Semmes Quick Stop
Corrective Action Plan
Facility I.D. #24104-097-010954
UST Incident #UST21-11-04

Prepared for

Semmes Quick Stop
5600 Lott Road
Eight Mile, Mobile County, Alabama

ALLEN
ENGINEERING
AND SCIENCE

June 2025

Responsible Party:
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CERTIFICATION PAGE

I certify under penalty of law that I am a Geologist experienced in hydrogeologic investigations. The proposed scope of work described in this plan was developed by a Geologist experienced in hydrogeologic investigations. The information submitted herein, to the best of my knowledge and belief, is true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Jordan Hollinghead, P.G.

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LIC. 1609

1609
Registration Number

6/5/25
Date

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1.0 INTRODUCTION

Semmes Quick Stop, formerly Dearmon's Quick Stop and herein referred to as the Site, is a convenience store located in Eight Mile, Alabama. The Site failed a tank tightness test on November 4, 2020. As a result, the Alabama Department of Environmental Management (ADEM) issued a "Notification of Requirement to Conduct Initial Abatement, Investigative and Corrective Actions" for the Site.

Upon review of the data collected during the investigation events and subsequent mobile-enhanced multi-phased extraction (MEME) and monitoring events (described in **Section 3.0**), Allen Engineering & Science (AllenES) has developed the Corrective Action Plan designed to address the removal of the light non-aqueous phase liquid (LNAPL) as well as dissolved-phase petroleum compounds observed at the Site. Details of the proposed Corrective Action Plan are provided in the sections below.

2.0 SITE DESCRIPTION

The Site is located at the intersection of Lott and Spice Road in Eight Mile, Mobile County, Alabama herein referred to as the Site. The Site is geographically located at Latitude 30°48’29.34”N and Longitude 88°15’7.8”W within the Semmes, Alabama Quadrangle (**Figure 1**). The elevation of the Site is approximately 205 feet (ft) above mean sea level (AMSL).

Structures at the Site include the main building at the center of the property serving as a convenience store and a liquor store. The remaining surface area of the property is paved with asphalt, concrete with some grassy areas to the northeast and east. Underground storage tanks (USTs) at the Site consist of a 6,000-gallon E10 gasoline tank, a 4,000-gallon Plus-rated gasoline tank, and a 4,000-gallon conventional unleaded gasoline tank. The USTs are connected to two (2) dispensers located directly above the USTs via underground piping. These and other site features are shown in **Figure 2**.

3.0 SITE HISTORY

Semmes Quick Stop failed a tank tightness test on November 4, 2020. As a result, the Alabama Department of Environmental Management (ADEM) issued a "Notification of Requirement to Conduct Initial Abatement, Investigative and Corrective Actions" for the Site. AllenES understands the Site experienced no leaks associated with the USTs until the tank tightness failure in November 2020. Key investigation work and monitoring events completed to date include the following:

1. A Preliminary Investigation (CP#1) was conducted on March 31, 2021, in which benzene, toluene, ethylbenzene, and naphthalene concentrations were detected in soil and groundwater samples above typical screening levels at soil boring / monitoring well MW-3, located directly southeast of the UST pit. Findings of the Preliminary Investigation are provided in the Preliminary Investigation Report (AllenES, 2021) submitted in May 2021.

2. A Secondary Investigation (CP#2) was conducted in February 2022 in an effort to delineate the extent of hydrocarbon contamination. Seven (7) soil borings were advanced, and six (6) were converted into permanent, Type-II groundwater monitoring wells (MW-6, MW-7, MW-8, MW-9, MW-10, and MW-11). Findings from the Secondary Investigation are provided in the Secondary Investigation Report (AllenES, 2022) submitted in April of 2022.

3. An Additional Secondary Investigation (CP#3) was conducted in December 2022 and January 2023 in an effort to delineate the extent of hydrocarbon contamination. Six (6) soil borings were advanced, and five (5) were converted into permanent, Type-II and Type-III groundwater monitoring wells (MW-12S, MW-13S, MW-14D, MW-15D, and MW-16D). Findings from the Additional Secondary Investigation are provided in the Additional Secondary Investigation Report (AllenES, 2023) submitted in February 2023.

4. MEME and Groundwater Monitoring Events (CP#4) was conducted consisting of three (3) mobile, enhanced multi-phased extraction (MEME) events conducted on a monthly basis from July through September 2023, followed by a groundwater monitoring event in which groundwater samples were collected from all (15) monitoring wells at the Site. Findings of the events are provided in the Groundwater Monitoring and MEME Events CP#4 Report (AllenES, 2023). Submitted in October 2023.

5. MEME and Groundwater Monitoring Event (CP#5) was conducted in December 2023 and January 2024. The events consisted of one (1) MEME event conducted in December 2023, and a groundwater monitoring event conducted in January 2024 in which groundwater samples were collected from ten (10) monitoring wells at the Site. Findings of the events are provided in the Groundwater Monitoring and MEME Event CP#5 Report (AllenES, 2024). Submitted in January 2024.

6. A Groundwater Monitoring and MEME Events CP#6 Report (AllenES, May 2024) was completed. One (1), quarterly MEME event was conducted in April 2024. Upon completion of the April 2024 MEME event, a groundwater monitoring event was conducted in which eight (8) monitoring wells located at the Site were sampled.

7. A Groundwater Monitoring and MEME Events CP#7 Report (AllenES, September 2024) was completed. One (1), quarterly MEME event was conducted in July 2024. Upon completion of the July 2024 MEME event, a groundwater monitoring event was conducted in which twelve (12) monitoring wells located at the Site were sampled.

8. A Groundwater Monitoring and MEME Events CP#15 Report (AllenES, November 2024) was completed. One (1), quarterly MEME event was conducted in October 2024. Upon completion of the October 2024 MEME event, a groundwater monitoring event was conducted in which ten (10) monitoring wells located at the Site were sampled.

9. A Groundwater Monitoring and MEME Events CP#16 Report (AllenES, January 2025) was completed. One (1), quarterly MEME event was conducted in January 2025. Upon completion of the January 2025 MEME event, a groundwater monitoring event was conducted in which nine (9) monitoring wells located at the Site were sampled.

4.0 DUAL PAHSE EXTRACTION RECOVERY

AllenES will implement the Corrective Action Plan utilizing dual-phase extraction (DPE) technology focusing on the area of observed LNAPL and dissolved-phase petroleum compounds. Details of the Corrective Action Plan are provided below.

4.1 EXTRACTION WELL INSTALLATION

Prior to mobilization, AllenES will conduct an Alabama 811 call to identify any underground utilities located at the Site.

Four (4) of the existing Type II two-inch monitoring wells (MW-3, MW-6, MW-7, and MW-8) will be converted to four-inch wells to be utilized for extraction. This process will be completed by pulling the existing two-inch casings, over-drilling each borehole, and installing four-inch extraction wells at each location. The anticipated total depth of each extraction well is approximately 25 feet below ground surface (bgs). Well construction at these boring locations will consist of 4-inch diameter, schedule 40 polyvinyl chloride (PVC) casing and 10 feet of 0.020'' slotted PVC screen. Boreholes will be backfilled with 10 / 20 fraction silica sand from the bottom of the borehole to approximately two feet above the screened interval. A bentonite seal will be applied at approximately two feet above the sand pack. The remaining volume of the borehole will be grouted while leaving sufficient space for sub-grade transfer piping connection. Wells will be completed with well vaults for housing and protection of the well heads and associated piping.

4.2 DPE UNIT INSTALLATION

A remedial system utilizing DPE technology will be purchased and installed at the Site. The proposed location of the DPE system is behind the convenient store building along the eastern boundary of the Site (**Figure 3**). Specification of the proposed DPE System include:

- 8x12 foot enclosed building with removable, sliding wall panel design;
- 40 horsepower (HP) oil sealed liquid ring vacuum pump (LRVP) with a 500 cubic feet per minute (CFM) capacity;
- 180 gallon primary air/water separation (AWS) vessel;
- Air/oil separator vessel;
- 1.5 HP AWS transfer pump with composite impeller;
- Air stripper with a 15 gallon per minute (gpm) capacity;
- Telemetry system with cellular connectivity;
- Flow totalizing water meters;
- Bag filter housing with 25 micron filter bags;
- Activated polishing carbon bed;
- 2000 gallon external product settling tank; and

A 20-foot by 40-foot concrete pad will be constructed for the placement of the DPE System and associated equipment.

The interior electric components of the DPE System will comply with National Electrical Code (NEC) requirements for Class 1, Division 2, Group D hazardous locations, and will include totally enclosed, fan-cooled (TEFC) motors.

Upon installation, security fencing will be installed around the DPE System to prevent access to unauthorized personnel.

4.3 VAPOR TREATMENT SYSTEM

A catalytic electric oxidizer will be installed in conjunction with the DPE System for treatment of off gas/vapors associated with the operation of the DPE System. The catalytic electric oxidizer will have a minimum capacity of 300 CFM. The oxidizer will be equipped with an integrated process blower, automatic dilution valve, PLC touch screen interface, data logger/recorder, and a high temperature shut down. The oxidizer will be capable of a destruction efficiency of 95% or greater.

The catalytic electric oxidizer will be rented and operated until the Site is free of a measurable amount of LNAPL.

All necessary remediation approval documentation and equipment specifications will be submitted to ADEM to obtain the appropriate approval from ADEM Air Division.

4.4 EXTRACTION PIPING AND MANIFOLD

Six (6) monitoring/extractions wells (MW-3, MW-6, MW-7, MW-8, MW-12S, and MW-13S) will be utilized for extraction. Each well will be equipped with a typical extraction well head design, as shown in **Attachment A**. Each well will be capped with a four-inch well seal through which a two-inch schedule 40 PVC drop pipe will be installed. Each well head will be constructed with a two-inch clear section of schedule 40 PVC pipe for flow observations and a vacuum gauge. Well vaults will be installed at each extraction well location for below-grade housing and protection of each extraction well head.

Transfer piping will be constructed of two-inch schedule 40 PVC pipe. Individual transfer pipes will be constructed from each extraction well location to the DPE System in a common trench. Each extraction well transfer pipe will converge into the inlet manifold at the DPE System. Control valves will be installed at the inlet manifold at each transfer pipe. Inlet manifold details are provided in **Attachment A**. The inlet manifold will be piped directly to the DPE System using a four-inch schedule 40 PVC pipe.

Upon installation, transfer piping trenches will be backfilled, and asphalt will be applied in the affected areas.

4.5 UTILITIES

4.5.1 ELECTRICAL SERVICE

A metered power pole will be installed at the location of the DPE System by Alabama Power. Electrical supply will require 200-amp, 480 volt 3-phase service, which will be connected to the DPE System at a fused, main disconnect. Electrical connection of the DPE System will be conducted by a licensed electrician.

4.5.2 TREATED EFFLUENT WATER

Due to the unavailability of sanitary sewer as the Site, treated effluent water will be discharged into the stormwater ditch along the north side of Sims Road. A National Pollutant Discharge Elimination System (NPDES) permit will be obtained for the coverage of treated effluent water dishcarge.

4.6 STARTUP, OPERATIONS AND MAINTENANCE

Upon installing the DPE System and completing all necessary connections, AllenES and the DPE System manufacturer will conduct a startup of the system to ensure all components of the system are operating as designed.

Upon approval of the **Semmes Quick Stop Corrective Action Plan** (AllenES, April 2025), AllenES will develop an Operations and Maintenance Plan for the remedial system.

4.7 ESTIMATED DURATION OF CLEANUP

The Corrective Action Plan focuses on the removal of observed LNAPL, vapor-phased, and dissolved-phased petroleum compounds. The remedial approach provided in the Corrective Action Plan utilizes DPE technology to decrease CoC concentrations in soil and groundwater to levels protective to human health and the environment. The following site conditions were considered in estimating the duration of cleanup.

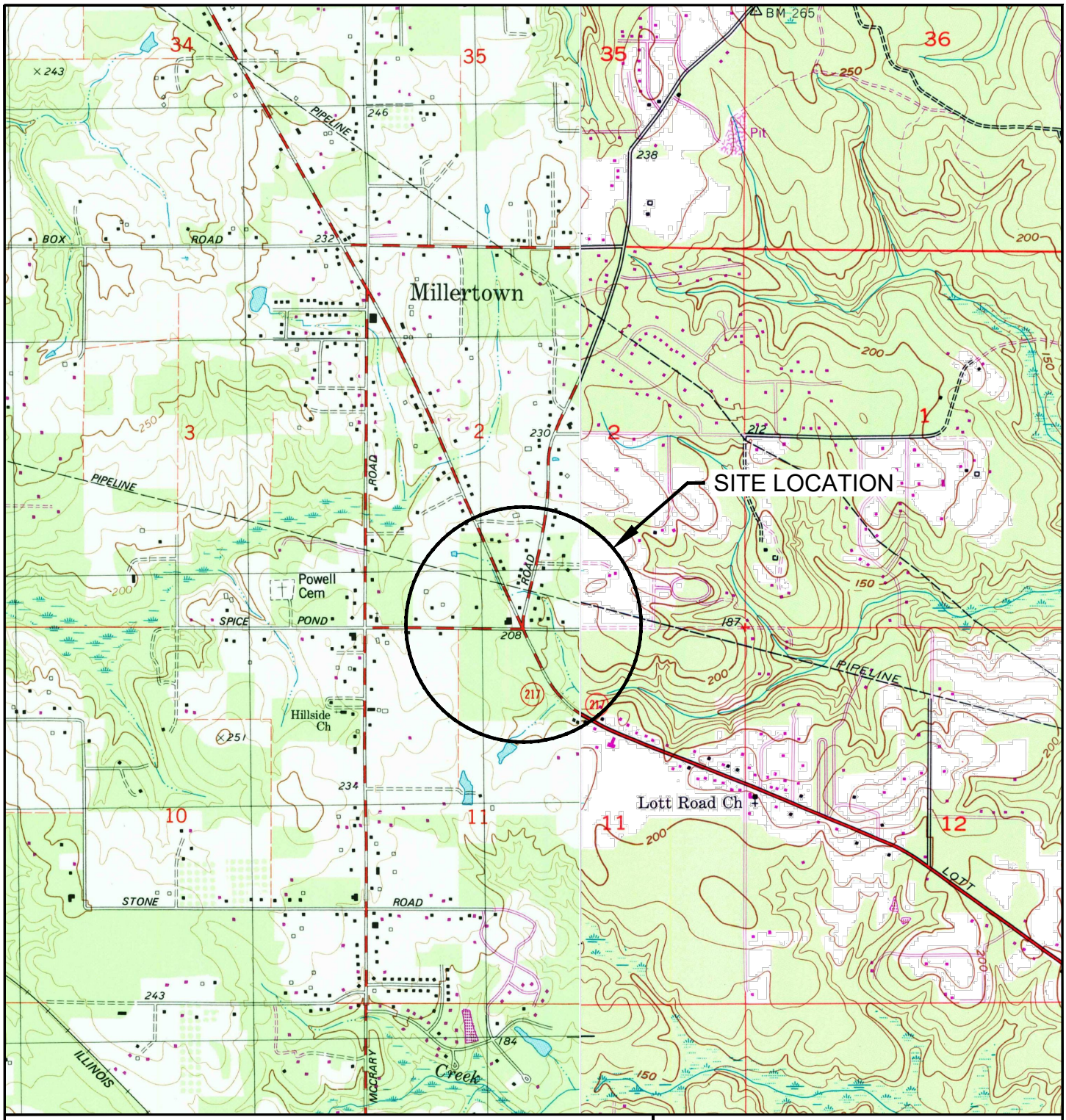
- Assumed uniformity of subsurface soils consisting of fine to medium grained sand and consistent groundwater velocity.
- An areal extent of LNAPL and actionable dissolved-phase petroleum hydrocarbons of approximately 8,200 square feet.
- The extent of LNAPL and associated vapor concentrations will result in a reduced production rate of the DPE system during startup, and system efficiency will be increased over time as LNAPL is removed.

With these considerations listed above and based on AllenES' professional experience, the duration of cleanup is estimated at approximately two (2) to three (3) years during which the DPE system would remain in operation to be followed by monitoring period to ensure remedial objectives have been achieved.

5.0 GROUNDWATER MONITORING

AllenES recommends continuing the quarterly groundwater monitoring events as described in the **Groundwater Monitoring and MEME Plan** (AllenES, May 2023). AllenES also recommends incorporating remedial system effectiveness monitoring into the plan upon installation and startup of the DPE System.

