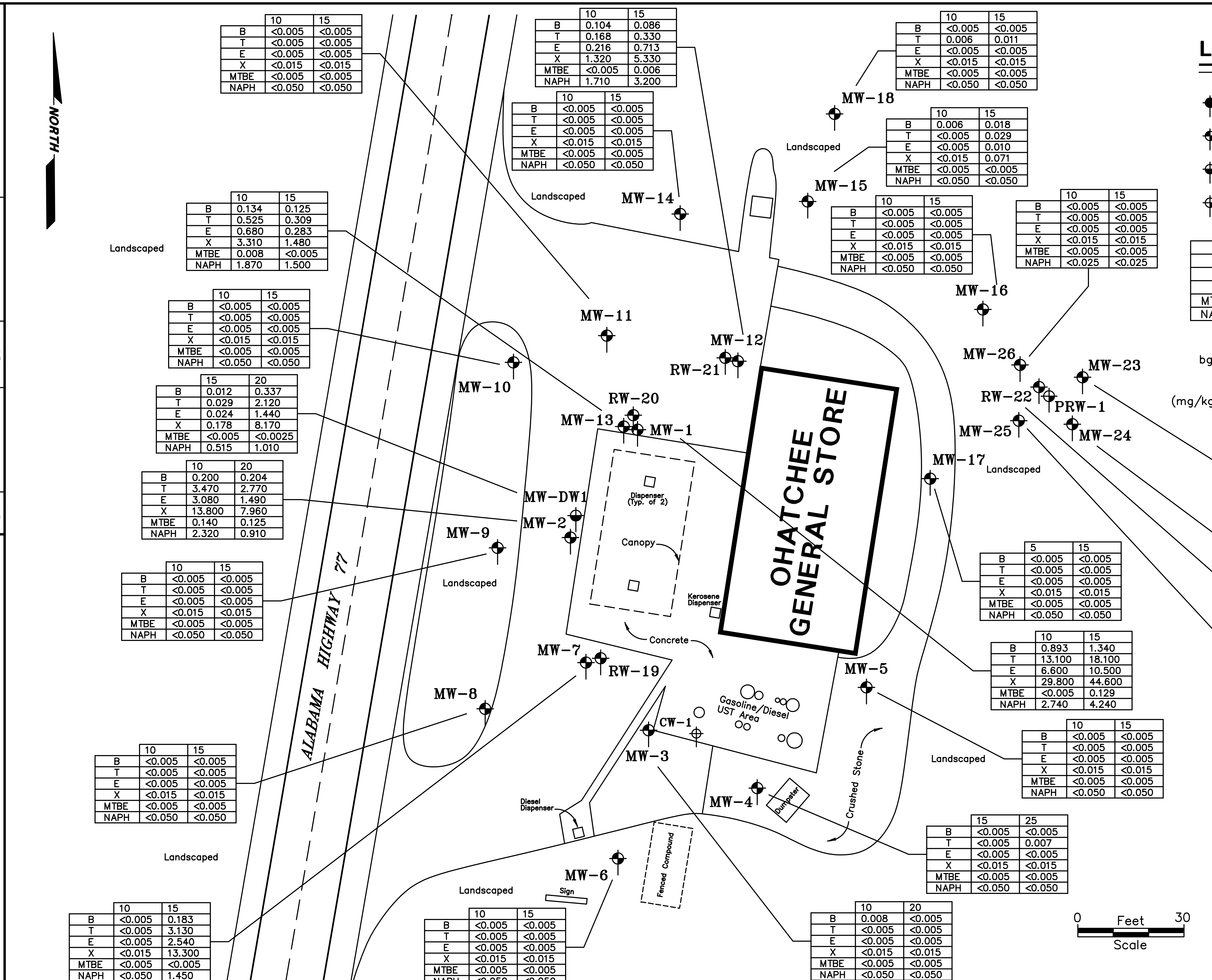
DATE	NO.	REVISION	BY

PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

SITE PLAN

Fig. No. 4



LEGEND

- Soil Exploration Boring
- Soil Exploration Boring/Type II Monitor Well
- Soil Exploration Boring/Type III Monitor Well
- Properly Abandoned Private Well

	Sample Collection Depth (feet bgs)
B	Benzene Concentration (mg/kg)
T	Toluene Concentration (mg/kg)
E	Ethylbenzene Concentration (mg/kg)
X	Total Xylenes Concentration (mg/kg)
MTBE	Methyl-Tertiary-Butyl-Ether Concentration (mg/kg)
NAPH	Naphthalene Concentration (mg/kg)

bgs below the ground surface

(mg/kg) Milligrams per Kilogram

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	0.104	0.086
T	0.168	0.330
E	0.216	0.713
X	1.320	5.330
MTBE	<0.005	0.006
NAPH	1.710	3.200

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	<0.005	<0.005
T	0.006	0.011
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	0.006	0.018
T	<0.005	0.029
E	<0.005	0.010
X	<0.015	0.071
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	0.134	0.125
T	0.525	0.309
E	0.680	0.283
X	3.310	1.480
MTBE	0.008	<0.005
NAPH	1.870	1.500

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.025	<0.025

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	15	20
B	0.012	0.337
T	0.029	2.120
E	0.024	1.440
X	0.178	8.170
MTBE	<0.005	<0.0025
NAPH	0.515	1.010

	10	20
B	0.200	0.204
T	3.470	2.770
E	3.080	1.490
X	13.800	7.960
MTBE	0.140	0.125
NAPH	2.320	0.910

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.025	<0.025

	5	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.025	<0.025

	10	15
B	0.893	1.340
T	13.100	18.100
E	6.600	10.500
X	29.800	44.600
MTBE	<0.005	0.129
NAPH	2.740	4.240

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.025	<0.025

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.025	<0.025

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	15	25
B	<0.005	<0.005
T	<0.005	0.007
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	15
B	<0.005	0.183
T	<0.005	3.130
E	<0.005	2.540
X	<0.015	13.300
MTBE	<0.005	<0.005
NAPH	<0.050	1.450

	10	15
B	<0.005	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

	10	20
B	0.008	<0.005
T	<0.005	<0.005
E	<0.005	<0.005
X	<0.015	<0.015
MTBE	<0.005	<0.005
NAPH	<0.050	<0.050

CADD FILE NO. PAT.OC

CHECKED BY

M.E.P.

DRAWN BY

DATE	NO.	REVISION	BY

SPHERE 3 ENGINEERING, INC

PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

SOILS COCs CONCENTRATIONS MAP

5
Fig. No.

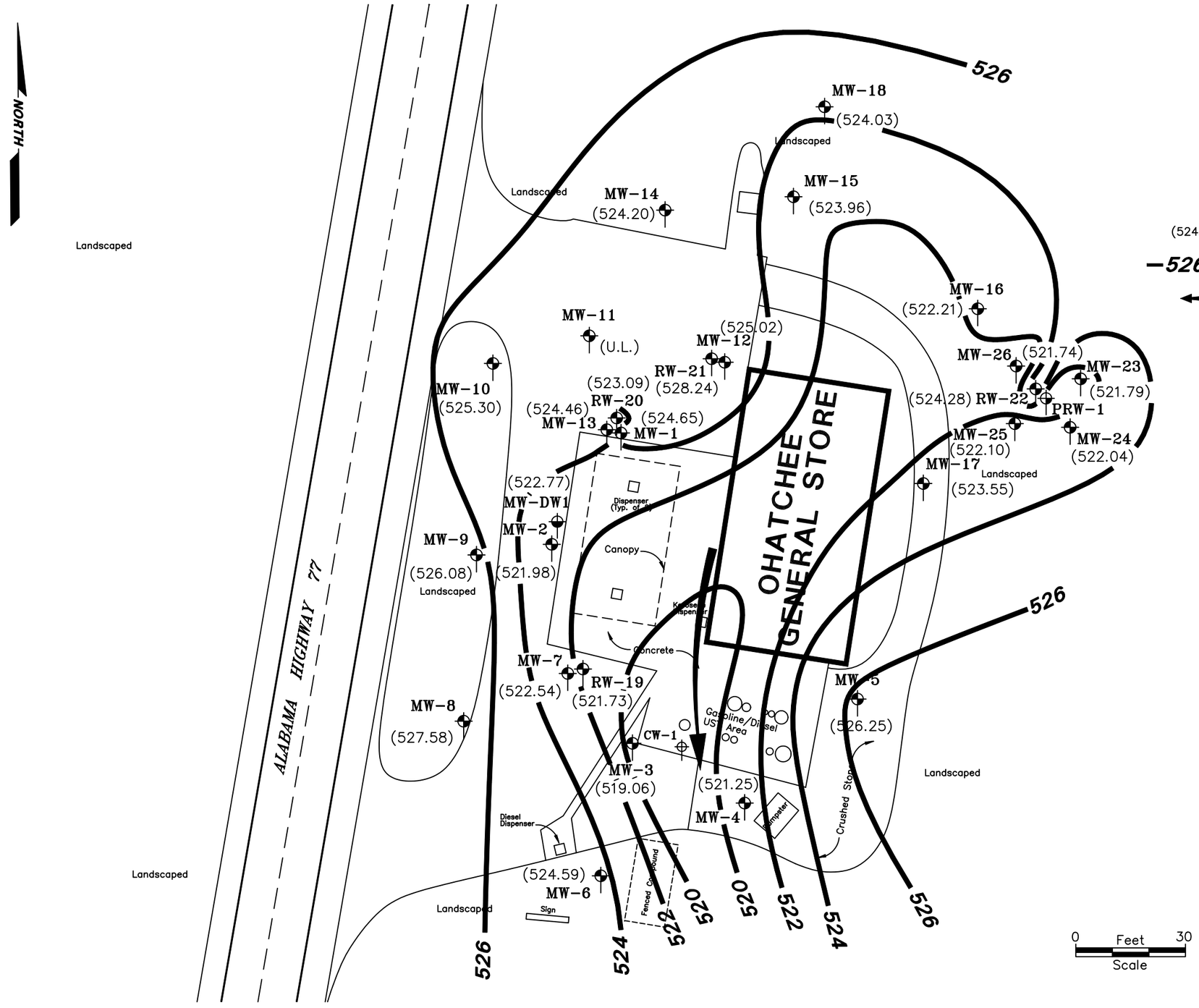
CADD FILE NO. PAT.OC

DRAWN BY | M.E.P. | CHECKED BY

NORTH

LEGEND

- Soil Exploration Boring
- Soil Exploration Boring/Type II Monitor Well
- Soil Exploration Boring/Type III Monitor Well
- Properly Abandoned Private Well
- (524.65) Potentiometric Surface Elevation (feet a.m.s.l.)
- —526— Isopotentiometric Surface Elevation Contour (feet a.m.s.l.)
- Groundwater Flow Direction (10/2/2024)



0 Feet 30
Scale

SPHERE 3 ENGINEERING, INC

DATE	NO.	REVISION	BY

PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

POTENTIOMETRIC SURFACE ELEVATION MAP (10/2/2024)

6
Fig. No.

CADD FILE NO. PAT.OC | CHECKED BY | M.E.P. | DRAWN BY

NORTH

B	14.100
T	7.720
E	3.080
X	13.400
MTBE	0.348
NAP	1.480

B	0.012
T	0.035
E	1.350
X	5.950
MTBE	<0.001
NAP	0.614

B	<0.001
T	<0.001
E	<0.001
X	<0.003
MTBE	<0.001
NAP	<0.005

B	3.970
T	1.700
E	1.730
X	7.280
MTBE	0.013
NAP	0.301

B	0.330
T	0.035
E	1.450
X	6.280
MTBE	<0.001
NAP	0.520

B	10.000
T	7.900
E	2.200
X	10.200
MTBE	0.012
NAP	0.630

B	<0.001
T	<0.001
E	<0.001
X	<0.003
MTBE	<0.001
NAP	<0.005

B	2.200
T	0.080
E	0.640
X	0.848
MTBE	0.076
NAP	0.186

B	<0.001
T	<0.001
E	<0.001
X	<0.003
MTBE	<0.001
NAP	<0.005

B	4.900
T	6.400
E	2.220
X	9.470
MTBE	<0.001
NAP	0.750

B	2.180
T	0.109
E	1.480
X	4.840
MTBE	0.002
NAP	0.644

B	0.027
T	0.043
E	0.023
X	0.093
MTBE	0.001
NAP	0.006

MW-18 MW-15 MW-14 MW-16 MW-11 MW-12 RW-21 MW-10 RW-20 MW-13 MW-1 MW-26 MW-23 RW-22 PRW-1 MW-25 MW-24 MW-17 MW-DW1 MW-2 MW-9 MW-7 RW-19 MW-8 MW-5 CW-1 MW-3 MW-4 MW-6

Landscaped

<0.001 3 10

OHATCHEE GENERAL STORE

Dispenser (Typ. of 2) Canopy Kerosene Dispenser Concrete Gasoline/Diesel UST Area Diesel Dispenser Dumpster Crushed Stone Fenced Compound Sign

ALABAMA HIGHWAY 77

LEGEND

- Soil Exploration Boring
- Soil Exploration Boring/Type II Monitor Well
- Soil Exploration Boring/Type III Monitor Well
- Properly Abandoned Private Well

B	Dissolved Benzene Concentration (mg/L)
T	Dissolved Toluene Concentration (mg/L)
E	Dissolved Ethylbenzene Concentration (mg/L)
X	Dissolved Total Xylenes Concentration (mg/L)
MTBE	Dissolved Methyl-Tertiary-Butyl-Ether Concentration (mg/L)
NAP	Dissolved Naphthalene Concentration (mg/L)

— 10 — Dissolved Benzene Isoconcentration Contour (mg/L)

Groundwater Flow Direction (10/3/2024)

(mg/L) Milligrams per Liter

[0.00] Free Product Thickness (feet)

Estimated Aerial Extent of Free Product

0 Feet 30
Scale

SPHERE 3 ENGINEERING, INC

DATE	NO.	REVISION	BY

PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

DISSOLVED COCs CONCENTRATIONS MAP (10/3/2024)