FIGURES



QUADRANGLE LOCATION

SOURCE: USGS TopoQuad – SEMMES, ALABAMA
KUSHLA, ALABAMA

N

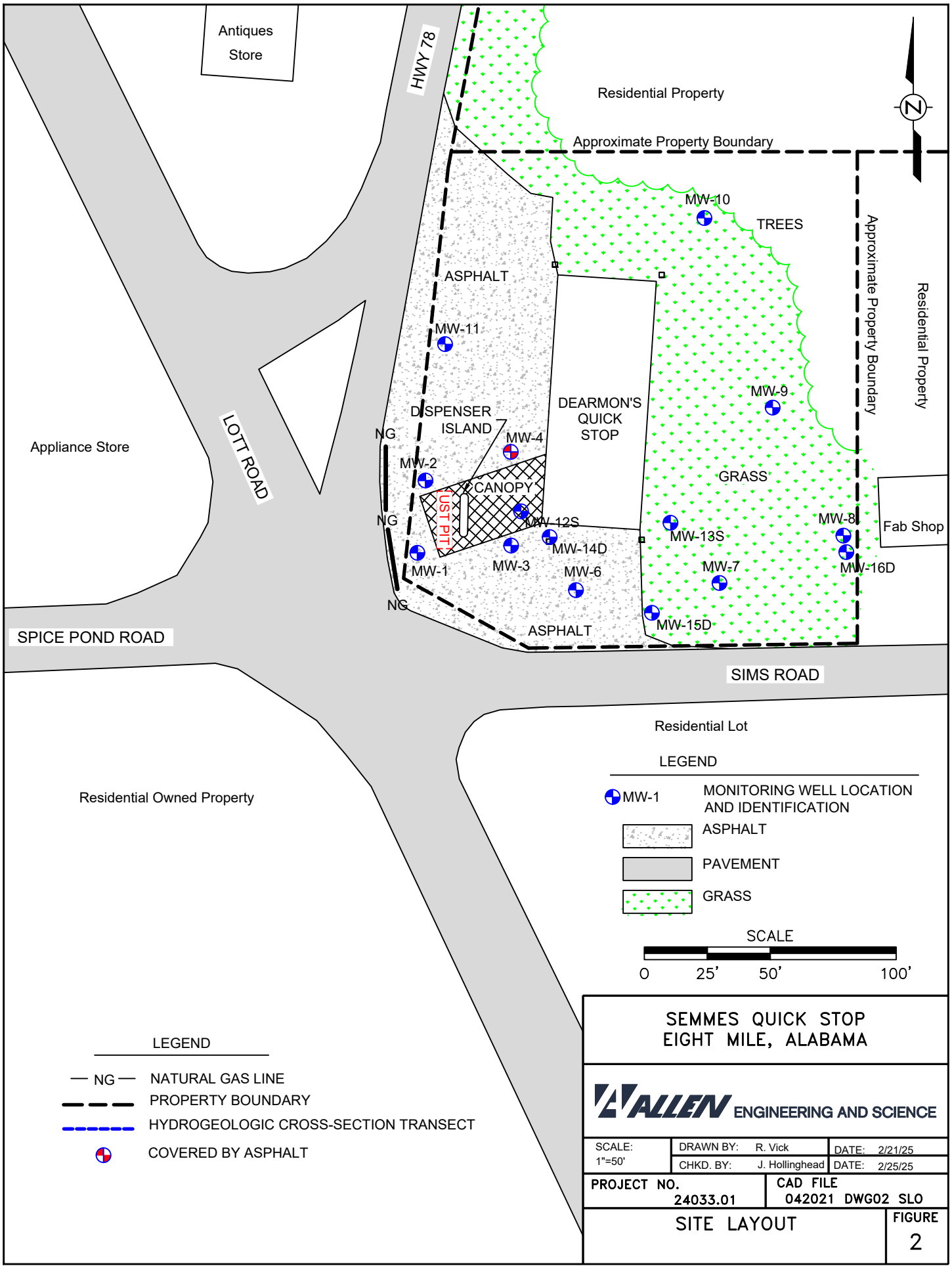
SEMMES QUICK STOP
EIGHT MILE, ALABAMA

ALLEN ENGINEERING AND SCIENCE

SCALE: 1"=2,000'	DRAWN BY: R. Vick	DATE: 10/12/23
	CHKD. BY: J. Hollinghead	DATE: 10/15/23
PROJECT NO. 23126.01	CAD FILE 041921 DWG01 RO SLM	

SITE LOCATION MAP

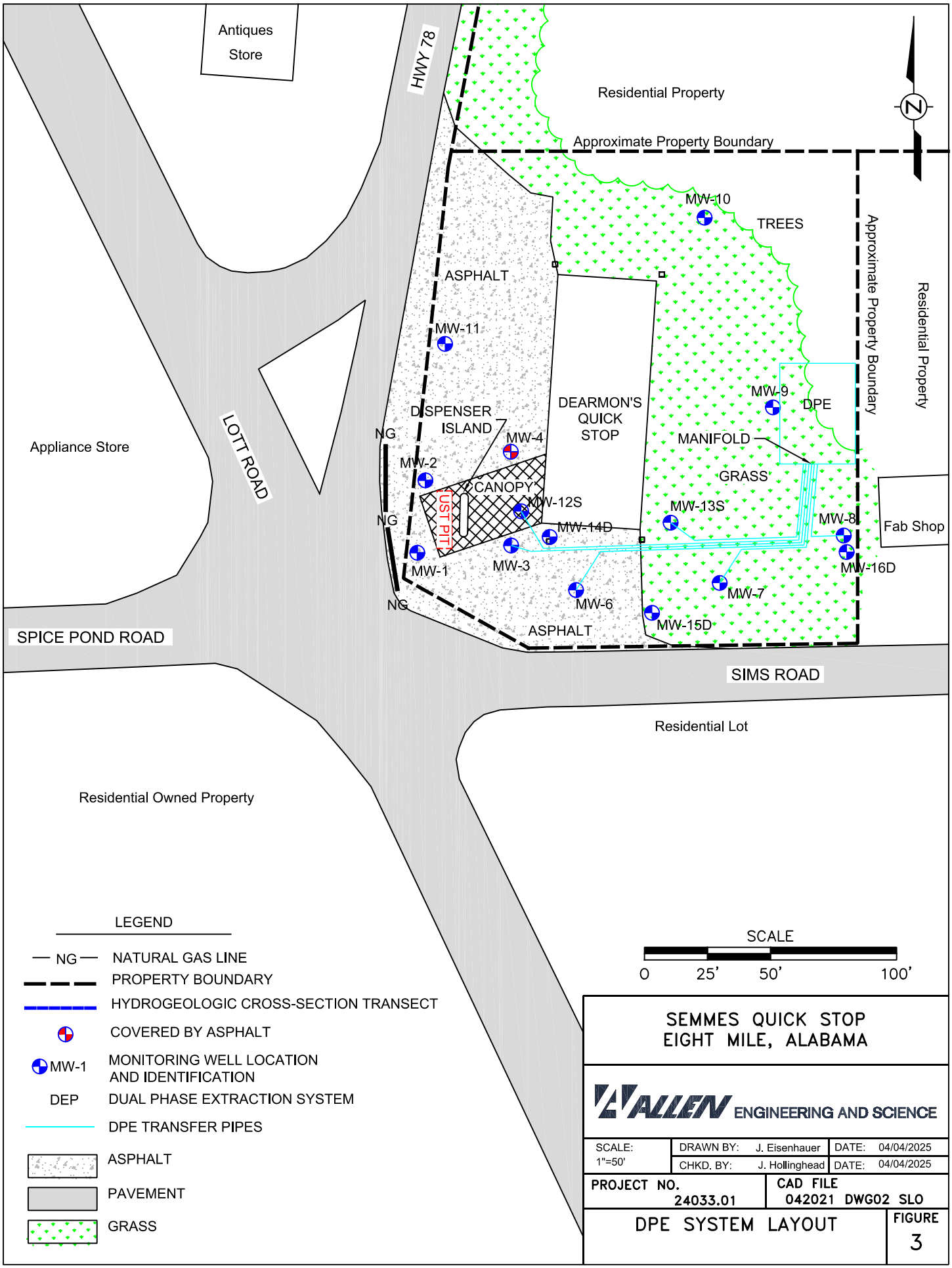
DRAWING 1



SEMMES QUICK STOP
EIGHT MILE, ALABAMA

ALLEN ENGINEERING AND SCIENCE

SCALE: 1"=50'	DRAWN BY: R. Vick	DATE: 2/21/25
	CHKD. BY: J. Hollinghead	DATE: 2/25/25
PROJECT NO. 24033.01	CAD FILE 042021 DWG02 SLO	
SITE LAYOUT		FIGURE 2


Antiques Store
HWY 78
Residential Property
Approximate Property Boundary
MW-10
TREES
Approximate Property Boundary
Residential Property
ASPHALT
MW-11
DEARMON'S QUICK STOP
DISPENSER ISLAND
NG
MW-4
MW-9
DPE
MANIFOLD
Appliance Store
LOTT ROAD
MW-2
GRASS
CANOPY
MW-12S
MW-13S
MW-8
Fab Shop
NG
UST PIT
MW-14D
MW-1
MW-3
MW-16D
MW-7
MW-6
NG
MW-15D
ASPHALT
SPICE POND ROAD
SIMS ROAD
Residential Lot
Residential Owned Property
LEGEND
NG NATURAL GAS LINE
PROPERTY BOUNDARY
HYDROGEOLOGIC CROSS-SECTION TRANSECT
COVERED BY ASPHALT
MW-1 MONITORING WELL LOCATION AND IDENTIFICATION
DEP DUAL PHASE EXTRACTION SYSTEM
DPE TRANSFER PIPES
ASPHALT
PAVEMENT
GRASS
SCALE
0 25' 50' 100'
SEMMES QUICK STOP
EIGHT MILE, ALABAMA
ALLEN ENGINEERING AND SCIENCE
SCALE: 1"=50'
DRAWN BY: J. Eisenhauer DATE: 04/04/2025
CHKD. BY: J. Hollinghead DATE: 04/04/2025
PROJECT NO. 24033.01
CAD FILE 042021 DWG02 SLO
DPE SYSTEM LAYOUT
FIGURE 3

TABLES

ENGINEERING AND SCIENCE

TABLE 1

HISTORICAL GROUNDWATER ANALYTICAL SUMMARY
SEMMES QUICK STOP

Sample ID	Sampling Date	CONCENTRATION (ppm)						
		Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Naphthalene
MW-1	4/2/2021	0.435	2.670	0.282	1.617	5.004	<0.050	<0.005
	2/21/2022	0.040	0.105	0.008	0.142	0.295	<0.0005	<0.001
	1/11/23	0.167	0.409	0.037	0.334	0.947	<0.0005	0.0011
	10/3/23	0.038	0.087	0.008	0.064	0.197	<0.005	<0.005
	1/10/24	0.172	0.312	0.018	0.138	0.640	<0.005	<0.005
	4/25/24	0.080	0.226	0.023	0.171	0.499	<0.002	<0.005
	8/14/24	0.476	0.936	0.156	0.910	2.478	<0.010	<0.025
	10/30/24	0.072	0.200	0.020	0.148	0.440	<0.010	<0.025
	2/03/25	0.059	0.211	0.029	0.178	0.477	<0.0005	<0.001
MW-2	4/2/2021	0.031	0.219	0.022	0.136	0.408	<0.005	<0.005
	2/21/2022	0.044	0.181	0.020	0.116	0.361	<0.0005	<0.001
	1/11/23	0.054	0.119	0.009	0.065	0.247	<0.0005	<0.001
	10/3/23	0.011	0.020	<0.005	<0.015	0.031	<0.005	<0.005
	1/10/24	0.158	0.247	0.022	0.156	0.583	<0.005	<0.005
	4/25/24	0.197	0.460	0.052	0.340	1.049	<0.002	<0.005
	8/15/24	0.054	0.106	0.016	0.093	0.269	<0.010	<0.025
	10/30/24	0.030	0.087	0.007	0.066	0.190	<0.010	<0.025
	2/03/25	0.089	0.212	0.033	0.206	0.540	<0.0005	<0.001
MW-3	4/2/2021	2.55	19.70	2.85	15.80	40.90	<0.250	0.177
	2/22/2022	5.27	31.00	2.89	18.17	57.33	<0.100	0.211
	1/12/23	1.08	25.20	3.35	20.31	49.94	<0.0005	0.212
	10/4/23	1.56	12.50	1.68	9.84	25.58	<0.005	0.140
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	Not Sampled (Free Product Present)						
	10/30/23	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-4	4/2/2021	0.148	0.870	0.099	0.636	1.75	<0.025	<0.005
	2/21/2022	0.429	0.790	0.119	0.913	2.25	<0.0005	0.002
	1/12/23	0.936	2.27	0.201	1.49	4.90	<0.0005	0.011
	10/3/23	0.007	0.035	<0.005	0.032	0.07	<0.005	<0.005
	1/11/24	0.044	0.112	0.008	0.095	0.26	<0.005	<0.005
	4/24/24	Not Sampled (Covered with asphalt)						
	8/14/24	Not Sampled (Covered with asphalt)						
	10/30/23	Not Sampled (Covered with asphalt)						
	1/31/25	Not Sampled (Covered with asphalt)						
MW-6	2/22/2022	0.758	17.600	2.28	13.99	34.63	<0.001	0.553
	1/11/23	0.478	12.80	2.64	16.13	32.05	<0.0005	0.194
	10/4/23	0.801	11.30	1.51	9.38	22.99	<0.250	<0.250
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	Not Sampled (Free Product Present)						
	10/30/23	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-7	2/21/2022	1.37	9.750	1.09	7.56	19.77	<0.001	<0.002
	1/10/23	0.971	8.46	0.734	5.35	15.52	<0.0005	0.050
	10/4/23	0.156	3.32	0.515	3.13	7.12	<0.005	0.103
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	1.35	11.30	1.12	8.14	21.91	<0.400	<1.000
	10/30/24	2.06	14.40	1.32	9.60	27.38	<0.400	<1.000
	2/03/25	2.32	17.00	2.11	13.75	35.18	<0.050	0.194
MW-8	2/22/2022	4.24	31.50	3.55	23.59	62.88	<0.001	0.225
	1/11/23	0.221	33.50	4.11	25.82	63.65	<0.0005	0.193
	10/3/23	0.186	6.79	1.21	7.93	16.12	<0.005	0.109
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	1.72	17.80	1.97	13.06	34.55	<0.400	<1.000
	10/30/24	0.318	18.00	9.47	32.70	60.49	<0.400	0.755
	1/31/25	Not Sampled (Free Product Present)						
MW-9	2/21/2022	<0.0005	<0.0005	<0.0005	<0.002	--	<0.0005	<0.001
	1/10/23	<0.0005	0.0017	<0.0005	<0.002	0.0017	<0.0005	0.0017
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	0.008	<0.005	0.011	0.019	<0.005	<0.005
	4/24/24	<0.001	0.001	<0.001	<0.003	0.001	<0.002	<0.005
	8/14/24	<0.001	0.001	<0.001	<0.003	0.001	<0.002	<0.005
	10/30/24	<0.001	<0.005	<0.001	<0.003	--	<0.002	<0.005
	1/31/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-10	2/21/2022	<0.0005	<0.0005	<0.0005	<0.002	<0.002	<0.0005	<0.001
	1/10/23	<0.0005	0.0011	<0.0005	<0.002	--	<0.0005	<0.001
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	1/31/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-11	2/21/2022	<0.0005	<0.0005	<0.0005	<0.002	<0.002	<0.0005	<0.001
	1/11/23	<0.0005	0.0006	<0.0005	<0.002	--	<0.0005	<0.001
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	2/03/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-12S	1/12/23	1.22	10.4	1.62	9.90	23.14	0.0006	0.139
	10/4/23	1.03	8.62	0.925	5.27	15.85	<0.005	0.097
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	3.87	16.50	1.66	10.34	32.37	<0.400	<1.000
	10/30/24	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-13S	1/12/23	0.498	6.93	0.756	5.02	13.20	<0.0005	0.043
	10/4/23	1.44	19.30	1.70	11.12	33.56	<0.005	0.171
	1/11/24	2.85	25.40	3.13	20.37	51.75	<0.500	<0.500
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	0.668	8.92	1.58	11.30	22.47	<0.002	<0.005
	10/30/24	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-14D	1/12/23	<0.0005	0.0006	<0.0005	<0.002	0.0006	<0.0005	<0.001
	10/3/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/31/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	2/03/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-15D	1/10/23	<0.0005	0.006	0.0009	0.006	0.0129	<0.0005	<0.001
	10/3/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	2/03/25	<0.0005	0.0006	<0.0005	<0.003	--	<0.0005	<0.001
MW-16D	1/11/23	<0.0005	0.0009	<0.0005	<0.002	0.001	<0.0005	<0.001
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	0.296	2.41	1.35	11.36	--	<0.002	0.136
	1/31/25	<0.0005	<0.0005	0.0012	0.012	--	<0.0005	<0.001
EPA Region 4 Regional Screening Limit (RSL)		0.005	1.0	0.7	10.0	- -	0.014[TW]	0.00012[TW]

Notes:

*** Dilution factor raised the MDL above the EPA RSL*
BTEX analysis conducted per EPA Test Method 8260
Red italics indicates concentration exceeds ADEM / EPA RSL
Bold Highlighted results indicate detectable concentration. All others were measured less than practical quant. Limit (see data report).

ATTACHMENTS

ATTACHMENT A

MK ENVIRONMENTAL QUOTE AND DRAWINGS

MK ENVIRONMENTAL INC.

765 Springer Dr
Lombard, IL 60148
630-920-1104 (office)
630-920-8013 (fax)
jgiltz@mkenv.com

QUOTATION

Date	4/8/2025
Quote No.	225018B
Reference	Semmes
Page No.	1 of 4
Freight	Included
Terms	per contract
Ship Via	FLATBED
F.O.B.	Factory

SOLD TO:	**SHIP TO:**
Jordan Hollinghead Allen Engineering and Science 1100-C Dauphin Street Mobile, AL. 36604 Direct: 251-243-0722	Semms Quick Stop Spice Pond Rd Eight Mile, AL 36613

Quotation valid for 30 days

QUANTITY		UNIT PRICE	AMOUNT
	200 amp 3/60/480 volt 3 wire plus ground electrical service Brought to Fused Main Disconnect Interior electrical will comply with NEC requirements for Class 1, Division 2, Group D Hazardous locations Motors will be TEFC construction suitable for Class 1, Div. 2, Group D		
1	8 x 16 foot refurbished building enclosure with removable, sliding wall panel design • All metal frame construction. No wood load bearing members • Structural steel base, roof frame, and vertical posts. Steel frame base to be painted with a finish coat of semi-gloss urethane paint. • Exterior shall be aluminum with outdoor rated white finish • Systems 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 • Furnish with lockable man 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 • 12,000 BTU XP heater with XP thermostat. All components fully piped, wired & factory tested	176,088.00	$176,088.00
1	DPVE Unit - 40 HP Oil Sealed LRVP. 500 CFM • 3-phase, 60-Hz, TEFC motor • Structural steel base frame • Vacuum transducer integrated with telemetry system programmed to alarm at loss of vacuum or at a preset value • heat exchanger • 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, temperature pressure gauges.		
1	180 gallon Primary Air/Water Separation Vessel • Epoxy-coated carbon steel, vacuum-rated AWS-1 • Separation capacity of AWS 1 should be 30 gallons per minute (gpm) on average, with surge flow rates up to 50 gpm • The inlet connection shall be 4-inch horizontal pipe with no threads located on the sid of tank at the approximate center above the level switch high/high (LSHH) • The vapor outlet shall be a 4-inch connection located on near the top of the tank • The liquid effluent shall be a FPT 2-inch opening located approximately 6 inches from the bottom of vessel • Clean out port, 10 inch diameter , designed to allow for easy opening. No flange connection. • 2-inch gate valve bottom drain/cleanout • Stilling well installed on outside of tank and constructed of 2-inch clear PVC pipe for housing liquid level switches, intrinsically-safe (I.S) Intrinsically safe conductivity probes as follows: o Level switch low (LSL) and Level switch high (LSH) o Level switch high (LSHH) o Level probes shall be mounted on top of and protrude into the stilling well. o Sufficient flexible conduit and connections shall be provided to facilitate removal of the switch/connection box without disassembly • Automatic vacuum relief • One (1) 0-30 in. Hg vacuum gauge easily accessible and at a visible location above knee level • 2-inch air dilution valve with Solberg filter.		
1	Air/Oil Separator Vessel back pressure gauge air- oil separator filter heat exchanger 4-inch schedule 40 PVC exhaust stack; stubbed through the ceiling Exhaust stack will be sealed at the roof junction outlet with a permanent flashing.		