Fig. No. 7

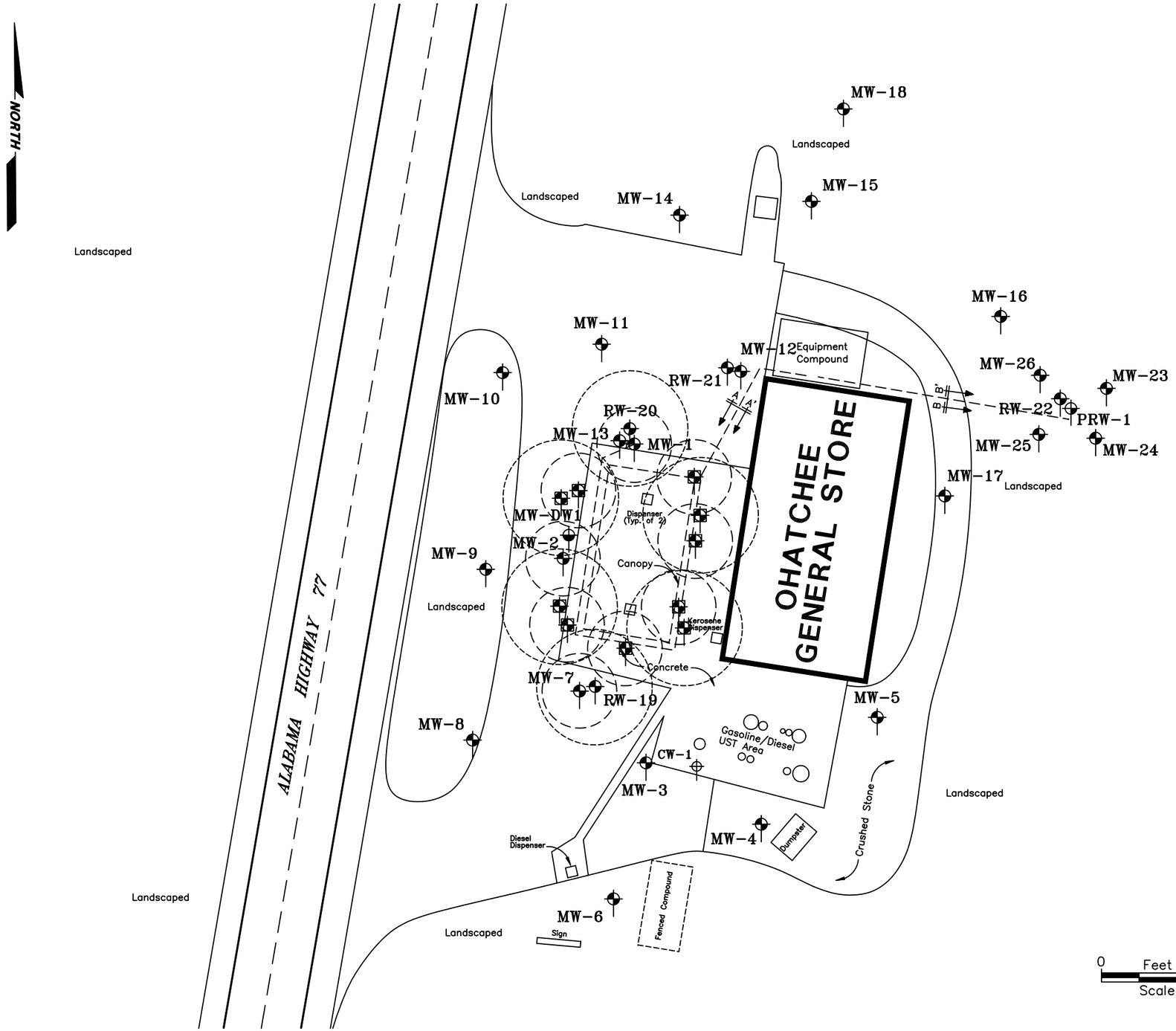
CADD FILE NO. PAT.OC

CHECKED BY

M.E.P.

DRAWN BY

NORTH



LEGEND

- Soil Exploration Boring
- Soil Exploration Boring/Type II Monitor Well
- Soil Exploration Boring/Type III Monitor Well
- Properly Abandoned Private Well
- Estimated Long Term Pumping Radius
- Estimate Long Term Vacuuming Radius
- Surface Trench Excavation
- A A' Trench Section Line – See Figure 12

0 Feet 30
Scale

SPHERE 3
ENGINEERING, I NC

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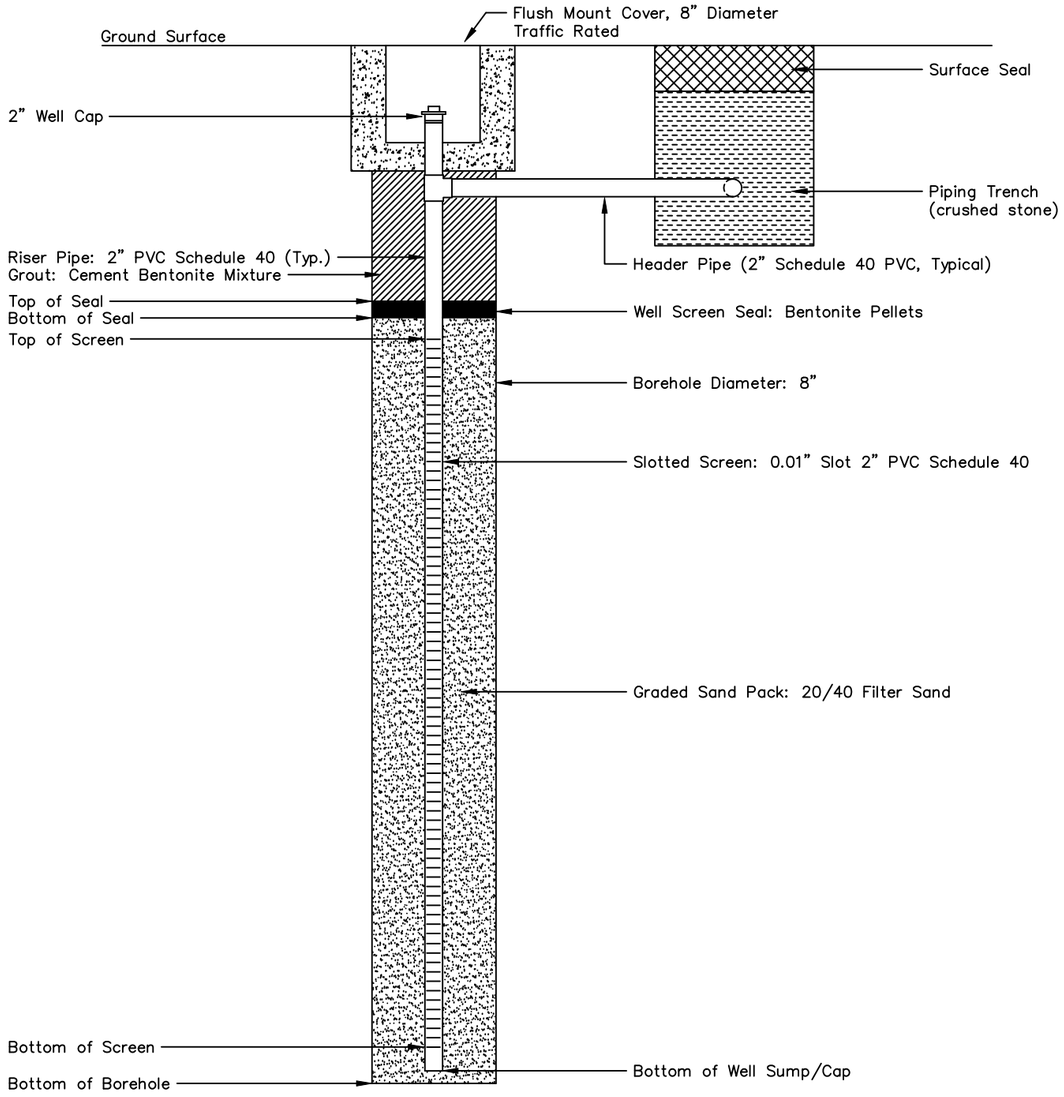
CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

PROPOSED SYSTEM LAYOUT

8
Fig. No.

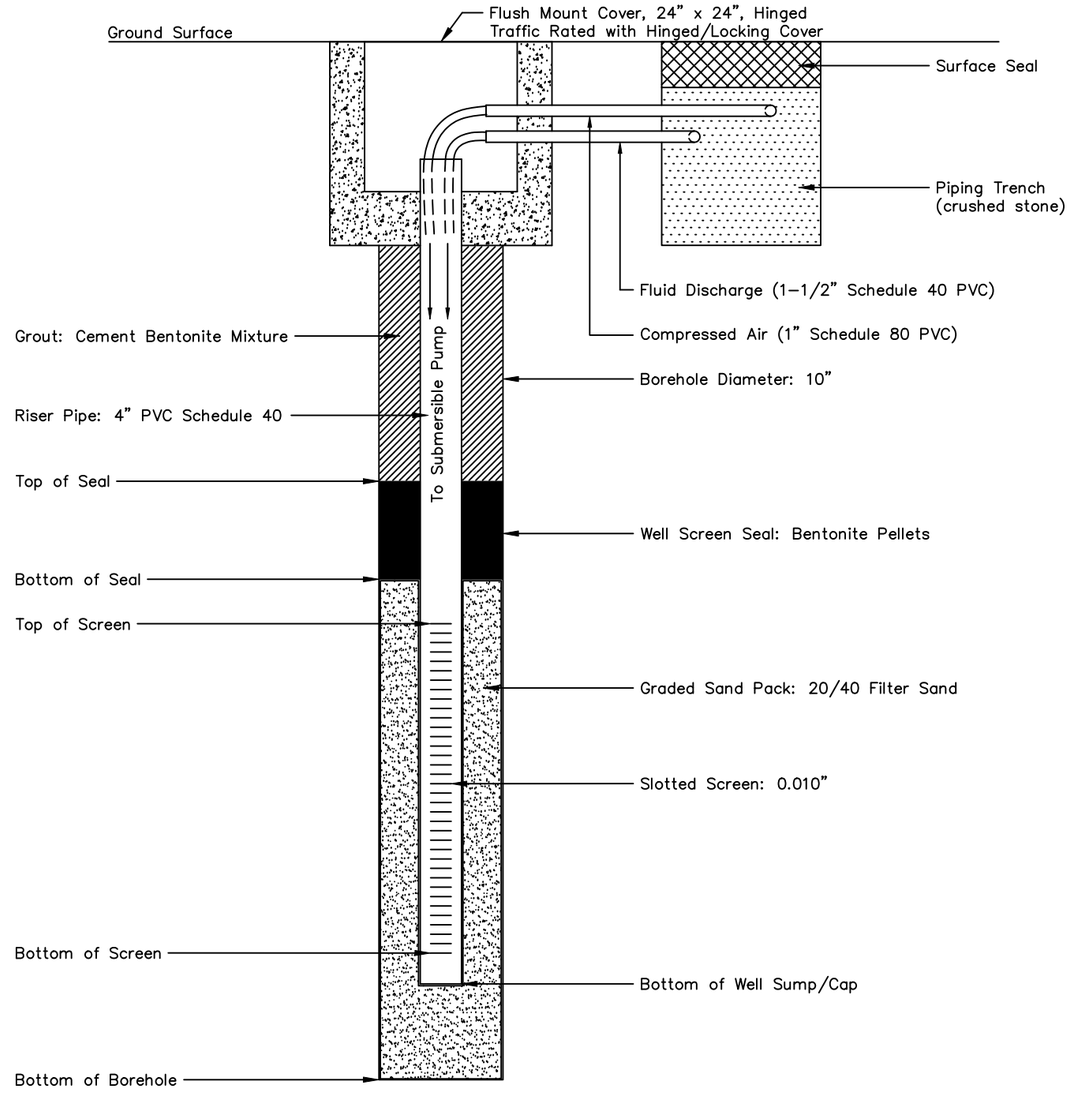
DRAWN BY EB | MEP | CHECKED BY JGH | CADD FILE NO. PA.CO



Section View

VACUUM EXTRACTION WELL CROSS-SECTION

NO SCALE



Section View

PUMPING WELL CROSS-SECTION

NO SCALE

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CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36261
Project Title

TYPICAL VACUUM EXTRACTION/PUMPING WELL CONSTRUCTION

9
Fig. No.

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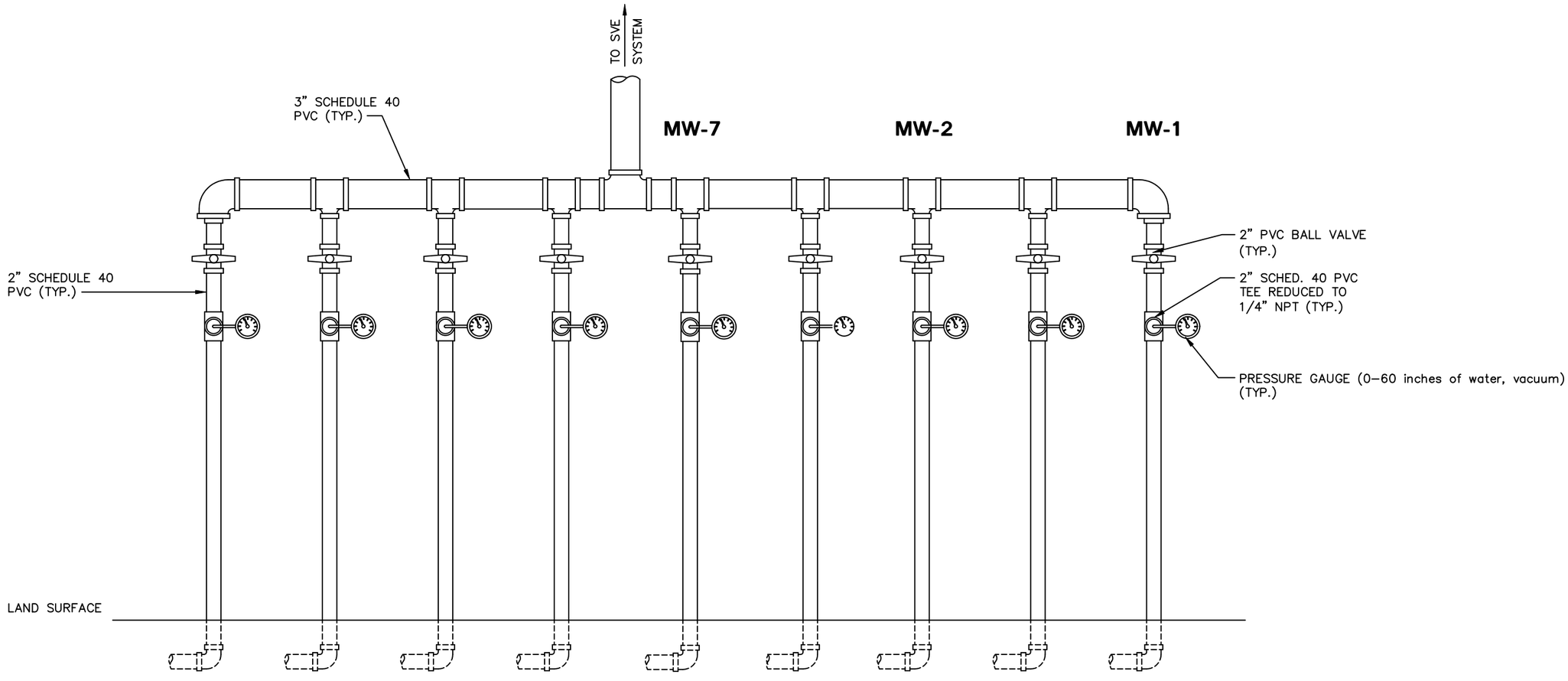