MK ENVIRONMENTAL INC.

Jordan Hollinghead
Allen Engineering and Science

Date 4/8/2025
Quote No. 225018B
Reference Semmes

QUANTITY		UNIT PRICE	AMOUNT
2	1.5 hp AWS1 and 3.0 hp Sump Transfer Pump with composite impeller discharge capacity under 26-in. Hg vacuum 3-Phase 60-Hz 208/230-volt TEFC motor with a minimum 1.15 service factor 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 has been designed with large passages to minimize seizing due to calcium or iron buildup Cast iron housing with composite impeller, direct-driven Schedule 40 pipe and fittings Check valve installed on discharge piping Suction pipe shall be constructed of Schedule 40 galvanized pipe cut and connected with a Fernco© 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 port Hand-Off-Auto Control mounted in main electrical panel.		
1	SA50 Stripperator OWS and air stripper 304 stainless steel constructior The air stripper shall be located inside the enclosure and shall include the following: Minimum capacity of 50-gpm Aeration tube design air stripper Effluent sump with sight glass/tube Includes a 10-inch clean out port on sump and 1-inch bottom mounted drain valve Aluminum AMCA rated spark resistant blower 3-Phase 60-Hz TEFC motor with a 1.15 service factor Class l, Division 2, Group D hazardous locations Intake blower silencer 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 blower air flow rate. Backpressure gauge 8-inch galvanized discharge stack with exterior 90-degree elbow	-	
1	Telemetry • cellular connection Connection and monthly service fee to be added and billed separately Remote restart and shut down capabilities data logging and alarm call out via text or email		
1	CONTROL PANEL MK shall provide a single control panel per system for all equipment, sized for the proposed equipment, and based on electrical loading table provided to the County. 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. Add interlocks for the oxidizer with the liquid ring system install bypass and interlock selector switches into control panel. Modify control panel, enginieering and drawings.		
1	200 Amp Fused Main Disconnect mounted to the system building for the DPVE system Includes: (1) Weatherhead with extension pole and bracket support (1) 200 amp electric meter socket base installed		
1	Water Meters Flow totalizing water meters will include: • Air Stripper Sump discharge meter will be a minimum 1 -inch		
2	Bag filter housings, stainless steel construction 25 micron filter bags piped in parallel case of spare 25 micron, size 2 bag filters		

Jordan Hollinghead
Allen Engineering and Science

Date 4/8/2025
Quote No. 225018B
Reference Semmes

QUANTITY		UNIT PRICE	AMOUNT
2	Activated polishing carbon beds filled with 500 pounds of reactivated carbon in each 1" inlet and outlet		
1	External product settling tank 2000 gallon capacity or larger product draw off with shut off valve 2" gravity outlet for flow to OWS high level switch integrated with control panel		
1	MK parts and major equipment labor warranty Comprehensive parts and on site labor warranty for 1 year		
1	Startup and Training for DPVE system (1) full day including travel and per diem. Minimum (14) day notice for scheduling purposes.		
1	DPVE Packaged System & Settling Tank Outbound Freight to site Off loading and placement by others		
	Notes:		
	DPVE Telemetry Data and connection service, monthly service rate $135.00* DPVE with Catox Telemetry Data and connection service, monthly service rate $165.00* * Telemetry date and connection service pricing subject to change.		
	MK Environmental refurbished DPVE packaged system with full warranty available upon request		

EQUIP. SUB TOTAL	$176,088.00
NET TOTAL	$176,088.00

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

Jerry Giltz
MK Environmental Inc.

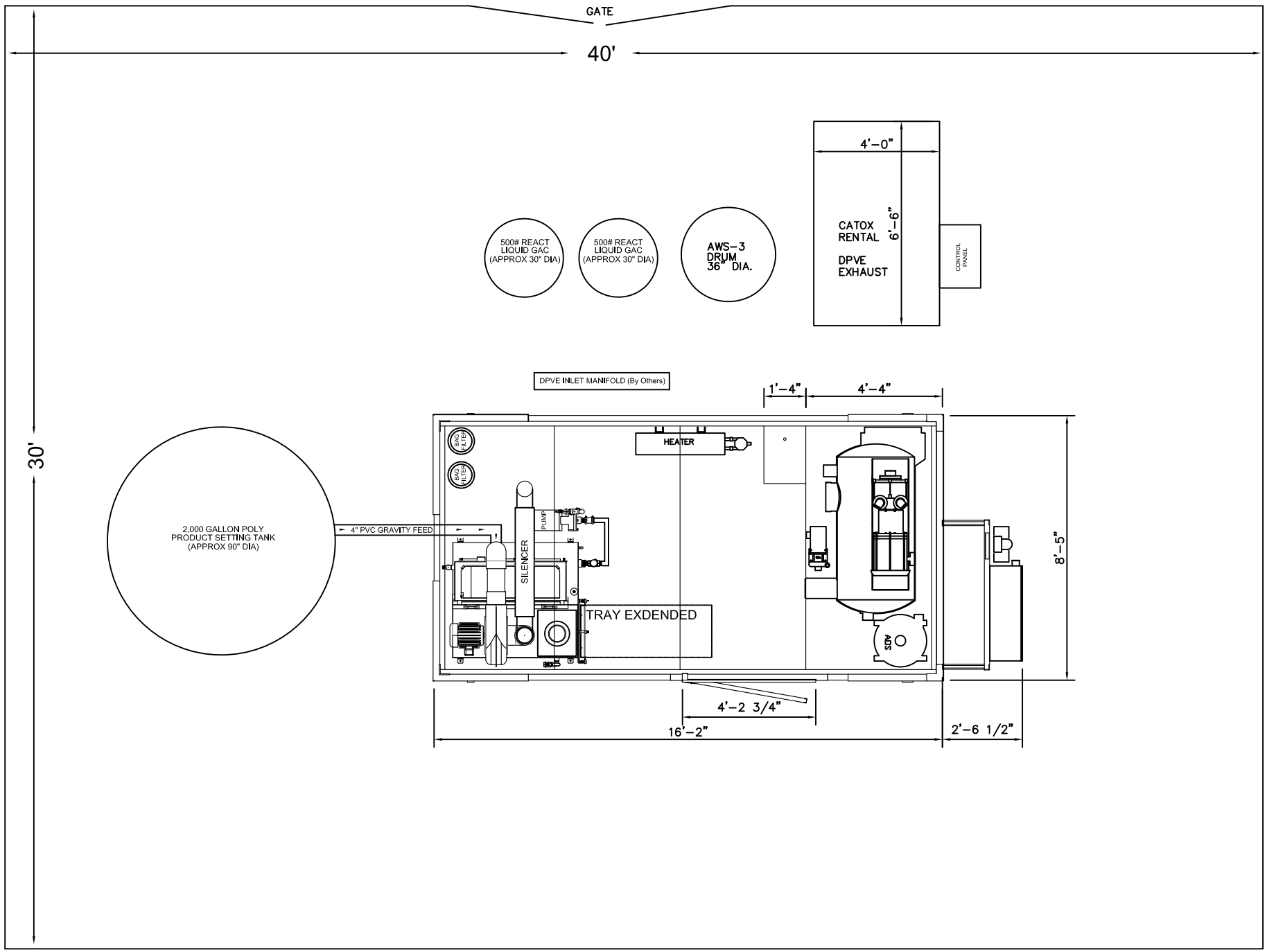
Jordan Hollinghead
Allen Engineering and Science

Date 4/8/2025
Quote No. 225018B
Reference Semmes

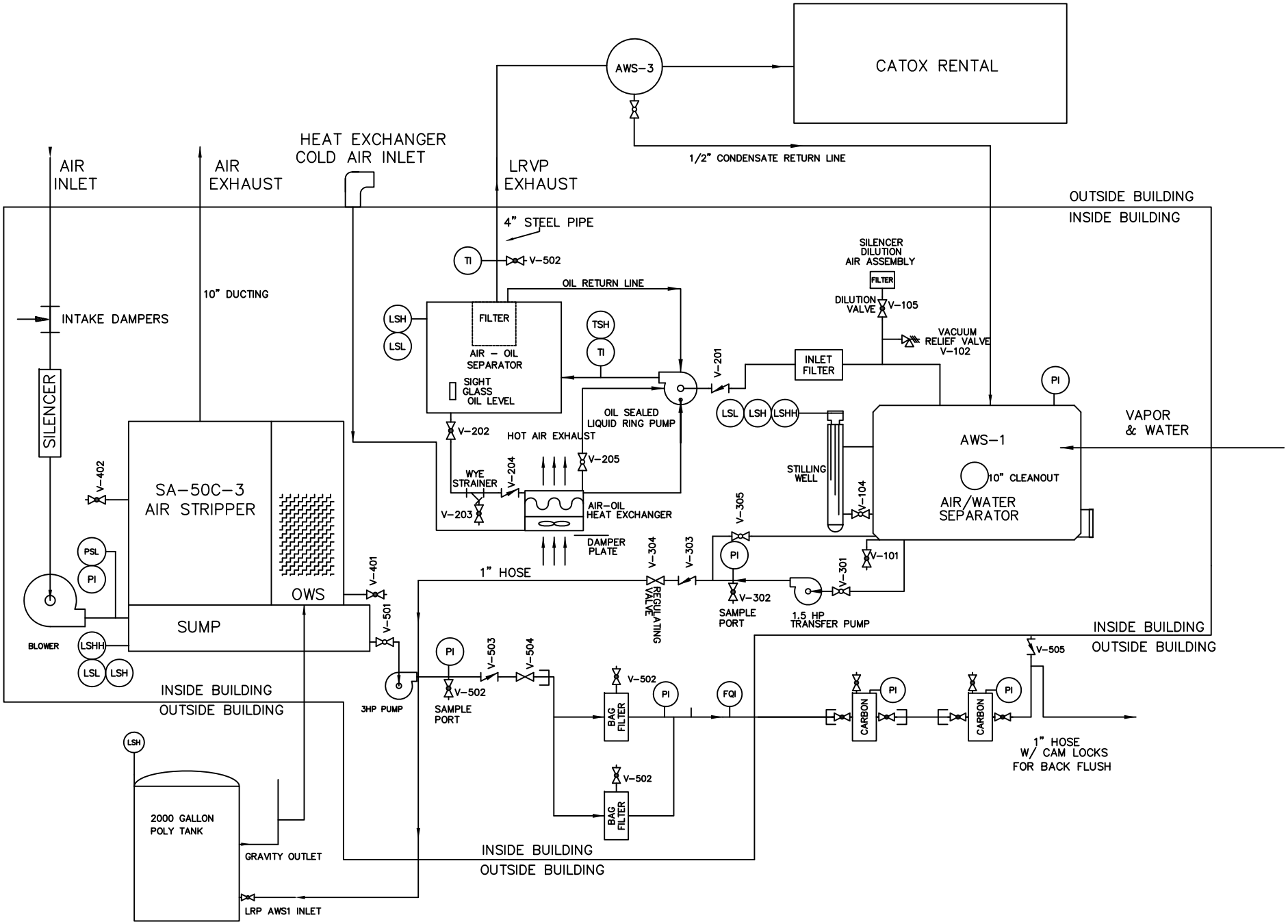
QUANTITY		UNIT PRICE	AMOUNT
	OPTIONAL OFF GAS DPVE TREATMENT & SERVICES; ADD TO THE NET TOTAL		
1	Catalytic Electric or Thermal Gas Fired Oxidizer rental for treatment of DPVE vapors 300 or 500 CFM oxidizer base on availability at the time of order. integrated process blower automatic dilution valve PLC touch screen interface circular chart recorder for inlet and outlet data logging 95-99% destruction efficiency high temperature shut down (6) month rental commitment required 3-pole, 480v supply beaker **ADD $ 4,500 per month rate for 6 months minimum to the net total (totaling $27,000)**		
1	AWS3 knock out tank prior to oxidizer to minimize condensed liquids from entering burner or vapor phase carbon bed. **ADD $ 1,250.00 to the net total**		
1	Startup and Training for oxidizer rental system (1) full day including travel and per diem. Minimum (14) day notice for scheduling purposes. **ADD $ 1,000 to the net total (startup at the same time as the DPVE system)**		
1	Oxidizer Rental Outbound Freight to site Off loading and placement by others **ADD $ 500 to the net total (shipped at the same time as the DPVE system)**		
	Total off gas treatment & services (page 4 of 4) ADD, $29,750		
	Notes: 1) Return freight and loading after rental provided by others. Contact MK for a quote to offer these services. 2) Oxdizier rental clock starts at the time of shipment and stops upon successful return and inspection at the contractors fabrication shop.		

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

Jerry Giltz
MK Environmental Inc.



SCALE: NONE	MK ENVIRONMENTAL INC.	SITE LAYOUT WATER AND VAPOR TREATMENT SYSTEM	ALLEN ENGINEERING AND SCIENCE SEMMES QUICK STOP 5600 LOTT ROAD EIGHT MILE, AL MK PROJECT# 223559B	1 | 04/7/25 | JAG | DRAFT	FIGURE NUMBER M-1
DESIGNED: JAG | CHECKED BY:					
DRAWN BY: JAG | DRAWN DATE: 04/7/25					



V	VACUUM	I	INDICATOR
P	PRESSURE	FQI	FLOW QTY IND. (TOTALIZER)
S	SWITCH	FRI	FLOW RATE INDICATOR
L	LIQUID LEVEL OR LOW	T	TEMPERATURE

SCALE:	NONE
DESIGNED:	JAG
CHECKED BY:	
DRAWN BY:	JAG
DRAWN DATE:	04-7-25

MK ENVIRONMENTAL INC.