SVE MANIFOLD DETAIL

NO SCALE

SPHERE 3 ENGINEERING, INC

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PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
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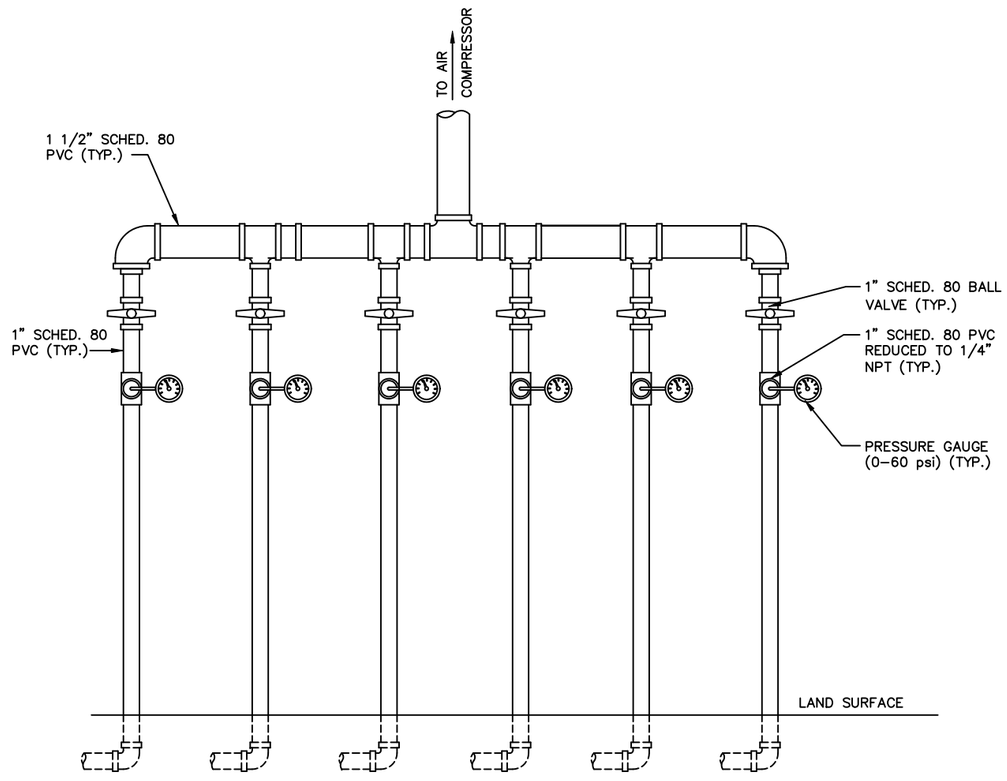
TYPICAL SVE MANIFOLD CONSTRUCTION

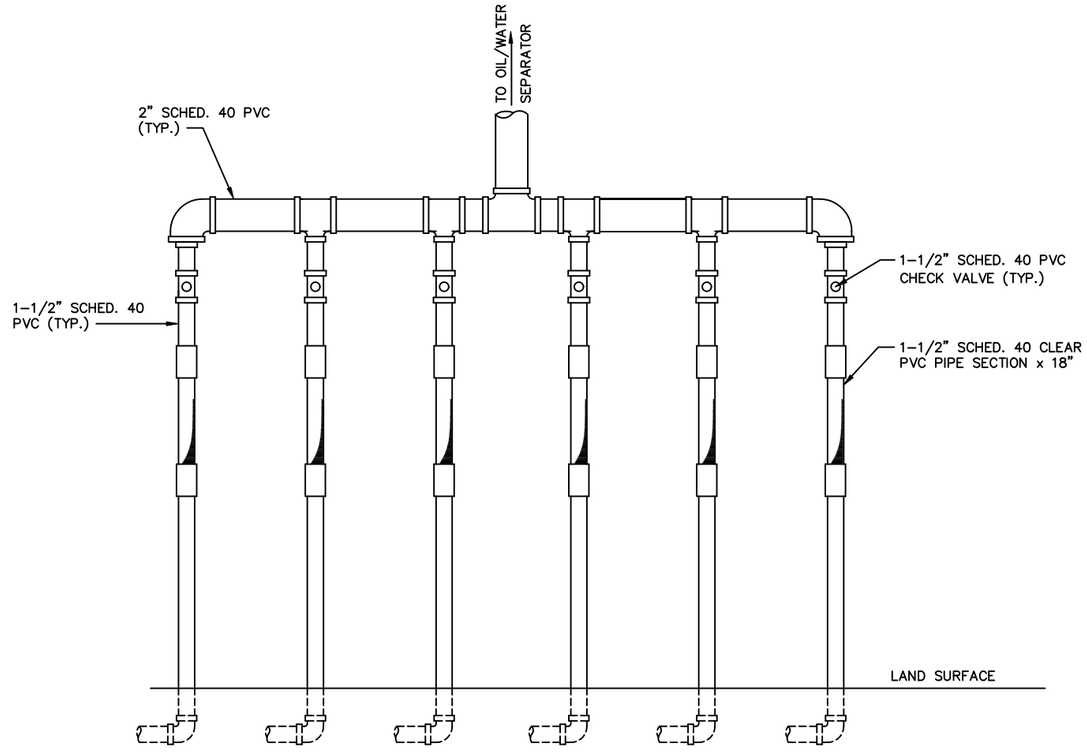
10
Fig. No.

DRAWN BY | MEP | CHECKED BY | CADD FILE NO. PA.OC



COMPRESSED AIR MANIFOLD DETAIL

NO SCALE



RECOVERED FLUIDS MANIFOLD DETAIL

NO SCALE

SPHERE 3 ENGINEERING, INC

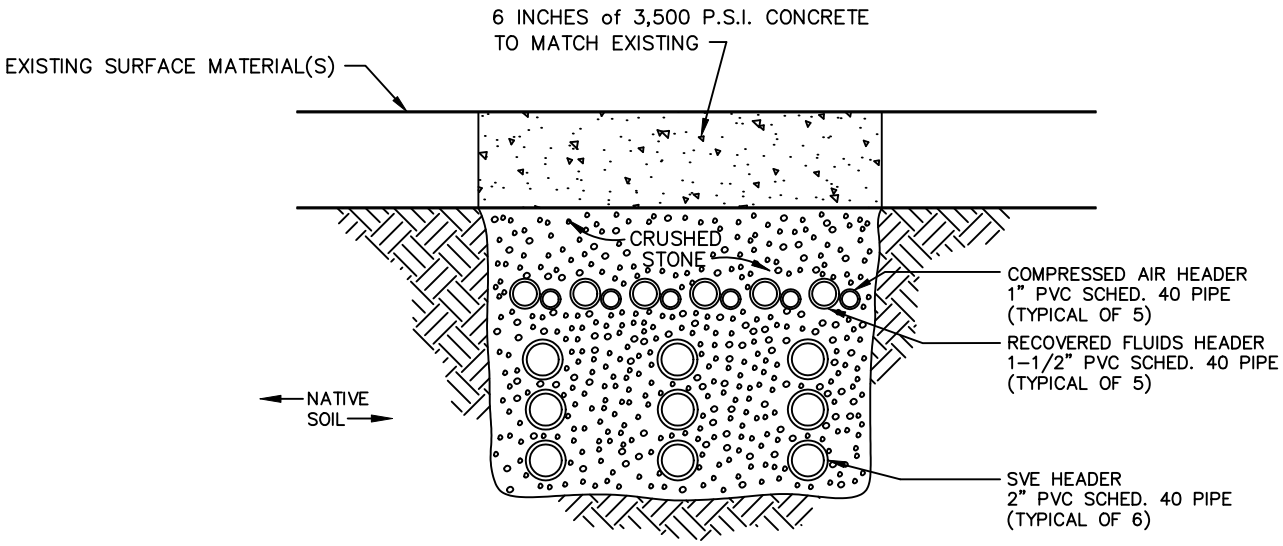
DATE	NO.	REVISION	BY

PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

TYPICAL COMPRESSED AIR / RECOVERED FLUIDS MANIFOLD CONSTRUCTION

11
Fig. No.



CROSS SECTION A-A´

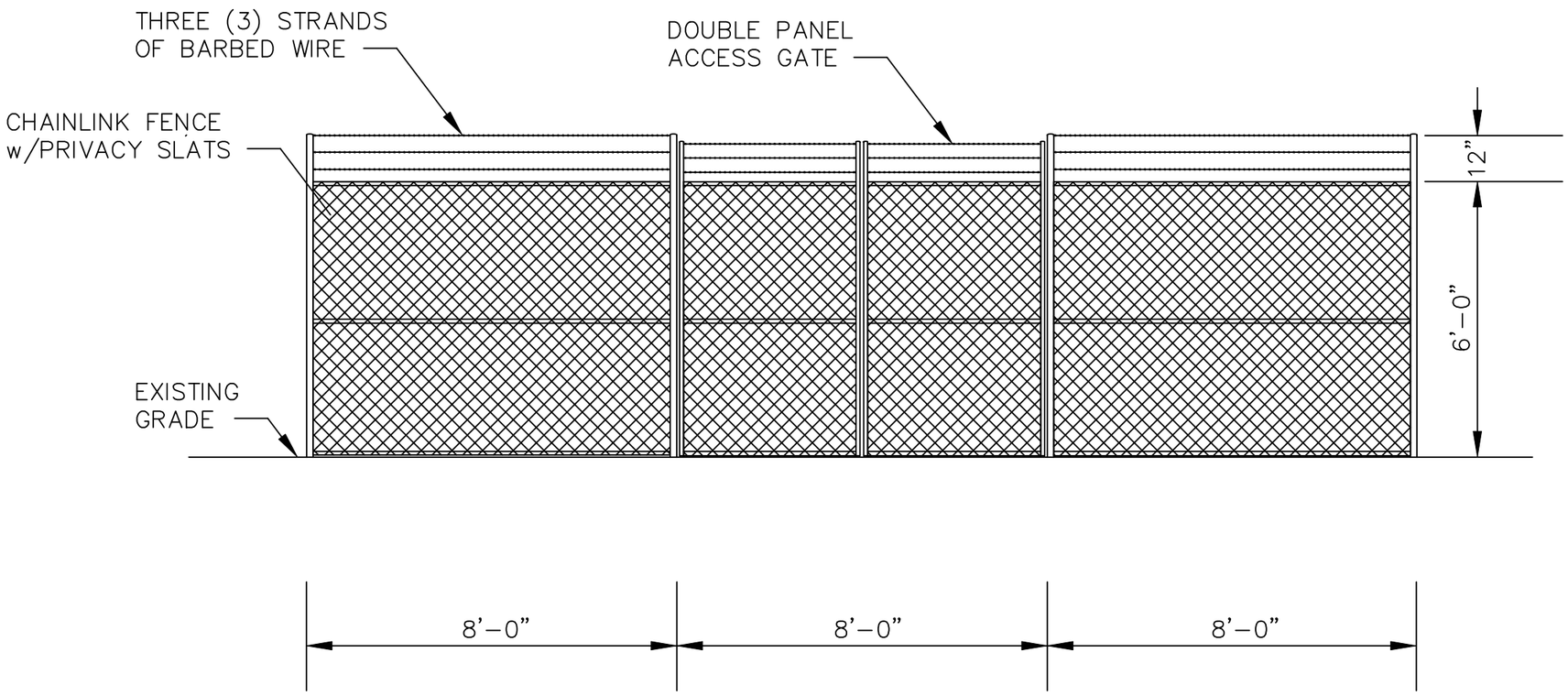
SPHERE 3 ENGINEERING, INC

Petro America, LLC
Ohatchee General Store (UST17-07-02)
5110 Highway 77
Ohatchee, Alabama 36271

Project No.	Date:	Scale:	Drawn By:
REB.SM195	11/13/2020	NTS	MEP

PIPING TRENCH DETAILS

Figure No.: 12



SOUTH ELEVATION

SCALE: 1" = 4'–0"

DRAWN BY	M. E. P.	CHECKED BY	CADD FILE NO. PA.CO

DATE	NO.	REVISION	BY

PETRO AMERICA, LLC
HOOVER, ALABAMA
Client

CORRECTIVE ACTION PLAN
OHATCHEE GENERAL STORE (UST17-07-02)
5110 HIGHWAY 77
OHATCHEE, ALABAMA 36271
Project Title

SPHERE 3
ENGINEERING, INC

EQUIPMENT COMPOUND
ELEVATION/DETAILS

13
Fig. No.

SPHERE 3
ENGINEERING, INC

MK ENVIRONMENTAL INC.