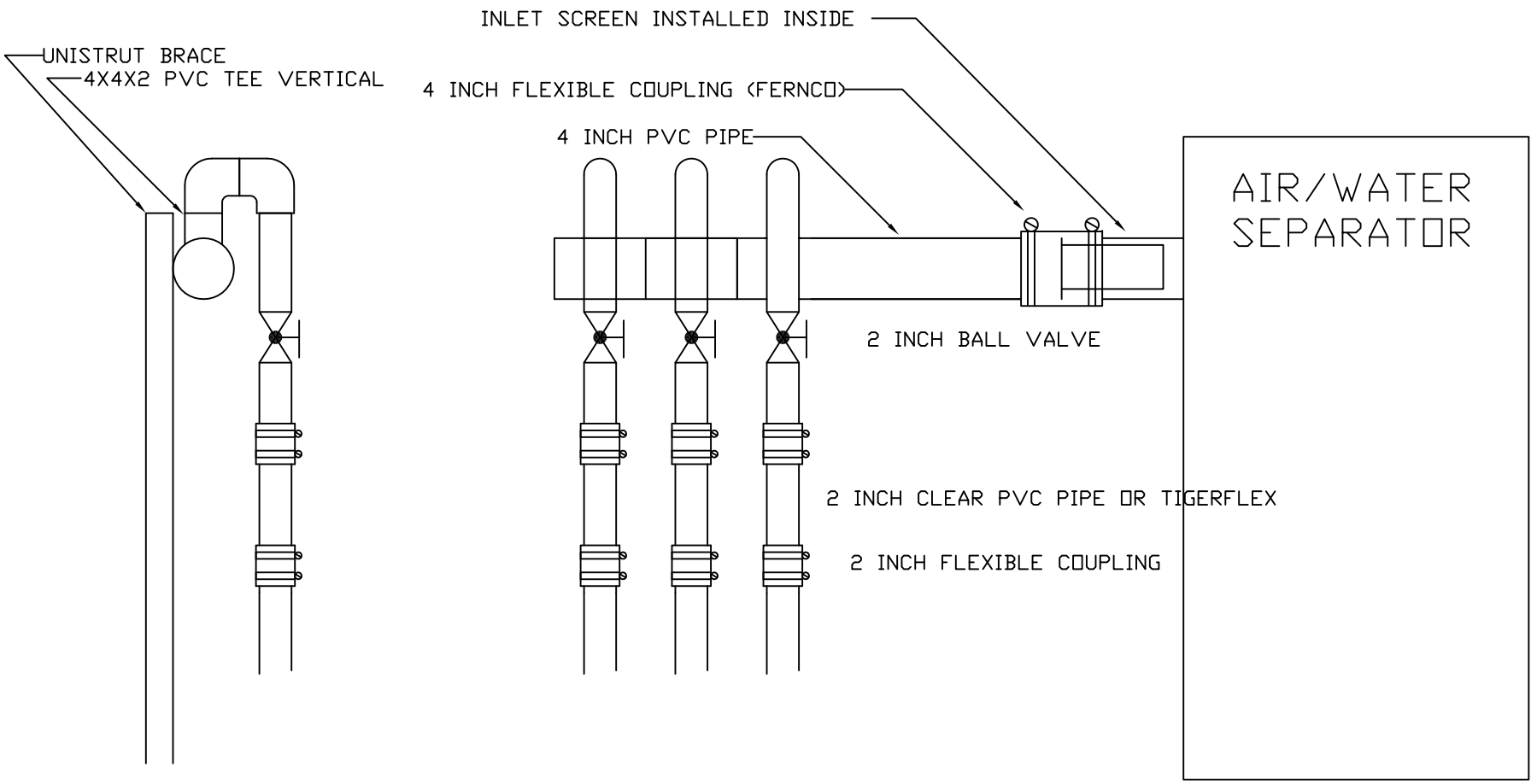
PID

ALLEN ENGINEERING AND SCIENCE
SUMMES QUICK STOP
5600 LOTT ROAD
EIGHT MILE, AL.
MK PROJECT# 225018B

1	04/7/25	JAG	DRAFT	

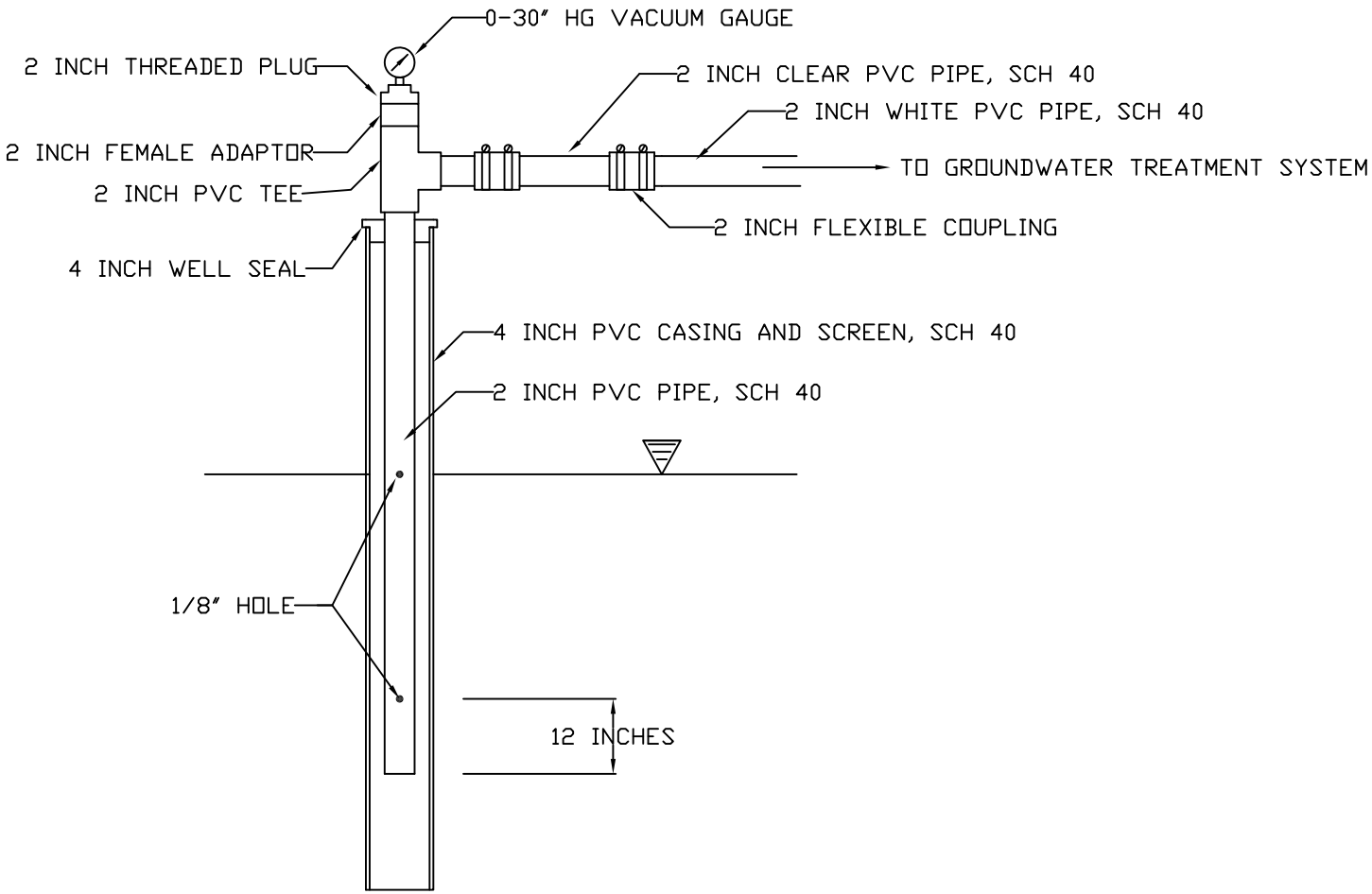
FIGURE NUMBER
M-2

INLET MANIFOLD DETAIL



MK ENVIRONMENTAL INC.	DATE:	DRAWN BY:	JOB NUMBER	DRAWING NUMBER	TYPICAL INLET MANIFOLD DUAL PHASE EXTRACTION
	4-07-25	EHT	XXXXXX		

WELL HEAD DETAIL



MK ENVIRONMENTAL INC.	DATE: 4-07-25	DRAWN BY: EHT	JOB NUMBER xxxxxx	DRAWING NUMBER TYPICAL WELL HEAD DESIGN DUAL PHASE EXTRACTION

ALLEN
ENGINEERING
AND SCIENCE

HEALTH AND SAFETY PLAN

Semmes Quick Stop
Eight Mile, AL

Facility I.D. #24104-097-010954
UST Incident #UST21-11-04

Health and Safety Plan

Semmes Quick Stop
Eight Mile, AL

Facility I.D. #24104-097-010954
UST Incident #UST21-11-04

Prepared by:

ALLEN
ENGINEERING
AND SCIENCE

1100 C Dauphin Street
Mobile, AL 36604

May 2025

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Semmes Quick Stop (SQS) commissioned Allen Engineering and Science (AllenES) to implement the Primary Investigation as directed by the Alabama Department of Environmental Management (ADEM) through the UST Trust Fund Program. SQS is a convenient store located at 5600 Lott Road in Eight Mile, Mobile County, Alabama (Site). This Health and Safety Plan (HASP) is developed to provide a mechanism for establishing, controlling and ensuring safe working conditions while conducting remedial and monitoring activities at the Site. The safety organization, procedures, and protective equipment outlined in the following sections have been established based upon an analysis of potential hazards. Specific hazard control methodologies have been evaluated and selected to minimize the potential of accident or injury.

1.1 BACKGROUND

The Site is located at the intersection of Lott and Spice Road in Eight Mile, Mobile County, Alabama herein referred to as the Site. The Site is geographically located at Latitude 30°48'29.34"N and Longitude 88°15'7.8"W within the Semmes, Alabama Quadrangle (**Figure 1**). The elevation of the Site is approximately 205 feet (ft) above mean sea level (AMSL).

Structures at the Site include the main building at the center of the property serving as a convenience store and a liquor store. The remaining surface area of the property is paved with asphalt, concrete with some grassy areas to the northeast and east. Underground storage tanks (USTs) at the Site consist of a 6,000-gallon E10 gasoline tank, a 4,000-gallon Plus-rated gasoline tank, and a 4,000-gallon conventional unleaded gasoline tank. The USTs are connected to two (2) dispensers located directly above the USTs via underground piping. These and other site features are shown in Figure 2.

The Site failed a tank tightness test on November 4, 2020. As a result, the Alabama Department of Environmental Management (ADEM) issued a "Notification of Requirement to Conduct Initial Abatement, Investigative and Corrective Actions" for the Site. AllenES has conducted multiple Site investigation resulting in the development and implementation of a Corrective Action Plan.

2.0 KEY PERSONNEL AND MANAGEMENT

At AllenES, the Project Manager (PM), Project Superintendent, Site Safety Officer (SSO), and the Corporate Health and Safety Manager (CSM) are responsible for formulating and enforcing health and safety requirements including the development and implementation of Health and Safety Plans on project sites. The following summarizes the health and safety responsibilities of the site management.

2.1 PROJECT SAFETY RESPONSIBILITIES

The PM has the overall responsibility for assuring technical contract project scope requirements are attained in a manner consistent with the HASP requirements. The PM will coordinate with the Project Superintendent to assure that the work is completed in a manner consistent with the HASP. The Project Superintendent and is responsible for field implementation of the HASP and assume the role of SSO when a dedicated SSO is not onsite. The Project Superintendent will interface with SQS, will be the main contact in any on-site emergency situation and will ensure off-site emergency agencies have been contacted prior to the start of work. The Project Superintendent is also responsible for managing all subcontractors that will be used on this project. The Project Superintendent and SSO are authorized to administer this HASP. The Project Superintendent and the SSO are authorized to stop work when an imminent health or safety risk exists. The CSM is responsible for reviewing the HASP and ensuring that the HASP is complete, accurate and functioning as designed throughout the life of the project. The CSM also provides technical and administrative support for the Health and Safety Program and will be available for consultation when required. Each employee is responsible for personal safety as well as the safety of others in the work area.

2.2 KEY SAFETY PERSONNEL

The following individuals will be primarily responsible for health and safety at the site:

1. Project Manager — Jordan Hollinghead (AllenES)
   (251) 654-4272 (cell)

2. Project Superintendent — Richard Vick (AllenES)
   (228) 218-9866 (cell)

3.	Site Safety Officer	Richard Vick (AllenES) (228) 218-9866 (cell)
4.	Health & Safety Manager	John Ryan (AllenES) (601) 953-3313 (cell)
5.	SQS Point of Contact	Saleh Al-Turki (SQS) (251) 321-6428

3.0 HAZARD ANALYSIS

This section outlines the potential chemical and physical hazards, which workers may be exposed to during underground process sewer line integrity assessment activities at the site. Table 3.1 lists known chemicals. Chemicals which may be brought to the site for which an MSDS is necessary, is located in the **Appendix A**.

3.1 CHEMICAL HAZARDS

Based on the products handled and processed through the underground sewer system and a review of their physical/chemical and toxicological properties and similarities, the primary constituents of concern at the Sites can be consolidated to:

1. Benzene
2. Toluene
3. Total Xylenes
4. Ethylbenzene
5. Naphthalene

In addition, wastewater solids may produce hydrogen sulfide when organic sludges decompose in the absence of air in sewer lines and manholes.

TABLE 3-1

CHEMICAL	EXPOSURE ROUTES	PEL / TLV	HEALTH HAZARDS/ PHYSICAL HAZARDS
Benzene	Skin, eye, inhalation, ingestion	0.5 ppm SKIN STEL 2.5 ppm	• Prolonged skin contact with Benzene or excessive inhalation of its vapor may cause headache, weakness, loss of appetite, and lassitude. A human carcinogen. • Extremely flammable, keep sources of ignition away. Incompatible with fluorides, chlorides, oxygen, permanganates, acids, and peroxides

CHEMICAL	EXPOSURE ROUTES	PEL / TLV	HEALTH HAZARDS/ PHYSICAL HAZARDS
Toluene	Skin, eye, inhalation, ingestion	50 ppm SKIN (500 ppm IDLH)	• White odorless powder**.** VP: 0, LEL/ UEL: NA • Fatigue, weakness, confusion, euphoria, dizziness, headache, dilated pupils, insomnia, numbness/tingling in hands, feet, dermatitis • Reacts with strong oxidizers; flammable liquid; releases toxic gases during combustion
Xylene	Skin, eye, inhalation, ingestion	100 ppm	• Dizziness, excitement, drowsiness, incoherent, staggering walk; eye, nose, throat irritation; nausea, vomiting, dermatitis. • Flammable; reacts with strong oxidizers.
Ethylbenzene	Skin, eye, inhalation, ingestion	100 ppm STEL 125 ppm	• A strong eye, skin mucous membrane irritant; dermatitis, headache, dizziness, sleepiness, narcosis, coma; CNS depression • Reacts with strong oxidizers, flammable liquid, releases toxic gases during combustion
Naphthalene	Skin, eye, inhalation, ingestion	10ppm 10ppm	• Contact can irritate and burn skin and eyes. • Inhaling can irritate nose and throat. • Can cause headache, fatigue, confusion, tremor, nausea and vomiting.

The following general symptoms may indicate exposure to a hazardous chemical. Personnel will be removed from the work site and provided immediate medical attention if the following symptoms occur:

- Weakness
- Nausea, headaches, or cramps
- Irritation of the eyes, nose, or throat
- Abdominal pain

3.2 HAZARD COMMUNICATION

The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at this field project site are transmitted (communicated) according to 29 CFR 1926.59 to all personnel and subcontractors. Hazard communication will include:

1. Container labeling
2. SDS
3. Employee Communication / Training

3.2.1 Container Labeling

If any drums or other containers, AllenES personnel will ensure that all drums and containers are labeled according to contents. These drums and containers will include those from manufacturers and those produced on site by operations. All incoming and outgoing labels shall be checked for identity, hazard warning, and name and address of responsible party.

3.2.2 Safety Data Sheets

There will be an SDS located on site for each hazardous chemical known to be used on site. SDS' associated with the consolidated list of hazardous chemicals will be located in **Appendix A** of this Health and Safety Plan.

3.2.3 Employee Information and Training

Training employees on chemical hazards is accomplished through on ongoing corporate training program. Additionally, chemical hazards are communicated to employees through daily tailgate safety meetings held at AllenES field projects and by an initial site orientation program.

At a minimum, AllenES and related subcontractor employees will be instructed on the following:

- An in-depth review of the soil and surface contaminants of concern identified listed in Section 3.1.
- OSHA regulated chemicals and their hazards in the work area
- How to prevent exposure to these hazardous chemicals
- What the company has done to prevent workers' exposure to these chemicals
- Procedures to follow if they are exposed to these chemicals.
- How to read and interpret labels and SDSs for hazardous substances
- Emergency spill procedures
- Proper storage and labeling

In addition, all on-site personnel will complete the AllenES HazComm safety program on an annual basis. Before any new hazardous chemical is introduced on site, each AllenES and related subcontractor employee

will be given information in the same manner as during the safety class. The Project Superintendent will be responsible for seeing that the MSDS on the new chemical is available for review by on-site personnel. The information pertinent to the chemical hazards will be communicated to project personnel.

Morning safety meetings will be held and the hazardous substances on site will be discussed. Attendance is mandatory for all on site employees including subcontractors. Refer to **Appendix A** of the site safety plan to find a list of hazardous chemicals anticipated to be present at the site and the corresponding SDSs for these chemicals.

3.3 ACTIVITY HAZARD ANALYSIS

The Activity Hazard Analysis (AHA) identifies potential safety, health, and environmental hazards and provides for the protection of personnel, the community and the environment. Because of the constant change associated with these types of projects, supervisors must continually inspect the work area to identify hazards which may harm field activities personnel, the community or the environment. It will be the responsibility of the Field Activities Manager to discuss the requirements for applicable tasks with the crew prior to the initiation of work.

3.3.1 Corrective Action Plan Implementation

Implementation of the Corrective Action Plan at the Semmes Quick Stop facility will consist of drilling and extraction well installation, trenching and transfer piping installation, Dual-Phase Extraction (DPE) system installation, piping and electrical connection, system startup, and operation and maintenance of the system. Hazards are anticipated to include:

Hazard	Action
Slip, trip and fall	• Be certain of footing and keep work areas free of obstructions.
Heat/Cold Stress	• Refer to Sections 4.4 / 4.5
Biological Hazards	• Inspect work area carefully and avoid placing hands or feet into concealed areas.
Heavy Lifting	• Utilize appropriate material handling equipment. Follow proper lifting and moving techniques and do not lift over 60 pounds without assistance.
Personnel in the Work Area	• Barricade or tape off work area. Stop work if unauthorized personnel enter work area.

Hazard	Action
Contact with Contaminants	• Conduct required air monitoring and wear prescribed PPE.
Noise	• Wear hearing protection when around operating equipment.
Equipment backing up and striking people, objects, or above ground utility lines.	• All mobile heavy equipment must have operational backup alarms.
	• Support personnel must make eye contact with the operator before approaching equipment.
	• Operators must be aware of personnel in the area and use proper hand signals before maneuvering.
	• Operators must maintain at least 10 feet of clearance for zero to 50 kilovolt (kV) systems when maneuvering equipment near overhead power lines (Appendix B).

4.0 STANDARD OPERATING SAFETY PROCEDURES, ENGINEERING, AND WORK PRACTICES

4.1 GENERAL PRACTICES

The following general practices will be followed:

- Legible and understandable precautionary labels shall be affixed prominently to containers of potentially affected debris, soil, water, and clothing.

- No food or beverages shall be present or consumed in a Contamination Reduction Zone (CRZ) or Exclusion Zone (EZ). These are only allowed in designated areas of the support zone.

- No tobacco products shall be present or used, and cosmetics shall not be applied in a CRZ or EZ. These are only allowed in designated areas of the support zone, if areas have been designated.

- An emergency eyewash unit shall be located immediately adjacent to employees who handle hazardous or corrosive materials, including decontamination fluids. All operations involving the potential for eye injury, splash, etc., must have approved eye wash units locally available capable of delivering at least 0.4 gallons per minute for at least 15 minutes.

- All field activities will be conducted during daylight hours. If work after dusk becomes necessary due to an emergency, adequate lighting must be provided and notification of such activity made to the location contact.

- Hazardous work, such as handling hazardous materials and heavy loads, and equipment operation, etc., should not be conducted during severe storms.

- All temporary electrical power must have a ground fault circuit interrupter (GFCI) as part of the circuit if the circuit is not part of permanent wiring. All equipment must be suitable and approved for the class of hazard present.

4.2 BUDDY SYSTEM

The "buddy system" will be used at all times by all field personnel working at the Facility. No one is to perform field work alone. Maintain visual, voice, or radio communication at all times.

- Field personnel must observe each other for signs of adverse exposure. Indications of adverse effects include, but are not limited to:

    - Changes in complexion and skin discoloration
    - Changes in coordination
    - Changes in demeanor
    - Excessive salivation and pupillary response
    - Changes in speech pattern.

- Field personnel shall be cautioned to inform each other of nonvisual effects of toxic exposure such as:

    - Headaches
    - Dizziness
    - Nausea
    - Blurred vision
    - Cramps
    - Irritation of eyes, skin, or respiratory tract.

Any detected effects of toxic exposure shall be reported to the Project Superintendent immediately.

4.3 HOT WORK

No hot work is anticipated; however, if any hot work (i.e., welding, burning, etc.) is conducted, AllenES and their subcontractor must comply with the guidelines established in AllenES corporate H&S plan. In addition, a hot work permit will be required.

4.4 HEAT STRESS

Heat stress may be of concern during the execution of tasks associated with this project. Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and individual characteristics. Extreme hot weather can cause physical discomfort, loss of efficiency, or personal injury. Individuals vary in their susceptibility to heat stress. Factors that may predispose individuals to heat stress include:

- Lack of physical fitness
- Insufficient acclimation
- Age
- Dehydration
- Obesity
- Alcohol and/or drug use
- Medical conditions
- Infection
- Sunburn
- Diarrhea
- Chronic disease.

4.4.1 Signs and Symptoms of Heat Stress

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild to fatal.

Heat related problems include:

- Heat Rash - caused by continuous exposure to heat and humidity and aggravated by chafing clothes. Heat rash decreases the body's ability to tolerate heat as well as being a nuisance.

- Heat Cramps - caused by profuse perspiration with inadequate electrolytic fluid replacement. Heat cramps cause painful muscle spasms and pain in the extremities and abdomen.

- Heat Exhaustion - caused by increased stress on various organs to meet increased demand to cool the body. Heat exhaustion causes shallow breathing; pale, cool, moist skin; profuse sweating; and dizziness. Heat exhaustion can be alleviated by promptly moving the affected individual to a cool place to lie down and providing cool fluids to drink.

- Heat Stroke - the most severe form of heat stress. Heat stroke symptoms include hot, dry skin; no perspiration; nausea; dizziness; confusion; strong, rapid pulse; and coma. The body must be cooled immediately to prevent severe injury or death.

4.4.2 Heat Stress Prevention

One or more of the following practices will help reduce the probability of succumbing to heat stress:

- Acclimate workers to heat conditions when field operations are conducted during hot weather.

- Provide plenty of liquids to replace the body fluids lost by perspiration. Fluid intake must be forced because, under conditions of heat stress, the normal thirst mechanism is not adequate to bring about a voluntary replacement of lost fluids.

- If possible, conduct field operations in the early morning or late evening.

- Train personnel to recognize the signs and symptoms of heat stress and its treatment.