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

jgiltz@mkenv.com

QUOTATION

Date	2/12/2025
Quote No.	221514
Reference	Ohatchee
Page No.	1 of 3
Freight	Included
Terms	PWP Net 180
Ship Via	FLATBED
F.O.B.	Factory

SOLD TO:	**SHIP TO:**
Greg Hoagland	UST 170702
Sphere 3 Engineering, Inc.	Ohatchee General Store
3433 Sierra Drive	5110 Highway 77
Hoover, AL. 35216	Chatchee, AL.
205-403-3317 205-403-3317 (fax)	

Quotation valid for 30 days

QUANTITY		UNIT PRICE	AMOUNT
	200 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	Soil Vapor Extraction System with Groundwater Pump and Treat Remediation Package (Utilizing the Pine Level Texaco Remediation System Package located in Prattville, Alabama)	89,970.00	$89,970.00
1	NEW: Regenerative blower Busch Samos model SB 1100 D or equal 500 ACFM @ 90" w.c. vacuum (105" w.c. vacuum max) 14.5 kW (19.4 HP) 3/60/230-460 volt, TEFC motor Direct read out 2" air flow rotameter for the SVE dilution valve assembly		
1	FACTORY REFURBISHMENT: 200 gallon Air/water separator with level control switches 10" diameter clean out ports with vacuum rated quick release lid Liquid filled vacuum gauge Vacuum assist hose 2" drain valves Vacuum relief valve Dilution valve with filter/silencer Inlet screen Inlet filter Exhaust temperture gauge Exhaust temperture switch Discharge silencer		
1	MK FACTORY REFURBISHMENT: 1.5 hp transfer pump, 3450 rpm, TEFC motor (AWS-1 Location) Cast Iron housing with composite impeller, anti air lock design manual "Pump ON" button inside building for sampling		
1	MK FACTORY REFURBISHMENT: MKE Model SA20 Stripperator 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 AMCA Type B spark resistant 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 304 stainless steel construction Air stripper blower silencer to reduce noise level of the stripper blower		
1	MK FACTORY REFURBISHMENT: 3.0 hp transfer pump, 3450 rpm, TEFC motor (SA20 Stripperator Sump Location) Cast Iron housing with composite impeller, anti air lock design manual "Pump ON" button inside building for sampling		
1	NEW: Groundwater flow totalizer with pulse output for remote totalization Flow calibration button		
4	MK FACTORY REFURBISHMENT: Bag filter housings piped in parallel 304 stainless steel construction, size 2. Includes a case of 25-micron replacement bag filters		

MK ENVIRONMENTAL INC.

Greg Hoagland
Sphere 3 Engineering, Inc.

Date 2/12/2025
Quote No. 221514
Reference Ohatchee

QUANTITY		UNIT PRICE	AMOUNT
	MK FACTORY REFURBISHMENT:		
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, (12) output channels Hard wired relay logic (1) exterior GFCI utility outlet SVE 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		
	SVE & GW Pumps automatic shut down upon: AWS1 high liquid level SVE high temperature alarm Air stripper blower low pressure Air stripper sump High liquid level alarm Phase fault condition Interior Emergency Stop Mushroom button with twist to release detent		
	MK FACTORY REFURBISHMENT:		
1	Fused Main Disconnect system for the SVE with P&T Includes: 200 amp disconnect boxe mounted to the system building (1) Weatherhead with extension pole and bracket support (1) 200 amp Electric meter socket base installed		
1	NEW: 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 @ $145/mo. (subject to change) Billed monthly on the first of the month following successful factory wet testing. Vacuum transducer integrated into telemetry system for real time monitoring, 4-20mA		
	MK FACTORY REFURBISHMENT:		
1	System building 8.5'W x 16'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 maintenance 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 and mechanical installation		

MK ENVIRONMENTAL INC.

Greg Hoagland
Sphere 3 Engineering, Inc.

Date 2/12/2025
Quote No. 221514
Reference Ohatchee

QUANTITY		UNIT PRICE	AMOUNT
1	NEW: Compressed Air System 10.0 HP, TEFC Motor 35 CFM @ 100 PSI Two stage industrial reciprocating industrial compressor system with inlet filter, motor & belt drive, ASME code receiver with automatic drain valve, pressure gauge, relief valve and 3-way solenoid operated air valve for automatic shut off of pneumatic pumps upon fault condition. 1/2" main regulator with gauge General purpose filter Auto tank drain		
6	NEW: Pneumatic Pumps Model AP3 Short Pneumatic AutoPumps Top fill inlet with hose barbs Down well hoses and well seals provided by others Installed by others		
	MK FACTORY REFURBISHMENT:		
2	Vapor Phase Carbon Vessels - Dual phase offgas - piped in series by others VFV-1000 vessels 1,000 lb initial load each 4" plain pipe fitting Off loading, placement & piping provided by others Installed outside the system building by others on the inlet side of the SVE blower Carbon vessels need to be empty upon receipt at MK Environmental factory		
1	Freight Services From Pine Level Texaco facility, located in Prattville, Alabama and shipped to MK Environmental factory in Columbia, Louisiana. On loading with supervision at Pine Level Texaco facility by others Off loading at MK Environmental factory included.		
	Notes: 1. Pneumatic AutoPump airline and GW return line manifolds by others. 2. Pneumatic AutoPumps downwell hoses and well seals by others. 3. All vapor carbon vessels to be installed and piped outside the system building by others. 4. Wireless monitoring unit will be supported and billed through MK Environmental. Billed monthly on the first of the month following successful factory wet testing at $145/mo. Monthly service rate subject to change. 5. SVE manifold by others 6. Additional parts and labor not included in this cost proposal during system refurbishment will require a change order approval by Sphere 3. 7. Any failures of the used equipment as received during final wet testing will require a change order approval by Sphere 3 for its replacement.		

EQUIP. SUB TOTAL		$89,970.00
EQUIP. SALES TAX		
START UP/TRAINING		$2,500.00
FREIGHT		$2,500.00
NET TOTAL		$94,970.00

Does not include permits, fees, etc…
Offloading & placement by others. (MK factory to jobsite)

Jerry Giltz,
MK ENVIRONMENTAL, INC.

Southeastern Environmental Products, Inc.

832 Pickford Point Madison, MS 39110 601-421-4258 sepco@att.net

SPHERE.3.ENGINEERING,.INC GREG.HOAGLAND 3433.SIERRA.DRIVE HOOVER,.AL.35216	OHATCHEE.GENERAL.STORE (UST.170702) 5110.Highway.77 Ohatchee,.AL	December.11,.2024 Page.1.of.5

We are pleased to offer the following remediation system:

VAPOR EXTRACTION SYSTEM.....$ 22,927.00

- High airflow with medium vacuum or equal pump
- 280 ACFM @ 3.7" Hg. Condition point
- Roots URAI-47 PD blower with 5.0 hp TEFC Motor or equal
- 100 Gallon Condensate Knock out tank
- Knock out tank clean out port
- Inlet filter and dilution throttling valve
- Transfer pump1.0 hp groundwater transfer pump, TEFC motor
- Transfer pump level controls
- High exhaust temperature switch
- Exhaust silencer

GROUNDWATER PUMPS.....$ 47,424.00

- (5) Pneumatic AutoPumps
- Top fill, short, AP3 or equal

• Pumps only, all other pump accessories provided by others

AIR COMPRESSOR (for pneumatic GW pumps)