- Rotate personnel to various job duties, if possible.

- Provide shade or shelter to relieve personnel of exposure to the sun during rest periods.

Individuals succumbing to the symptoms of heat stress will notify the Project Superintendent immediately. The onset of heat stress will preempt any of the aforementioned, halt activities and initiate treatment. Early detection and treatment of heat stress will prevent further serious illness or injury and lost work time. Proper and effective heat stress treatment can prevent the onset of more serious heat stroke or exhaustion

conditions. Individuals that have succumbed to any heat related illness become more sensitive and predisposed to additional heat stress situations.

4.5 COLD STRESS

Most cold-related worker fatalities have resulted from failure to escape low environmental air temperatures, or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a drop in the deep-core body temperature.

4.5.1 Signs and Symptoms of Cold Stress

Employees should be protected from exposure to cold so that their deep-core body temperature does not fall below 99.6 degrees Fahrenheit (F). A lower body temperature will very likely result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness with the threat of fatal consequences.

Frostbite

Frostbite occurs when the extremities do not get sufficient heat from the central body stores. The fluids around the cells of the body tissues freeze from exposure to low temperatures. This condition can result in damage to, and loss of, tissue. The most vulnerable areas are the nose, cheeks, ears, fingers, and toes.

Damage from frostbite can occur in either the outer layers of skin, or in the tissue beneath these layers and can be serious, resulting in scarring, tissue death, permanent loss of movement, or amputation.

There are three degrees of frostbite:

- First Degree - Freezing without blistering or peeling
- Second Degree - Freezing with blistering or peeling
- Third Degree - Freezing with skin tissue death and possible deeper tissue damage.

Symptoms of frostbite include:

- Skin color changes to white or grayish-yellow, to reddish-violet, and finally black as the tissue dies
- Pain may be felt at first, but subsides
- Coldness or numbness of the affected part.

Hypothermia

This is the most severe form of cold stress and results from a drop in the body's core temperature. The symptoms of hypothermia are:

- First, uncontrollable shivering and the sensation of cold
- Heartbeat slows and may become irregular
- Pulse weakens and the blood pressure changes
- As the body's core temperature drops, other signs may include cool skin, slow irregular breathing, and apparent exhaustion
- When core temperatures are in the mid-range, the victim may become listless, confused, exhibit severe shivering, or develop severe pain in the extremities
- Final signs are a significant drop in blood pressure, fatigue, and shallow respiration.

4.5.2 Control Measures

When the ambient air temperature falls below 36^0F, the following cold weather clothing requirements will be adhered to:

- If wind chill is a factor, the cooling effect of the wind shall be reduced by shielding the work area or providing employees an outer windbreak layer garment.
- Extremities, ears, toes, and nose shall be protected from extreme cold by protective clothing.
- Employees performing light work and whose clothing may become wet shall wear an outer layer of clothing which is impermeable to water.
- Employees performing moderate to heavy work and whose clothing may become wet shall wear an outer layer of clothing which is water repellent.
- Outer garments must provide for ventilation to prevent wetting of inner clothing by sweat.
- If clothing is wet, the employee shall change into dry clothes before entering a cold environment.

- Workers who become immersed in water or whose clothing becomes wet shall immediately change clothing. If the clothing becomes wet from sweating, the employee may finish the task which caused the sweating before changing into dry clothes.

Metal handles of tools and control bars will be covered by thermal insulating materials when temperatures fall below 30^0F. Whenever the work area becomes covered with snow or ice, eyewear providing protection against ultraviolet light, glare, and blowing ice crystals will be worn by employees.

4.6 HEARING CONSERVATION

A hearing conservation program will be implemented at the Facility when exposures equal or exceed an 8-hour time-weighted average (TWA) of 85 decibels using the A-weighted scale (dBA). Hearing loss caused by high sound levels is a problem that can be prevented. As part of the criteria for the medical surveillance program established for the field program, audiometric testing is conducted to monitor each worker's ability to hear.

Caution should be taken at or around loud locations. Engineering controls, such as mufflers and baffles, should be utilized when feasible to reduce noise. Hearing protection, such as E-A-R™ plugs, is required to be worn by personnel working with or around the drill rig/Geoprobe™ and as sound level monitoring dictates.

4.7 CONFINED SPACE ENTRY

A confined space is defined as a space large enough and so configured that an employee can bodily enter and perform assigned work, has limited means for entry or exit, and is not designed for continuous employee occupancy. AllenES and its specialty entry subcontractor have detailed training for confined space entries, and only personnel properly trained shall supervise and participate in confined space entry procedures or serve as standby attendants. No confined space entry is anticipated for this project.

All confined spaces are initially considered permit required. Under certain conditions, a space may be reclassified as a non-permit confined space provided AllenES' SSO and CSM approve the reclassification and the space meets the criteria outlined in AllenES Confined Space Entry Procedure.

4.8 SANITATION

A break area will be designated in an area in the support zone. The designated area will be clean and will facilitate the number of workers using it. Eating, drinking, and smokeless tobacco may be permitted in break areas. Smoking in the work area will not be permitted at any time.

4.8.1 Water

An adequate supply of drinking water will be provided in a manner which prevents contamination between the consumer and dispenser. All outlets dispensing non-potable water will be posted "Caution - Water Unfit for Drinking, Washing, or Cooking." Systems furnishing non-potable water and systems furnishing potable water will be constructed and remain completely independent of each other.

4.8.2 Toilets

If permanent toilet facilities are not readily available, a chemical toilet(s) for the field activities personnel will be provided. Arrangements will be made for the routine servicing and cleaning of these toilets.

4.8.3 Trash Collection

Adequate trash receptacles will be placed around the work area for trash collection. Contaminated trash must be segregated from sanitary trash. Sanitary trash receptacles should be labeled "Sanitary Trash" and contaminated waste will be labeled, stored, and managed in accordance with regulatory requirements. Trash receptacles shall be emptied on an as-needed basis.

4.9 FIRE PREVENTION AND PROTECTION

Due to the hazardous nature of the materials present at the Facility, fire prevention will be of paramount importance. At no time will the smoking of tobacco products be allowed. Portable fire extinguishers will be provided and maintained in the following manner:

- Portable fire extinguishers will be provided, where needed, and inspected on a monthly basis. A visual inspection will be made to ensure that extinguishers are fully charged and in an operable

condition. Hoses, nozzles, brackets, and supports will be inspected for deficiencies and corrected. Gauge pressure will be checked on pressurized units to ensure units are fully charged and non-pressurized units will have their cartridges weighed on an annual basis. The chemical within dry chemical extinguishers will be inspected on an annual basis to ensure that it is powdery and in a free-running condition. An inspection tag will be attached to all extinguishers to designate that they have received monthly inspection.

- Fire extinguishers will be suitably placed, distinctly marked, and readily accessible.
- A fire extinguisher with a rating of not less than 10-B will be located within 50 feet or wherever more than 5 gallons of flammable liquids are being used in the work area (this does not apply to integral fuel tanks of motor vehicles).
- If flammable liquids are being stored in an outside location, at least one portable fire extinguisher with a rating of not less than 20-B will be located at least 25 feet from the storage area but not more than 75 feet away.
- Fire extinguishers will be placed in storage areas so they are capable of extinguishing materials being stored.
- All fire extinguishers will be approved by a nationally recognized testing laboratory.
- A fire extinguisher with a rating of not less than 2-A will be provided where torches or open flames are in use.
- At least one dry chemical or carbon dioxide fire extinguisher, with a 5-BC rating minimum, will be available for placement on each unit of mobile equipment.

4.10 ELECTRICAL POWER

All electrical equipment must have a GFCI as part of the circuit. All equipment must be suitable and approved for the class of hazard. Applicable OSHA standards for electrical power, 29 CFR 1926 Subpart "K", shall apply.

4.11 HIGH OR ELEVATED WORK

Elevated work, where a fall potential exists, will be performed using appropriate ladders and/or fall protection (i.e., body harness and lifeline). No employee may be exposed to a fall of over 6 feet without being adequately protected.

4.12 MANUAL MATERIAL LIFTING

Many different types of objects may be handled manually during field activities. Care should be taken when lifting and handling heavy or bulky items because they are the cause of many back injuries. The following fundamentals address the proper lifting techniques that are essential in preventing back injuries:

- The size, shape, and weight of the object to be lifted must first be considered. No individual employee is permitted to lift any object that weights over 60 pounds. Multiple employees or the use of mechanical lifting devices are required for objects over the 60-pound limit.
- The anticipated path to be taken by the lifter should be inspected for the presence of slip, trip, and fall hazards.
- The feet shall be placed far enough apart for good balance and stability (typically shoulder width).
- The worker shall get as close to the load as possible. The legs shall be bent at the knees.
- The back shall be kept as straight as possible and abdominal muscles should be tightened.
- To lift the object, the legs are straightened from their bending position.
- A worker shall never carry a load that cannot be seen over or around.
- When placing an object down, the stance and position are identical to that for lifting. The legs are bent at the knees and the object lowered.

When two or more workers are required to handle the same object, coordination is essential to ensure that the load is lifted uniformly and that the weight is equally divided between the individuals carrying the load. When carrying the object, each worker, if possible, shall face the direction in which the object is being carried. In handling bulky or heavy items, the following guidelines shall be followed to avoid injury to the hands and fingers:

- A firm grip on the object is essential; gloves shall be used if necessary.
- The hands and object shall be free of oil, grease, and water which might prevent a firm grip, and the fingers shall be kept away from any points that could cause them to be pinched or crushed, especially when setting the object down.
- The item shall be inspected for metal slivers, jagged edges, burrs, and rough or slippery surfaces prior to being lifted.

4.13 BIOLOGICAL HAZARDS

4.13.1 Ticks

Ticks are vectors of many different diseases including rocky mountain spotted fever, Q fever, tularemia, Colorado tick fever, and lyme disease. They attach to their host's skin and intravenously feed on its blood creating an opportunity for disease transmission. Covering exposed areas of the body and the use of tick repellent are two ways to prevent tick bites. Periodically during the workday employees will inspect themselves for the presence of ticks. If a tick is discovered, the following procedure should be used to remove it:

- Do not try to detach a tick with your bare fingers; bacteria from a crushed tick may be able to penetrate even unbroken skin. Fine-tipped tweezers should be used.
- Grip the tick as close to your skin as possible and gently pull it straight away from you until it releases its hold.
- Do not twist the tick as you pull and do not squeeze its bloated body. That may actually inject bacteria into your skin.
- Thoroughly wash your hands and the bite area with soap and water. Then apply an antiseptic to the bite area.
- Save the tick in a small container with the date, the body location of the bite, and where you think the tick came from.
- Notify the Field Activities Manager of any tick bites as soon as possible.

Recently, lyme disease has been the most prevalent type of disease transmitted by ticks in the United States.

4.13.2 Poisonous Plants

Poison ivy, poison oak, and poison sumac are identified by three or five leaves radiating from a stem. Poison ivy is in the form of a vine, while oak and sumac are bush-like. All produce a delayed allergic hypersensitivity. The plant tissues have an oleoresin, which is active in live, dead, and dried parts. The oleoresin may be carried through smoke, dust, contaminated articles, and the hair of animals. Symptoms usually occur 24 to 48 hours after exposure resulting in burning or stinging, and weeping and/or crusted blisters. Should

exposure to any of these plants occur, wash the affected area with a mild soap and water, but do not scrub the area. The best antidote for poisonous plants is recognition and avoidance.

4.13.3 Flying Insects

Flying insects such as mosquitoes, wasps, hornets, and bees may be encountered while field activities occur.

4.13.4 Snakes

The degree of toxicity resulting from snake bites depends on the potency of the venom, the amount of venom injected, and the size of the person bitten. Poisoning may occur from injection or absorption of venom through cuts or scratches.

The most effective way to prevent snake bites is to avoid snakes in the first place. Personnel should avoid walking at night or in high grass and underbrush. Visual inspection of work areas should be performed prior to activities taking place. The use of leather boots and long pants will be required, since more than half of all bites are on the lower part of the leg. No attempts at killing snakes should be made; many people are bitten in such an attempt.

If someone is bitten by a potentially poisonous snake, the following treatment should be initiated:

- Keep patient calm
- Notify emergency medical services
- Wash the wound and keep the affected body part still
- Apply direct pressure to site of bite if bleeding is extreme
- Keep the affected area lower than the heart
- Carry a victim who must be transported, or have him/her walk slowly
- Transport to closest medical facility.

4.13.5 Spiders

Venomous spiders are found in dark corners of barns, stables, garages and piles of boxes and crates. They have also been known to reside in vacant rodent burrows, under stones, logs and long grass, and in hollow stumps and brush piles. After a bite, a dull numbing pain in the affected extremity occurs. Also, pain and some muscular rigidity in the abdomen or the shoulder, back, and chest may occur. The bite may also produce headache, dizziness, skin rash, nausea, vomiting, anxiety and weakness, and increased skin temperature over the affected area may be observed. Ice may be placed over the bite to reduce the pain. Because some spiders inject neurotoxin, it is important to seek immediate medical attention.

4.14 LOCKOUT/TAGOUT OF HAZARDOUS ENERGY SOURCES

Lockout/tagout procedures will be implemented to assure the safety of personnel during servicing or maintenance of machines and equipment where the unexpected release of stored energy or the energization of these machines or equipment could cause employee injury. These procedures are contained in AllenES Corporate H&S plan and comply with the requirements established in 29 CFR 1926.417.

Subcontractors may implement their own lockout/tagout procedure if the AllenES Project Superintendent and SSO have approved its use and verifies that it is no less protective than the AllenES procedure.

5.0 FACILITY CONTROL MEASURES

The primary purpose for Facility control is to establish the hazardous area perimeter, to reduce the potential for migration of contaminants into clean areas, and to prevent access or exposure to contaminated materials by unauthorized persons. Facility work zones will include a support zone, contamination reduction zone, and EZ.

5.1 SUPPORT ZONE

The uncontaminated support zone, or clean zone, will be the area outside the EZ and CRZ and within the geographic perimeters of the work area. The area is used for staging of materials, parking of vehicles, sanitation facilities, and receipt of deliveries. Personnel entering this zone may include delivery personnel, visitors, etc., who will not necessarily be permitted in the EZ. All personnel arriving in the support zone will, upon arrival, report to the FSM and sign the visitor's log. Visitors, including material suppliers performing field activities exclusively within a SZ, will not be required to comply with the training and medical requirements established by 29 CFR 1926.65.

5.2 CONTAMINATION REDUCTION ZONE

A CRZ will be established for each EZ. This area will provide a location for removal of contaminated PPE and decontamination of potentially contaminated equipment.

5.3 EXCLUSION ZONE

An EZ will be established around each active work location where exposure to contamination may occur. This zone will restrict area access from vehicle or pedestrian traffic by utilizing temporary fencing, tape or similar barriers or warning signs. The FSM will note in the daily log all personnel who entered a EZ at the Facility.

5.4 EXCLUSION ZONE ENTRY REQUIREMENTS

In order to allow an individual into established EZs he/she must meet the following requirements:

- Documentation of completing training requirements as described in Section 10.0 (including review and acknowledgment of this SHP)
- Documentation of completing medical surveillance requirements as described in Section 11.0
- Respiratory fit testing as necessary
- A hazard briefing which includes current operations at the Facility, hazards that exist, and control measures to follow
- Signing the entry log.

5.5 SIGN POSTING

Appropriate warning signs will be strategically placed. Signs should read "DANGER - AUTHORIZED PERSONNEL ONLY," or similar. Signs may be more hazard specific as necessary.

6.0 PROTECTIVE EQUIPMENT

This section specifies the levels of personal protective equipment (PPE) which are or may be required for each principal activity performed at this site. All site personnel must be trained in the use of all PPE utilized. The PPE program contained in HS600 will be applied to project activities.

6.1 ANTICIPATED PROTECTION LEVELS

The following protection levels have been established for the site work activities.

TASK	INITIAL PPE LEVEL	UPGRADE PPE LEVEL	SKIN PROTECTION	RESPIRATORY PROTECTION	OTHER PPE
Surface-based Field Activities	Level D	Modified Level D	Basic Level D. Modified Level D will consist of face shield or goggles and Tyvek suit where applicable.	None	Hard-hat, steel-toe work boots, safety glasses, hearing protection >85 dBA.
General SZ Activities (i.e. mob/demob, site walks)	Level D	None	Basic Level D.	None	Hard-hat, Steel-toe boots, Safety glasses, hearing protection >85 dBA

6.2 PROTECTION ACTION LEVELS

This section lists the minimum requirements for each protection level. Modification to these requirements may have been noted above.

6.2.1 Level D

Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots

- Nitrile gloves
- Work clothing as prescribed by weather
- Long hair must be tied back

6.2.2 Modified Level D

Modified Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Two pair of sample gloves
- Long hair must be tied back
- Face shield and goggles (when projectiles or splashes pose a hazard)
- Poly-coated Tyvek® (as necessary to protect against splash hazards)

6.2.3 Level C

Level C protection is anticipated but may be required in the event that the action levels contained in **Table 8-1** are reached or exceeded.

Level C PPE, at a minimum, shall consist of:

- Work clothing as prescribed by weather
- Long-sleeve Flame Retardant coveralls
- PVC steel-toed boots or latex boot covers
- Latex inner gloves
- Nitrile outer gloves
- Half- or Full-face APR with organic vapor/P100 combination cartridges
- Hearing protection as needed
- Hard hat
- Ankles/wrists/hood taped with duct tape.

6.3 DONNING/DOFFING PPE

All persons entering a EZ shall put on the required PPE in accordance with the requirements of this plan. When leaving the EZ area, PPE will be removed in accordance with the procedures listed, in order to minimize the spread of contamination.

6.3.1 Donning Procedures

These procedures are to be used when personnel are outfitted in modified level D PPE:

- Remove bulky outerwear and store in clean location.
- Put on the required chemical and flame retardant protective coveralls.
- Put on chemical protective boots or boot covers.
- Tape the legs of the coveralls to the boots with duct tape.

- Put on chemical protective gloves.
- Tape the wrists of the protective coveralls to the gloves.
- Don respirator (when applicable) and perform appropriate fit check.
- Put hood or head covering over-head and respirator straps. Tape the hood to the face of the respirator.
- Don remaining PPE, such as safety glasses and hard hat.

6.3.1 Doffing Procedures

The following procedures are to be used when personnel are wearing Level C or D-modified PPE:

- Upon entering the CRZ, rinse contaminated material from the boots and gloves.
- Clean reusable protective equipment.
- Remove boot covers and outer gloves.