• 7.5 HP, 230/460 volt, 3-Phase reciprocating air compressor

• Ingersoll-Rand or equal

• 23 CFM and 125 PSI maximum pressure

• 80 gallon receiver tank with drain

• 3-way outlet solenoid valve

CONTROL SYSTEM……$ 28,285.00

• NEMA 4 EXTERIOR MOUNTED CONTROLS

• breaker panel with individual branch breakers for all major components

• control panel with magnetic starters, groundwater pump controls, high level shut off system controls, and all additional control circuits required for the system

• INTERLOCK CONTROL PANEL

• latching pump shut-off relay w/manual reset

• GFCI Utility outlet with breaker for hand tools

• Incoming power monitor and Emergency kill switch

• Variable Frequency Drive for the SVE blower only

• UL stickered and certified panel

TELEMETRY SYSTEM

• EOS Model B1 telemetry system

• (1) 4-20 mA analog vacuum reading

• (1) flow totalizer reading

• (10) dry contact alarm monitoring

• Remote restart

• Remote shutdown

• Remote monitoring

• Cellular modem connection

EQUIPMENT HOUSING……$ 32,635.00

• Sized to accommodate extraction and water treatment equipment

• 16’ foot long by 8-1/2 feet wide

• Steel frame building with aluminum exterior

• Man door access

• XP lighting

• XP convection heater with XP thermostat

• XP vent fan

• Installation of all equipment specified in this proposal

OIL WATER SEPARATOR SYSTEM – 20 GPM……..$ 36,893.00

• Coalescing pack

• Effluent sump

• Transfer pump 1.5 hp groundwater transfer pump, TEFC motor

• Transfer pump level controls

• Product high level float switch. Drum provided by others

LOW PROFILE AIR STRIPPER

• 1-tray stripping unit

• 1.0 hp groundwater transfer pump, TEFC motor

• Transfer pump level controls

• High/Low Air Supply Switch

• High Sump Level Switch

• Aluminum blower

• Air pressure gauge

• Inspection/clean out hatch

• Stainless Steel Construction

• Latched and gasketed lid

• Stainless steel construction

• Blower silencer

• Final effluent totalizing flow meter with remote monitoring via telemetry

GROUNDWATER FILTRATION

• (2) bag filter housings in parallel

• (1) case of 25 micron filter bags

• Pressure gauge and sample port

VAPOR PHASE CARBON (located outside the system building)…….$ 9,685.00

• (2) 400 lb drums in series for the SVE exhaust stream

• Condensate drum to collect moisture prior to carbons

240 VOLT SYSTEM MODIFICATION

• 3 phase 240 volt power supply

• Fused disconnect

• Weatherhead

• Meter base

MISCELLANEOUS ITEMS……..$ 8,000.00

• Third party certification of the building and control panel included.

• Includes system start-up assistance with 3 weeks prior notice

• Includes freight to jobsite. Off loading and placement by others.

• Included O&M manual

MANIFOLDS:

• SVE inlet manifold by others

• Groundwater air supply and water return line manifolds by others

GRAND TOTAL……$ 185,849.00

TERMS: NET 30% DOWN PAYMENT, NET 30 DAYS

FOB: FACTORY

Total does not include permits, fees, etc.

Dale Woodall

Southeastern Environmental Products, Inc.

601-421-4258

CURTIS SERVICE, INC.
45180 US HWY
ONEONTA, AL 35121 US
+12052128868
curtis_service@hotmail.com

Estimate

CURTIS
SERVICE INC.
ONEONTA, AL

ADDRESS
Sphere 3 Engineering, Inc. 3433 Siera Drive Attn: Greg Hogeland greg@sphere3.com Hoover, AL 35216

ESTIMATE #	DATE	
10152	12/12/2024	

P.O. NUMBER:
Ohatchee General Store

JOB LOCATION
5110 Alabama Highway 77 Ohatchee, AL

DESCRIPTION	AMOUNT
Job: Installation of a multiphase extraction system. This will be to cut roughly 325 LF of heavily reinforced concrete and excavate a ditch for installing: 1,845 feet of 1.5-inch schedule 40 PVC pipe 100 feet of 3-inch schedule 40 pipe 735 feet of 1-inch schedule 80 PVC pipe 100 feet of 3-inch schedule 40 PVC pipe 1- We will set six 24-inch square hinged manways in a 48-inch square concrete pad at each extraction point. Manways provided by others. 2- All debris and soils will be hauled off to the appropriate disposal site by others. 3- We will back fill the ditches with gravel, dole the concrete ditch Then pour and finish the 3500 psi concrete. 4- A 20'x24'x6' gauge chain link fence with brown privacy slats, perimeter razor wire, and two 4' walks gates will be installed prior to the installation of the building. Once the building is to be set, we will have a crane delivered to offload and set the building on 8x8 blocks. 5- Lay 100' of Water line from meter to building	0.00
Crane	2,850.00
Fence	8,500.00
Concrete	10,500.00
Gravel	4,400.00

DESCRIPTION	AMOUNT
Machinery	6,500.00
Materials	4,250.00
Travel	2,500.00
Labor	30,000.00

Any unforeseen issues that arise on the job, will result in a change order.

TOTAL **$69,500.00**

PAYMENT TERMS:

-50% down payment

-50% at the moment of finish the job.

Accepted By

Accepted Date

ALL STAR
a pillsi company
CONSTRUCTION CO.

Address: 25299 Canal Road
Suite A2/1
Orange Beach, AL 36561
Voice/SMS: (251) 403-2165
email: strewnstars@gmail.com

Proposal ☑ Invoice ☐

CUSTOMER	DOCUMENT	DATE
Greg Hoagland SPHERE 3 Engineering, Inc. 3433 Sierra Drive Hoover, AL 35216	EST35-2298	12/14/2024
	PROJECT	**LOCATION**
	Ohatchee Gen. Store	Ohatchee, AL

DESCRIPTION	AMOUNT
beglist	
Sawcut concrete/asphalt to approximately 185 feet	$6,000.00
Trench 24"x24"x185'	$20,000.00
Load all debris in rolloffs provided by others	$2,500.00
Prep trench with crushed stone basin	$2,300.00
Construct 1,900 feet of piping network with 1.5-inch Schedule 40 materials	$3,500.00
Construct 750 feet of piping network with 1-inch Schedule 80 materials	$3,100.00
Construct 100 feet of piping network with 3-inch Schedule 40 materials	$300.00
Fill trenches with crushed stone to 6 inches below surface	$3,500.00
Cap trenches with reinforced, doweled, 3,500 psi concrete (min 6 inches)	$12,000.00
Construct 20'x24'x6' chainlink fence compound with razor wire perimeter, privacy slats, and a double 4-foot access gate	$9,400.00
Provide crane to offload and place system container onto 8"x8" timbers	$2,800.00
Install 6 each 24"x 24" steel vaults (customer to provide).	$4,500.00
Install 9 each 12" diameter well covers (customer to provide).	$2,250.00
Construct potable water service line (upto 100')	$2,000.00
endlist	
TOTAL	**$74,150.00**

Customer Acceptance _____ Date _____