- Remove protective garments, equipment, and respirator. All disposable clothing should be placed in appropriately labeled plastic bags.
- Wash face and hands.
- Clean and disinfect respirator for next use.
- Proceed to the sign-out point.

All disposable equipment, garments, and PPE shall be bagged in a 2-mil plastic bag and properly labeled for disposal.

7.0 DECONTAMINATION PROCEDURES

In general, everything that comes in contact with potentially contaminated material must either be decontaminated or properly discarded upon exit from the EZ. All personnel must enter and exit the EZ through a CRZ. Contaminated equipment will be decontaminated and inspected by the Field Activities Manager before it is moved into the support zone.

7.1 PROCEDURES FOR EQUIPMENT DECONTAMINATION

Any item or vehicle taken into the EZ and which comes in contact with subsurface soils must be assumed to be contaminated and must be carefully inspected and/or decontaminated prior to leaving the Facility. A visual inspection of the frame and tires of all vehicles and equipment leaving the EZ will be completed. A small equipment decontamination area will be established at the Facility. In order for a vehicle/equipment to pass inspection, it must be in a broom-clean condition, water washed, and free of loose dirt or sludge material.

Equipment wash water residues will be collected for disposal. Any material that is generated by decontamination procedures will be drummed and disposed of in accordance with regulatory requirements.

7.2 PROCEDURES FOR PERSONNEL DECONTAMINATION

The decontamination procedures to be used by personnel wearing modified level D PPE are described in Section 6.3 of this SHP.

8.0 EXPORURE MONITORING/AIR SAMPLING PROGRAM

This air monitoring program has been developed to identify potential airborne hazardous substances, and to ensure that personnel and the environment are adequately protected through the use of PPE or engineering/administrative controls. Air monitoring will be used to identify and quantify airborne levels of hazardous substances and health hazards in order to verify that the appropriate level of employee protection is being used.

Real-time measurements will be taken in the worker breathing zone and immediately upwind and downwind of the EZ at a minimum of every 60 minutes during activities that have the potential for employee exposure. Monitoring will include workers with the highest potential for exposure to contaminants. A wind sock or other wind direction indicator will be used to determine upwind and downwind locations.

8.1 REAL-TIME AIR MONITORING

Real-time air monitoring will be conducted during any work where personnel are potentially exposed to contaminated materials. Measurements of VOCs will be conducted in the work area by using an HNu photoionization detector equipped with a 10.2 eV lamp or its equivalent. VOCs will be monitored in the employee breathing zones and immediately upwind and downwind of the EZ.

Measurements of oxygen and combustible gas will be made using a combination oxygen/combustible gas monitor. Results of real-time air monitoring will be used to trigger the action levels specified in **Table III-D-4**.

8.2 ACTION LEVELS

Real-time air monitoring results will be used to determine if levels of PPE and engineering/administrative controls are adequate to control contaminant migration and potential worker exposures. The action levels listed in **Table 9-1** are based on available information and have been reviewed and approved by the SHM. Variables such as air-purifying cartridge limitations for specific compounds, real-time direct reading instrument limitations, AllenES requirements, and the minimization of potential exposure were considered in determining the action levels.

8.3 CALIBRATION AND MAINTENANCE

All air monitoring equipment will be maintained and calibrated according to the manufacturer's recommendations. Calibration will be performed before and after use each day and under the approximate environmental conditions the instrument will be used.

If an instrument is found to be inoperative or suspected of giving erroneous readings, the Field Activities Manager will be responsible for immediately removing the instrument from service and obtaining a replacement unit. The specific activity for which this equipment is essential will cease until an appropriate replacement unit is obtained. The SSO will be responsible for ensuring a replacement unit is obtained and/or repairs are initiated on the defective equipment.

8.4 OTHER HAZARDOUS CONDITIONS

The Project Superintendent will take affirmative action to limit exposures. If previously unidentified chemicals or contamination is encountered, operations will cease until the situation is evaluated. The Project Superintendent will contact the SHM to discuss any potentially hazardous situations, or any situation with elevated contamination levels. Operations will only be resumed if they can be accomplished in a safe manner.

8.5 RECORD KEEPING

The SSO or his designee will be responsible for establishing and maintaining air monitoring records.

TABLE 8-1

HAZARD	MONITORING METHOD	ACTION LEVEL	MONITORING SCHEDULE	PROTECTIVE MEASURES
Oxygen deficient atmosphere	O_2 Meter	20.9%	Periodically (every 60 minutes)	Continue operations
		<20.9%	Continuous monitoring	
		<19.5%		Stop Work[2]
		>23.5%		Stop Work[2]
Explosion	CGI	<5% LEL	Periodically (every 60 minutes)	Continue operations
		5-10% LEL	Continuous monitoring	Continue monitoring with caution as high levels are encountered
		>10% LEL		Stop Work[2]
Volatiles	Photoionization Detector	Up to 5 ppm above background in breathing zone	Periodically (every 60 minutes)	Level D
		5 to 50 ppm above background in breathing zone	Periodically (every 30 minutes)	Level C
		51 to 500 ppm above background in breathing zone	Continuous monitoring	Forced Air Ventilation
		>500 ppm above background in breathing zone		Stop Work[2]

9.0 EMERGENCY RESPONSE

9.1 PRE-EMERGENCY PLANNING

Prior to engaging in the field activities at the Site, AllenES will plan for possible emergency situations and have available adequate supplies and manpower to respond. In addition, site personnel will receive training during the site orientation concerning proper emergency response procedures.

The following situations would warrant implementation of the Emergency Response and Contingency Plan (ERCP):

Fire/Explosion	• The potential for human injury exists. • The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions. • The use of water and/or chemical fire suppressants could result in contaminated run-off. • An imminent danger of explosion exists.
Natural Disaster	• A rainstorm exceeds the flash flood level. • The facility is in a projected tornado path or a tornado has damaged facility property. • Severe wind gusts are forecasted or have occurred and have caused damage to the facility.
Medical Emergency	• Overexposure to hazardous materials. • Trauma injuries (broken bones, severe lacerations/bleeding, burns). • Eye/skin contact with hazardous materials. • Loss of consciousness. • Heat stress (Heat stroke). • Heart attack. • Respiratory failure. • Allergic reaction.

The following measures will be taken to assure the availability of adequate equipment and manpower resources:

- Sufficient equipment and materials will be kept on site and dedicated for emergencies only. The inventory will be replenished after each use.

- On-site emergency responders will be current in regards to training and medical surveillance programs. Copies of all applicable certificates will be kept on file for on-site personnel required to respond.
- It will be the responsibility of the emergency coordinator to brief the on-site response team on anticipated hazards at the site. The emergency coordinator shall also be responsible for anticipating and requesting equipment that will be needed for response activities.
- Emergency response activities will be coordinated with the Local Emergency Management Agency (LEMA) in compliance with SARA Title III requirements.

Communications will be established prior to commencement of any activities at the site. Communication will be established so that all responders on site have availability to all pertinent information to allow them to conduct their activities in a safe and healthful manner. The primary communication device will be verbal communication.

9.2 EMERGENCY RECOGNITION AND PREVENTION

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the Site Safety Officer, through daily site inspections and employee feedback (Safety Observation Program, daily safety meetings, and Activity Hazard Analyses) to recognize and identify all hazards that are found at the site. These may include:

Chemical Hazards	• Materials at the site • Materials brought to the site
Physical Hazards	• Fire/explosion • Slip/trip/fall • Excessive noise
Mechanical Hazards	• Pinch points • Vehicle traffic
Environmental Hazards	• Electrical Storms • High winds • Heavy Rain/Snow • Temperature Extremes (Heat/Cold Stress) • Poisonous Plants/Animals

Once a hazard has been recognized, the SSO will take immediate action to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- Daily safety meeting
- Task-specific training prior to commencement of activity
- Personal Protective Equipment (PPE) selection/use
- Written and approved permits for hot work, confined space
- Following all AllenES standard operating procedures

TABLE 9.1

EMERGENCY TELEPHONE NUMBERS

Facility Emergency – Semmes Quick Stop Police Department – Semmes, AL Fire Department – Semmes, AL	(601) 584-6221 911 or (251) 459-6062 911 or (251) 206-7565
Hospital – Mobile Infirmary Emergency 95 Shell Street Building B Saraland, AL 36571	(251) 435-8000
Poison Control Center	800-222-1222
State Agencies Alabama Department of Environmental Management	(251) 450-3400
Federal Agencies Agency for Toxic Substances and Disease Registry National Response Center	(404) 639-0615 (24 hr.) 800-424-8802
Saleh Al-Turki	(251) 321-6428
AllenES Personnel Project Manager – Jordan Hollinghead Project Superintendent – Richard Vick Site Health and Safety Officer – Richard Vick Corporate Health and Safety Manager – John Ryan	 (251) 654-4272 (cell) (228) 218-9866 (228) 218-9866 (601) 953-3313 (cell)
AllenES Main Office (24 hour)	(601) 936-4440
Additional Phone #'s in Section 3 this HASP	

9.3 PERSONNEL ROLES AND LINES OF AUTHORITY, AND COMMUNICATION

This section of the ERCP describes the various roles, responsibilities, and communication procedures that will be followed by personnel involved in emergency responses.

The primary emergency coordinator for this site is the Project Superintendent. In the event an emergency occurs, and the emergency coordinator is not on site, the Project Superintendent or the highest-ranking employee on site will serve as the emergency coordinator until he arrives. The emergency coordinator will determine the nature of the emergency and take appropriate action as defined by this ERCP.

The emergency coordinator will implement the ERCP immediately as required. The decision to implement the plan will depend upon whether the actual incident threatens human health or the environment. Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

9.3.1 Responsibilities and Duties

This section describes the responsibilities and duties assigned to the emergency coordinator.

It is recognized that the structure of the “Incident Command System” will change as additional response organizations are added. AllenES will follow procedures as directed by the Facility Emergency Response Team, local fire department, LEPC, State and Federal Agencies as required. AllenES will defer to either the Facility Emergency Response Team or local Fire Department Chief to assume the role of Incident Commander upon arriving on site. Additional on-site personnel may be added to the Site Emergency Response Team as required to respond effectively.

9.3.2 On-Site Emergency Coordinator Duties

The on-site emergency coordinator is responsible for implementing and directing the emergency procedures. All emergency personnel and their communications will be coordinated through the emergency coordinator. Specific duties are as follows:

- Identify the source and character of the incident, type and quantity of any release. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary to ensure that fires, explosions, or spills do not recur or spread to other parts of the site.
- Notify local Emergency Response Teams if their help is necessary to control the incident. **Table 9.1** provides telephone numbers for emergency assistance.
- Direct on-site personnel to control the incident until, if necessary, outside help arrives.
- Ensure that the building or area where the incident occurred and the surrounding area are evacuated and shut off possible ignition sources, if appropriate.
- If fire or explosion is involved, notify Facility Emergency Response Team.
- Notify AllenES Project Manager
- Notify Client Representative
- Have protected personnel, in appropriate PPE, on standby for rescue.

If the incident may threaten human health or the environment outside of the site, the emergency coordinator should immediately determine whether evacuation of area outside of the site may be necessary and, if so, notify the Police Department and the Office of Emergency Management.

When required, notify the National Response Center. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility.

The emergency telephone number for the National Response Center is 800-424-8802.

If hazardous waste has been released or produced through control of the incident, ensure that:

- Waste is collected and contained.
- Containers of waste are removed or isolated from the immediate site of the emergency.
- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided.
- Ensure that no waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed.

Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.

9.4 SAFE DISTANCES AND PLACES OF REFUGE

The emergency coordinator for all activities will be the Project Superintendent. No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies that could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. However, the following measures are established to serve as general guidelines.

In the event of minor hazardous materials releases (small spills of low toxicity), workers in the affected area will report initially to the contamination reduction zone. Small spills or leaks (generally less than 55 gallons) will require initial evacuation of at least 50 feet in all directions to allow for cleanup and to prevent exposure. After initial assessment of the extent of the release and potential hazards, the emergency coordinator or his designee will determine the specific boundaries for evacuation. Appropriate steps such as caution tape, rope, traffic cones, barricades, or personal monitors will be used to secure the boundaries.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and, if necessary, evacuated from the area. The emergency coordinator, or his designee will inform the proper agencies in the event that this is necessary. Telephone numbers are listed in **Table 9.1**.

Places of refuge will be established prior to the commencement of activities. These areas must be identified for the following incidents:

- Chemical release
- Fire/explosion

- Medical emergency
- Hazardous weather

In general, evacuation will be made to the main entrance to the AllenES site, unless the emergency coordinator determines otherwise. It is the responsibility of the emergency coordinator to determine when it is necessary to evacuate personnel to off-site locations.

In the event of an emergency evacuation, all the employees will gather at the entrance to the site until a head count establishes that all are present and accounted for. No one is to leave the site without notifying the emergency coordinator.

9.5 EVACUATION ROUTES AND PROCEDURES

All emergencies require prompt and deliberate action. In the event of an emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible. However, in specific emergency situations, the emergency coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The emergency coordinator is responsible for determining which situations require site evacuation.

9.5.1 Evacuation Signals and Routes

Verbal communication will be used to notify employees of the necessity to evacuate an area or building involved in a release/spill of a hazardous material.

9.5.2 Evacuation Procedures

In the event evacuation is necessary, the following actions will be taken:

- The emergency notification will be made to the necessary contacts.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- Shut off all machinery if safe to do so.

- On-site personnel, visitors, and contractors in the support zone will assemble at the entrance to the site for a head count and await further instruction from the emergency coordinator.
- Persons in the exclusion zone and contamination reduction zone will be accounted for by their immediate crew leaders. Leaders will determine the safest exits for employees and will also choose an alternate exit if the first choice is inaccessible.
- During exit, the crew leader should try to keep the group together. Immediately upon exit, the crew leader will account for all employees in his crew.
- Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.
- Contract personnel and visitors will also be accounted for.
- The names of emergency response team members involved will be reported to the emergency spill control coordinator.
- The emergency coordinator or designee will make a final tally of persons. No attempt to find persons not accounted for will involve endangering lives of AllenES or other employees by re-entry into emergency areas.

In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them.

- Personnel will be assigned by the emergency coordinator to be available at the main access point to direct and brief emergency responders.
- Re-entry into the site will be made only after the emergency coordinator gives clearance. At his direction, a signal or other notification will be given for re-entry into the facility.

9.6 EMERGENCY SPILL RESPONSE PROCEDURES AND EQUIPMENT

In the event of an emergency involving a hazardous material spill or release, the following general procedures will be used for rapid and safe response and control of the situation. Emergency contacts found in Table 9.1 provide a quick reference guide to follow in the event of a major spill.

9.6.1 Notification Procedures

If an employee discovers a chemical spill or process upset resulting in a vapor or material release, he or she will immediately notify the on-site emergency coordinator.

On-site Emergency Coordinator will obtain information pertaining to the following:

- The material spilled or released.
- Location of the release or spillage of hazardous material.
- An estimate of quantity released and the rate at which it is being released.
- The direction in which the spill, vapor or smoke release is heading.
- Any injuries involved.
- Fire and/or explosion or possibility of these events.
- The area and materials involved and the intensity of the fire or explosion.

This information will help the on-site emergency coordinator to assess the magnitude and potential seriousness of the spill or release.

9.6.2 Procedures for Containing/Collecting Spills

The initial response to any spill or discharge will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

If for some reason a chemical spill is not contained within a dike or sump area, an area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the

materials involved. If the spill is large (greater than 55 gallons) and involves a tank or a pipeline rupture, an initial isolation of at least 100 ft. in all directions will be used. Small spills (less than or equal to 55 gallons) or leaks from a tank or pipe will require evacuation of at least 50 ft. in all directions to allow cleanup and repair and to prevent exposure. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible, the area will be roped or otherwise blocked off.

If an incident may threaten the health or safety of the surrounding community, the public will be informed and possibly evacuated from the area. The on-site emergency coordinator will inform the proper agencies in the event this is necessary. (Refer to **Table 9.1**)

As called for in regulations developed under the Comprehensive Environmental Response Compensation Liability Act of 1980 (Superfund), AllenES practice is to report a spill of a pound or more of any hazardous material for which a reportable quantity has not been established and which is listed under the Solid Waste Disposal Act, Clean Air Act, Clean Water Act, or TSCA. AllenES also follows the same practice for any substances not listed in the Acts noted above but which can be classified as a hazardous waste under RCRA.

Clean up personnel will take the following measures:

- Make sure all unnecessary persons are removed from the hazard area.
- Put on protective clothing and equipment.
- If a flammable material is involved, remove all ignition sources, and use spark and explosion proof equipment for recovery of material.
- Remove all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.
- If wastes reach a storm sewer, try to dam the outfall by using sand, earth, sandbags, etc. If this is done, pump this material out into a temporary holding tank or drums as soon as possible.
- Place all small quantities of recovered liquid wastes (55 gallons or less) and contaminated soil into drums for incineration or removal to an approved disposal site.
- Spray the spill area with foam, if available, if volatile emissions may occur.
- Apply appropriate spill control media (e.g. clay, sand, lime, etc.) to absorb discharged liquids.

- For large spills, establish diking around leading edge of spill using booms, sand, clay or other appropriate material. If possible, use diaphragm pump to transfer discharged liquid to drums or holding tank.

9.6.3 Emergency Response Equipment

The following equipment will be staged in the support zone and throughout the site, as needed, to provide for safety and first aid during emergency responses.

- ABC-type fire extinguisher
- First-aid kit, industrial size
- Eyewash/safety shower

9.6.4 Emergency Spill Response Clean-Up Materials and Equipment

A sufficient supply of appropriate emergency response clean-up and personal protective equipment will be inventoried and inspected, visually, on a regular basis.

The following equipment will be dedicated for spill cleanup:

- Shovels
- Sorbent sheets (diapers) for absorbing liquid spills.

**NOTE: All contaminated soils, absorbent materials, solvents and other materials resulting from the clean-up of spilled or discharged substances shall be properly stored, labeled, and disposed of off-site.*

9.7 EMERGENCY CONTINGENCY PLAN

This section of the ERCP details the contingency measures AllenES will take to prepare for and respond to fires, explosions, spills and releases of hazardous materials, hazardous weather, and medical emergencies.

9.8 MEDICAL EMERGENCY CONTINGENCY MEASURES

The procedures listed below will be used to respond to medical emergencies. The SSO or Project Superintendent will contact the local hospital and inform them of the site hazards and potential emergency situations. A minimum of one First-Aid/CPR trained associate will be maintained on site. A map to local hospital is provided in **Appendix D**.

9.8.1 Response

The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned.

The work crew supervisor will immediately make contact with the on-site emergency coordinator to alert him of a medical emergency situation. The supervisor will advise the following information:

- Location of the victim at the work site
- Nature of the emergency
- Whether the victim is conscious
- Specific conditions contributing to the emergency, if known

The Emergency Coordinator will notify the SSO or Project Superintendent. The following actions will then be taken depending on the severity of the incident:

Life-Threatening Incident

If an apparent life-threatening condition exists, the crew supervisor will inform the emergency coordinator and the local Emergency Response Services (EMS) will be immediately called. An on-site person will be appointed who will meet the EMS and have him/her quickly taken to the victim. Any injury within the EZ will be evacuated by AllenES personnel to a clean area for treatment by (EMS) personnel. No one will be able to enter the EZ without showing proof of training, medical surveillance and site orientation.

Non Life-Threatening Incident

If it is determined that no threat to life is present, the Project Superintendent will direct the injured person through decontamination procedures (see below) appropriate to the nature of the illness or accident. Appropriate first aid or medical attention will then be administered.

*NOTE: The area surrounding an accident site must not be disturbed until the scene has been cleared.

Any personnel requiring emergency medical attention will be evacuated from exclusion and contamination reduction zones if doing so would not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life-saving first aid. For others, decontamination may aggravate the injury or delay life-saving first aid. Decontamination will be performed if it does not interfere with essential treatment.

If decontamination can be performed, observe the following procedures:

- Wash external clothing and cut it away.
- If decontamination cannot be performed, observe the following procedures.
- Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- Alert emergency and off-site medical personnel to potential contamination, instruct them about specific decontamination procedures.
- Send site personnel familiar with the incident and chemical safety information, e.g. SDS, with the affected person.

All injuries, no matter how small, will be reported to the SSO or Project Superintendent. An accident/injury/illness report will be completely and properly filled out and submitted to the Health and Safety Manager, in accordance with AllenES reporting procedures.

A list of emergency telephone numbers is given in **Table 9-1**.

9.8.2 Response

The following personnel/agencies will be notified in the event of a medical emergency:

- Facility Emergency Response Team
- On-site Emergency Coordinator
- Workers in the affected areas
- Client Representative within 1 hour of the incident.

9.9 FIRE CONTINGENCY MEASURES

AllenES personnel and subcontractors are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator and vacate the structure or area. The emergency coordinator will immediately notify the Facility Emergency Response Team or local Fire Department.

The following procedures will be used to prevent the possibility of fires and resulting injuries:

- Sources of ignition will be kept away from where flammable materials are handled or stored.
- “No smoking” signs will be conspicuously posted in areas where flammable materials are present.
- Fire extinguishers will be placed in all areas where a fire hazard may exist.
- Before workers begin operations in an area the SSO or Project Superintendent will give instruction on egress procedures and assembly points. Egress routes will be posted in work areas and exit points clearly marked.

9.9.1 Response

The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify his or her supervisor who will then contact the Emergency Coordinator. The emergency coordinator will contact the appropriate emergency response team.
- Workers will disconnect electrical equipment in use (if possible) and proceed to the nearest fire exit.

- Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at a predetermined rally point for a head count.
- When a worker has extinguished a small fire, the emergency coordinator will be notified.

9.10 HAZARDOUS WEATHER CONTINGENCY MEASURES

Operations will not be started or continued when the following hazardous weather conditions are present:

- Lightning
- Heavy Rains
- High Winds

9.10.1 Response

- All equipment will be shut down and secured to prevent damage.
- Personnel will be moved to safe refuge. The emergency coordinator will determine when it is necessary to evacuate personnel to off-site locations and will coordinate efforts with fire, police and other agencies.

9.10.2 Notification

The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Notifications will include:

- AllenES employees and subcontractors
- Client Representative
- Local Emergency Management Agency

9.11 SPILL/RELEASE CONTINGENCY MEASURES

In the event of release or spill of hazardous material, the following measures will be taken.

9.11.1 Response

Any person observing a spill or release will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.

First aid will be administered to injured/contaminated personnel. Unsuspecting persons/vehicles will be warned of the hazard. All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons. Attempt to stop the spill at the source, if possible. Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve or temporarily sealing a hole with a plug.

The emergency coordinator will be notified of the spill/release, including information on material spilled, quantity, personnel injuries and immediate life-threatening hazards. Notification procedures will be followed to inform on-site personnel and off-site agencies. The emergency coordinator will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature of the spill, measures may include:

- Construction of a temporary containment berm utilizing on-site clay absorbent earth
- Digging a sump, installing a polyethylene liner and
- Diverting the spill material into the sump placing drums under the leak to collect the spilling material before it flows over the ground
- Transferring the material from its original container to another container

The emergency coordinator will notify the client representative of the spill and steps taken to institute clean up. Emergency response personnel will clean up all spills following the spill clean-up plan developed by the emergency coordinator. Supplies necessary to clean up a spill will be immediately available on-site. Such items may include, but are not limited to:

- Shovel, rake
- Personal safety equipment
- Miscellaneous hand tools

The major supply of material and equipment will be located in the Support Zone. Smaller supplies will be kept at active work locations. The emergency coordinator will inspect the spill site to determine that the spill has been cleaned up to the satisfaction of the client representative. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort. The emergency coordinator will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The emergency coordinator will review the cause with the client representative and obtain his concurrence with the remedial action plan.

10.0 TRAINING REQUIREMENTS

10.1 GENERAL TRAINING

The Project Superintendent will be responsible for informing all personnel performing field activities and all visitors of the contents of this HASP and ensuring that each person signs the HASP Acknowledgment Form prior to entering a work area. By signing this form, individuals recognize the hazards present at the Facility and the policies and procedures required to minimize exposure to hazards.

10.2 HAZARDOUS WASTE OPERATIONS TRAINING

Field personnel performing EZ or CRZ activities will be trained in accordance with 29 CFR 1926.65. Some activities at the Facility will be conducted in areas not designated as a CRZ or EZ. The personnel performing these activities will not be required to comply with the training and medical practices established for hazardous waste operations. This in no way relieves these personnel from other requirements contained in this HASP which apply to their activities. The following criteria is used to determine the level of training for AllenES employees, visitors, and subcontractors engaged in field activities:

- Personnel engaged in hazardous substance removal or other activities which expose or potentially expose them to hazardous substances and health hazards shall receive a minimum of 40 hours of off-site instruction, and three days of supervised field experience.
- Personnel who perform limited activities at the Facility and are not potentially exposed to contaminate levels above the permissible exposure limit (PEL) shall receive a minimum of 24 hours of off-site instruction, and one day of supervised field experience.

10.2.1 40-Hour Training

The following is a general list of topics covered in the 40-hour course:

- General safety
- Physical hazards (fall protection, noise, heat stress, cold stress)

- Key management positions responsible for S&H
- Safety, health, and other hazards
- Use of PPE
- Work practices by which employees can minimize risks from hazards
- Safe use of engineering controls and equipment
- Medical surveillance requirements including recognition of symptoms and signs which might indicate overexposure to hazards
- Worker Right-to-Know (Hazard Communication)
- Engineering controls and safe work practices
- Components of the S&H program
- Decontamination practices for personnel and equipment
- Confined space entry procedures
- Emergency Response Procedures.

10.2.2 24-Hour Training

The same topics presented in the 40-hour course are reviewed in the 24-hour course with less time spent on each topic.

10.2.3 Supervisory Training

Supervisory personnel shall receive eight additional hours of specialized training on program supervision. The following topics are discussed:

- Overall S&H program
- PPE program
- Spill containment program
- Air monitoring techniques.

10.2.4 Refresher Training

Personnel covered by Sections 11.2.1 and 11.2.2 are required to complete eight hours of refresher training annually on the following topics:

- Safe work practices
- Chemical hazard awareness
- Hearing conservation
- Hazard communication
- Respirator refresher
- Confined space entry procedures.

10.2.5 Supervised Field Experience

Personnel covered by Section 11.2.1 will receive a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor. A minimum of one day is required for personnel who fall under the requirements of 11.2.2.

10.2.6 Visitor Training

Access by personnel making deliveries or performing repairs to utilities, public or government officials, visitors, or local residents will be limited to support areas only. These persons will not be required to comply with the medical and training requirements as previously defined. Support zone access will be limited to designated work, delivery, or observation areas to minimize any potential exposure to contaminants. Observation areas will be located upwind from predominant wind directions, and access to observations areas may be restricted by weather conditions or field activities.

10.3 TAILGATE SAFETY MEETINGS

The Project Superintendent conducts a tailgate safety meeting at the beginning of each shift or whenever new employees arrive at the Facility once the job commences. The topics discussed at the tailgate safety meeting include S&H considerations for the day's activities, necessary PPE, problems encountered, and new

operations. Attendance records and meeting notes are maintained with the project files. At the conclusion of each shift, a debriefing for field activities personnel will be held, if necessary.

10.4 PROJECT SPECIFIC TRAINING

AllenES provides project-specific training for all personnel assigned to projects falling within the scope and application of 29 CFR 1926.65. The content of the training will be derived from information contained within this SHP. All workers must also read and sign the SHP acknowledging acceptance of project rules and understanding of hazards before being permitted to enter an EZ. Emergency procedures (Section 10.0) and hazard communication training (Section 11.5) will also be reviewed with personnel assigned to the project.

10.5 HAZARD COMMUNICATION

All personnel performing field activities shall receive basic hazard communication training which involves a review of the AllenES written hazard communication program, Material Safety Data Sheets (MSDS), container labeling, and chemical health hazards. Personnel shall be trained on the hazards of chemicals at the Facility by reviewing Section 4.1 and the MSDSs in **Appendix A**.

10.6 FIRST AID AND CPR

At least one person trained in a minimum of both American Red Cross first-aid techniques and CPR will be at the Facility whenever activities occur. This requirement will be waived for locations that are reasonably accessible in terms of time and distance to a hospital or emergency care clinic.

11.0 MEDICAL SURVEILLANCE PROGRAM

Applicable AllenES field operations personnel participate in a medical and health monitoring program. This program is initiated when the employee starts work with a complete physical and medical history and is continued on a regular basis. The medical surveillance program meets the requirements of the OSHA Standard 29 CFR 1910.120/1926.65(f).

APPENDIX A

Key Safety Data Sheets (SDSs)

Safety Data Sheet

Material Name: Gasoline All Grades

SDS No. 9950
US GHS

Synonyms: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquid - Category 2
Skin Corrosion/Irritation - Category 2
Germ Cell Mutagenicity - Category 1B
Carcinogenicity - Category 1B
Toxic to Reproduction - Category 1A
Specific Target Organ Toxicity (Single Exposure) - Category 3 (respiratory irritation, narcosis)
Specific Target Organ Toxicity (Repeat Exposure) - Category 1 (liver, kidneys, bladder, blood, bone marrow, nervous system)
Aspiration Hazard - Category 1
Hazardous to the Aquatic Environment – Acute Hazard - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

DANGER

Hazard Statements

Highly flammable liquid and vapour.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Causes damage to organs (liver, kidneys, bladder, blood, bone marrow, nervous system) through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container 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.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe mist/vapours/spray.
Use only outdoors or in well-ventilated area.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

In case of fire: Use water spray, fog, dry chemical fire extinguishers or hand held fire extinguisher.
IF ON SKIN (or hair): Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
Get medical advice/attention if you feel unwell.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting.

Storage

Store in a well-ventilated place.
Keep cool. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
86290-81-5	Gasoline, motor fuel	100
108-88-3	Toluene	1-25
106-97-8	Butane	<10
1330-20-7	Xylenes (o-, m-, p- isomers)	1-15
95-63-6	Benzene, 1,2,4-trimethyl-	<6
64-17-5	Ethyl alcohol	0-10
100-41-4	Ethylbenzene	<3
71-43-2	Benzene	0.1-4.9

110-54-3	Hexane	0.5-4

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal. Caution, flammable vapors may accumulate in closed containers.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

USE ONLY AS A MOTOR FUEL.
DO NOT SIPHON BY MOUTH

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

Incompatibilities

Keep away from strong oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Gasoline, motor fuel (86290-81-5)

ACGIH: 300 ppm TWA
500 ppm STEL

Toluene (108-88-3)

ACGIH: 20 ppm TWA
OSHA: 200 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL
NIOSH: 100 ppm TWA; 375 mg/m3 TWA
150 ppm STEL; 560 mg/m3 STEL

Butane (106-97-8)

ACGIH: 1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)
OSHA: 800 ppm TWA; 1900 mg/m3 TWA
NIOSH: 800 ppm TWA; 1900 mg/m3 TWA

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: 100 ppm TWA
150 ppm STEL
OSHA: 100 ppm TWA; 435 mg/m3 TWA
150 ppm STEL; 655 mg/m3 STEL

Benzene, 1,2,4-trimethyl- (95-63-6)

NIOSH: 25 ppm TWA; 125 mg/m3 TWA

Ethyl alcohol (64-17-5)

ACGIH: 1000 ppm STEL
OSHA: 1000 ppm TWA; 1900 mg/m3 TWA
NIOSH: 1000 ppm TWA; 1900 mg/m3 TWA

Ethylbenzene (100-41-4)

ACGIH: 20 ppm TWA
OSHA: 100 ppm TWA; 435 mg/m3 TWA
125 ppm STEL; 545 mg/m3 STEL
NIOSH: 100 ppm TWA; 435 mg/m3 TWA
125 ppm STEL; 545 mg/m3 STEL

Benzene (71-43-2)

ACGIH: 0.5 ppm TWA
2.5 ppm STEL
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: 0.1 ppm TWA
1 ppm STEL

Hexane (110-54-3)

ACGIH: 50 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA: 500 ppm TWA; 1800 mg/m3 TWA
NIOSH: 50 ppm TWA; 180 mg/m3 TWA

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Translucent, straw-colored or light yellow	**Odor:**	Strong, characteristic aromatic hydrocarbon odor. Sweet-ether like
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)	**Vapor Density:**	AP 3-4
Boiling Point:	85-437 °F (39-200 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible to Slight	**Specific Gravity:**	0.70-0.78
Evaporation Rate:	10-11	**VOC:**	ND
Percent Volatile:	100%	**Octanol/H2O Coeff.:**	ND
Flash Point:	-45 °F (-43 °C)	**Flash Point Method:**	PMCC
Upper Flammability Limit (UFL):	7.6%	**Lower Flammability Limit (LFL):**	1.4%
Burning Rate:	ND	**Auto Ignition:**	>530°F (>280°C)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Gasoline, motor fuel (86290-81-5)

Inhalation LC50 Rat >5.2 mg/L 4 h; Oral LD50 Rat 14000 mg/kg; Dermal LD50 Rabbit >2000 mg/kg

Toluene (108-88-3)

Inhalation LC50 Rat 12.5 mg/L 4 h; Inhalation LC50 Rat >26700 ppm 1 h; Oral LD50 Rat 636 mg/kg; Dermal LD50 Rabbit 8390 mg/kg; Dermal LD50 Rat 12124 mg/kg

Butane (106-97-8)

Inhalation LC50 Rat 658 mg/L 4 h

Xylenes (o-, m-, p- isomers) (1330-20-7)
Inhalation LC50 Rat 5000 ppm 4 h; Inhalation LC50 Rat 47635 mg/L 4 h; Oral LD50 Rat 4300 mg/kg; Dermal LD50 Rabbit >1700 mg/kg

Benzene, 1,2,4-trimethyl- (95-63-6)
Inhalation LC50 Rat 18 g/m3 4 h; Oral LD50 Rat 3400 mg/kg; Dermal LD50 Rabbit >3160 mg/kg

Ethyl alcohol (64-17-5)
Oral LD50 Rat 7060 mg/kg; Inhalation LC50 Rat 124.7 mg/L 4 h

Ethylbenzene (100-41-4)
Inhalation LC50 Rat 17.2 mg/L 4 h; Oral LD50 Rat 3500 mg/kg; Dermal LD50 Rabbit 15354 mg/kg

Benzene (71-43-2)
Inhalation LC50 Rat 13050-14380 ppm 4 h; Oral LD50 Rat 1800 mg/kg

Hexane (110-54-3)
Inhalation LC50 Rat 48000 ppm 4 h; Oral LD50 Rat 25 g/kg; Dermal LD50 Rabbit 3000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Moderate irritant. Contact with liquid or vapor may cause irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product may cause genetic defects.

Carcinogenicity

A: General Product Information

May cause cancer.

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

B: Component Carcinogenicity

Gasoline, motor fuel (86290-81-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Xylenes (o-, m-, p- isomers) (1330-20-7)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Monograph 71 [1999]; Monograph 47 [1989] (Group 3 (not classifiable))

Ethyl alcohol (64-17-5)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 100E [in preparation] (in alcoholic beverages); Monograph 96 [2010] (in alcoholic beverages) (Group 1 (carcinogenic to humans))

Ethylbenzene (100-41-4)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC: Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))

Benzene (71-43-2)

ACGIH: A1 - Confirmed Human Carcinogen
OSHA: 5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
NIOSH: potential occupational carcinogen
NTP: Known Human Carcinogen (Select Carcinogen)
IARC: Monograph 100F [in preparation]; Supplement 7 [1987]; Monograph 29 [1982] (Group 1 (carcinogenic to humans))

Reproductive Toxicity

This product is suspected of damaging fertility or the unborn child.

Specified Target Organ General Toxicity: Single Exposure

This product may cause drowsiness or dizziness.

Specified Target Organ General Toxicity: Repeated Exposure

This product causes damage to organs through prolonged or repeated exposure.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Gasoline, motor fuel (86290-81-5)

Test & Species		Conditions
96 Hr LC50 Alburnus alburnus	119 mg/L [static]	
96 Hr LC50 Cyprinodon variegatus	82 mg/L [static]	
72 Hr EC50 Pseudokirchneriella subcapitata	56 mg/L	
24 Hr EC50 Daphnia magna	170 mg/L	

Toluene (108-88-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	15.22-19.05 mg/L [flow-through]	1 day old
96 Hr LC50 Pimephales promelas	12.6 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.89-7.81 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	14.1-17.16 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	5.8 mg/L [semi-static]	
96 Hr LC50 Lepomis macrochirus	11.0-15.0 mg/L [static]	
96 Hr LC50 Oryzias latipes	54 mg/L [static]	
96 Hr LC50 Poecilia reticulata	28.2 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	50.87-70.34 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	>433 mg/L	
72 Hr EC50 Pseudokirchneriella subcapitata	12.5 mg/L [static]	
48 Hr EC50 Daphnia magna	5.46 - 9.83 mg/L [Static]	
48 Hr EC50 Daphnia magna	11.5 mg/L	

Xylenes (o-, m-, p- isomers) (1330-20-7)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	13.4 mg/L [flow-through]	

96 Hr LC50 Oncorhynchus mykiss	2.661-4.093 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	13.5-17.3 mg/L
96 Hr LC50 Lepomis macrochirus	13.1-16.5 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	19 mg/L
96 Hr LC50 Lepomis macrochirus	7.711-9.591 mg/L [static]
96 Hr LC50 Pimephales promelas	23.53-29.97 mg/L [static]
96 Hr LC50 Cyprinus carpio	780 mg/L [semi-static]
96 Hr LC50 Cyprinus carpio	>780 mg/L
96 Hr LC50 Poecilia reticulata	30.26-40.75 mg/L [static]
48 Hr EC50 water flea	3.82 mg/L
48 Hr LC50 Gammarus lacustris	0.6 mg/L

Benzene, 1,2,4-trimethyl- (95-63-6)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	7.19-8.28 mg/L [flow-through]
48 Hr EC50 Daphnia magna	6.14 mg/L

Ethyl alcohol (64-17-5)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	12.0 - 16.0 mL/L [static]
96 Hr LC50 Pimephales promelas	>100 mg/L [static]
96 Hr LC50 Pimephales promelas	13400 - 15100 mg/L [flow-through]
48 Hr LC50 Daphnia magna	9268 - 14221 mg/L
24 Hr EC50 Daphnia magna	10800 mg/L
48 Hr EC50 Daphnia magna	2 mg/L [Static]

Ethylbenzene (100-41-4)

Test & Species	Conditions
96 Hr LC50 Oncorhynchus mykiss	11.0-18.0 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	4.2 mg/L [semi-static]
96 Hr LC50 Pimephales promelas	7.55-11 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	32 mg/L [static]
96 Hr LC50 Pimephales promelas	9.1-15.6 mg/L [static]
96 Hr LC50 Poecilia reticulata	9.6 mg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	4.6 mg/L
96 Hr EC50 Pseudokirchneriella subcapitata	>438 mg/L
72 Hr EC50 Pseudokirchneriella subcapitata	2.6 - 11.3 mg/L [static]

96 Hr EC50 Pseudokirchneriella subcapitata	1.7 - 7.6 mg/L [static]
48 Hr EC50 Daphnia magna	1.8 - 2.4 mg/L

Benzene (71-43-2)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	10.7-14.7 mg/L [flow-through]
96 Hr LC50 Oncorhynchus mykiss	5.3 mg/L [flow-through]
96 Hr LC50 Lepomis macrochirus	22.49 mg/L [static]
96 Hr LC50 Poecilia reticulata	28.6 mg/L [static]
96 Hr LC50 Pimephales promelas	22330-41160 µg/L [static]
96 Hr LC50 Lepomis macrochirus	70000-142000 µg/L [static]
72 Hr EC50 Pseudokirchneriella subcapitata	29 mg/L
48 Hr EC50 Daphnia magna	8.76 - 15.6 mg/L [Static]
48 Hr EC50 Daphnia magna	10 mg/L

Hexane (110-54-3)

Test & Species	Conditions
96 Hr LC50 Pimephales promelas	2.1-2.98 mg/L [flow-through]
24 Hr EC50 Daphnia magna	>1000 mg/L

Persistence/Degradability

No information available.

Bioaccumulation

No information available.

Mobility in Soil

No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Gasoline, motor fuel	86290-81-5	DOT regulated marine pollutant

DOT Information

Shipping Name: Gasoline
UN #: 1203 **Hazard Class:** 3 **Packing Group:** II
Placard:

* * * Section 15 - Regulatory Information * * *

Regulatory Information

A: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Toluene (108-88-3)
SARA 313: 1.0 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Xylenes (o-, m-, p- isomers) (1330-20-7)
SARA 313: 1.0 % de minimis concentration
CERCLA: 100 lb final RQ; 45.4 kg final RQ

Benzene, 1,2,4-trimethyl- (95-63-6)
SARA 313: 1.0 % de minimis concentration

Ethylbenzene (100-41-4)
SARA 313: 0.1 % de minimis concentration
CERCLA: 1000 lb final RQ; 454 kg final RQ

Benzene (71-43-2)
SARA 313: 0.1 % de minimis concentration
CERCLA: 10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)

Hexane (110-54-3)

SARA 313: 1.0 % de minimis concentration
CERCLA: 5000 lb final RQ; 2270 kg final RQ

SARA Section 311/312 – Hazard Classes

Acute Health	Chronic Health	Fire	Sudden Release of Pressure	Reactive
X	X	X	--	--

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS #	
Gasoline, motor fuel	86290-81-5	DOT regulated marine pollutant

State Regulations

Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	**CAS**	**CA**	**MA**	**MN**	**NJ**	**PA**	**RI**
Gasoline, motor fuel	86290-81-5	No	No	No	No	Yes	No
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	No
Butane	106-97-8	Yes	Yes	Yes	Yes	Yes	No
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	Yes	Yes	Yes	Yes	No
Benzene, 1,2,4-trimethyl-	95-63-6	No	Yes	Yes	Yes	Yes	No
Ethyl alcohol	64-17-5	Yes	Yes	Yes	Yes	Yes	No
Ethylbenzene	100-41-4	Yes	Yes	Yes	Yes	Yes	No
Benzene	71-43-2	Yes	Yes	Yes	Yes	Yes	No
Hexane	110-54-3	No	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause cancer.
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Toluene	108-88-3	1 %
Butane	106-97-8	1 %
Benzene, 1,2,4-trimethyl-	95-63-6	0.1 %
Ethyl alcohol	64-17-5	0.1 %
Ethylbenzene	100-41-4	0.1 %
Benzene	71-43-2	0.1 %
Hexane	110-54-3	1 %

Additional Regulatory Information

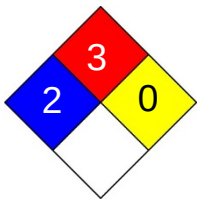
Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Gasoline, motor fuel	86290-81-5	No	DSL	EINECS
Toluene	108-88-3	Yes	DSL	EINECS
Butane	106-97-8	Yes	DSL	EINECS
Xylenes (o-, m-, p- isomers)	1330-20-7	Yes	DSL	EINECS
Benzene, 1,2,4-trimethyl-	95-63-6	Yes	DSL	EINECS
Ethyl alcohol	64-17-5	Yes	DSL	EINECS
Ethylbenzene	100-41-4	Yes	DSL	EINECS
Benzene	71-43-2	Yes	DSL	EINECS
Hexane	110-54-3	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

NFPA® Hazard Rating

Health	2
Fire	3
Reactivity	0



HMIS® Hazard Rating

Health	2	Moderate
Fire	3	Serious
Physical	0	Minimal
		*Chronic

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

APPENDIX B

Safety Plan Acknowledgement

Semmes Quick Stop
UST Trust Fund Site

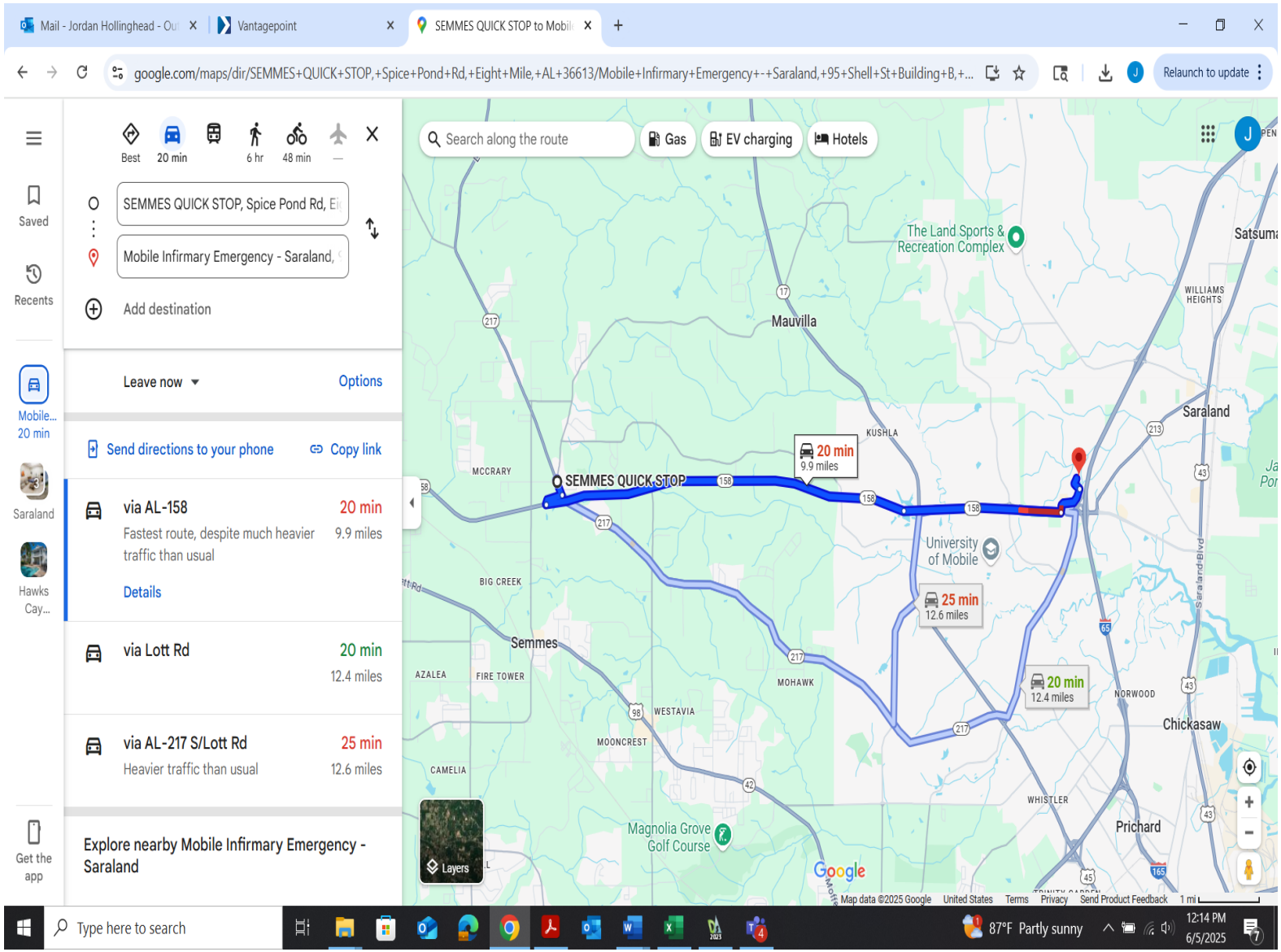
WORKER ACKNOWLEDGEMENT TO HEALTH-AND-SAFETY PLAN

I HAVE READ THE SITE-SAFETY PLAN FOR THIS SITE AND FULLY UNDERSTAND ITS CONTENTS.

Name	Signature	Date

APPENDIX C

Maps to Hospital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Vantagepoint
SEMMES QUICK STOP to Mobil
google.com/maps/dir/SEMMES+QUICK+STOP,+Spice+Pond+Rd,+Eight+Mile,+AL+36613/Mobile+Infirmary+Emergency+-+Saraland,+95+Shell+St+Building+B,+...
Relaunch to update
Best
20 min
6 hr
48 min
SEMMES QUICK STOP, Spice Pond Rd, Ei
Mobile Infirmary Emergency - Saraland,
Add destination
Leave now
Options
Send directions to your phone
Copy link
via AL-158
20 min
Fastest route, despite much heavier traffic than usual
9.9 miles
Details
via Lott Rd
20 min
12.4 miles
via AL-217 S/Lott Rd
25 min
Heavier traffic than usual
12.6 miles
Explore nearby Mobile Infirmary Emergency - Saraland
Saved
Recents
Mobile...
20 min
Saraland
Hawks Cay...
Get the app
Search along the route
Gas
EV charging
Hotels
The Land Sports & Recreation Complex
Mauvilla
WILLIAMS HEIGHTS
Saraland
KUSHLA
MCCRARY
SEMMES QUICK STOP
20 min
9.9 miles
University of Mobile
25 min
12.6 miles
20 min
12.4 miles
BIG CREEK
Semmes
AZALEA
FIRE TOWER
MOHAWK
WESTAVIA
MOONCREST
CAMELIA
NORWOOD
Chickasaw
WHISTLER
Prichard
Magnolia Grove Golf Course
Layers
Google
Map data ©2025 Google
United States
Terms
Privacy
Send Product Feedback
1 mi
Type here to search
87°F Partly sunny
12:14 PM
6/5/2025

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**
- [x] **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 [x] No **Is This a Pilot Study?** [ ] Yes [x] No

OWNER: Name Saleh Al-Turki **Phone No.: (** 251 **)** 321-6428

Mailing Address 1 Breydon Court

City Mobile **State** AL **Zip** 36608

SITE: Facility Name: Semmes Quick Stop

Facility Address: 5600 Lott Road

Location: (City) Eight Mile **(County)** Mobile

Facility ID No.: 24104 - 097 - 010954 **UST Incident No.:** UST21 - 11 - 04

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: 8/30/25

Anticipated groundwater recovery rate: 50 **gal/min**

Anticipated soil vapor extraction rate: 500 **ft^3/min**

Dry soil bulk density: 1.48 **g/cm^3**

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

Catalytic Electric Oxidizer

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

Distances (ft) from emission point to fence: N: 105 ft **S:** 90 ft **E:** 30 ft **W:** 155 ft

(*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** 10 **ft** **Inside diameter** 0.33 **ft**

Exit Velocity 48 **ft/s** **Exit Temperature** 150 **°F**

From the Air Stripper

Stack 2: **Height above ground** 10 **ft** **Inside diameter** 0.83 **ft**

Exit Velocity 25 **ft/s** **Exit Temperature** 60 **°F**

ADEM Project Manager: Joslyn Parker

Subcontractor: MK Environmental

Consultant Project Manager: Jordan Hollinghead

Consulting Firm: Allen Engineering & Science

Mailing Address: 1100 C Dauphin Street

City Mobile **State** AL **Zip** 36604

Consultant E-mail address (optional): jhollinghead@allenes.com

Consultant Phone No.: (251) 654-4272

Consultant Signature: Jordan Hollinghead **Date:** 5/16/25

ALLEN ENGINEERING AND SCIENCE

TABLE 1
SOIL ANALYTICAL SUMMARY
BTEX, MTBE, AND NAPHTHALENE CONCENTRATIONS
SEMMES QUICK STOP

Sample ID	Sample Interval (ft)	Benzene mg/Kg	Toluene mg/Kg	Ethylbenzene mg/Kg	Xylenes mg/Kg	Total BTEX mg/Kg	MTBE mg/Kg	Naphthalene mg/Kg
Preliminary Investigation								
3/31/2021								
SB-1	12-16	*<0.029*	*<0.029*	*<0.029*	*<0.029*	--	*<0.029*	*<0.029*
SB-2	16-20	*<0.026*	*<0.026*	*<0.026*	*<0.026*	--	*<0.026*	*<0.026*
SB-3	16-20	*0.111*	*9.00*	*8.59*	*54.40*	72.101	*<0.030*	*3.16*
SB-4	16-20	*<0.029*	0.0659	*<0.029*	0.167	0.233	*<0.029*	*<0.306*
Secondary Investigation								
2/11/2022								
SB-5	24	*<0.200*	*50.60*	*99.20*	*575.00*	724.80	*<0.200*	*12.20*
SB-6-1	18	*<0.214*	*1.51*	*<0.214*	1.244	2.75	*<0.214*	*<0.214*
SB-6-2	24	*<2.18*	*8.44*	*20.2*	*126.00*	154.64	*<2.18*	*3.50*
2/14/2022								
SB-7-1	18	*<0.229*	*1.110*	*<0.229*	0.942	2.05	*<0.229*	*<0.229*
SB-7-2	20	*<0.230*	*0.807*	0.348	2.293	3.45	*<0.230*	*<0.230*
SB-8	16	*<2.240*	*219.00*	*79.70*	*474.00*	772.70	*<2.240*	*7.70*
2/10/2022								
SB-9	10	*<0.266*	*<0.266*	*<0.266*	*<0.266*	--	*<0.266*	*<0.266*
SB-10	14	*<0.228*	*<0.228*	*<0.228*	*<0.228*	--	*<0.228*	*<0.228*
SB-11	14	*<0.269*	*<0.269*	*<0.269*	*<0.269*	--	*<0.269*	*<0.269*
Additional Secondary Investigation 12/12/22 - 12/14/22								
SB-A	17	*<0.278*	*3.17*	*5.07*	*40.50*	48.74	*<0.278*	*5.54*
SB-12	16	*<0.258*	*1.34*	*2.90*	*24.50*	28.74	*<0.258*	*5.36*
SB-13-1	18	*<0.0049*	*<0.0049*	*<0.0049*	*<0.0098*	--	*<0.0049*	--
SB-13-2	20	*<2.200*	*18.80*	*7.93*	*51.70*	78.43	*<2.200*	*<2.200*
SB-14	17	*<0.188*	*0.94*	*1.96*	*17.00*	19.9	*<0.188*	*3.83*
SB-15-1	14	*<0.253*	*<0.253*	*<0.253*	*<0.758*	--	*<0.253*	*<0.253*
SB-15-2	24	*<2.04*	*30.60*	*17.00*	*111.00*	158.60	*<2.04*	*<2.04*
SB-16	16	*<2.52*	*<2.52*	*43.50*	*339.00*	382.50	*<2.52*	*8.43*
EPA Region 4 Regional Screening Limit (RSL) Protection of Groundwater SSL		0.0026	0.69	0.78	9.9	- -	0.0032	0.00038

Notes: All concentrations reported in mg KG^{1} (milligrams per kilogram)

*** Dilution factor raised the MDL above the EPA RSL*
BTEX analysis conducted per EPA Test Method 8260
Red italics indicates concentration exceeds EPA RSL
Green italics indicates concentration below method detection limit
nd = not detected
NA = not applicable

ALLEN ENGINEERING AND SCIENCE

TABLE 1

HISTORICAL GROUNDWATER ANALYTICAL SUMMARY
SEMMES QUICK STOP

Sample ID	Sampling Date	CONCENTRATION (ppm)						
		Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	MTBE	Naphthalene
MW-1	4/2/2021	0.435	2.670	0.282	1.617	5.004	<0.050	<0.005
	2/21/2022	0.040	0.105	0.008	0.142	0.295	<0.0005	<0.001
	1/11/23	0.167	0.409	0.037	0.334	0.947	<0.0005	0.0011
	10/3/23	0.038	0.087	0.008	0.064	0.197	<0.005	<0.005
	1/10/24	0.172	0.312	0.018	0.138	0.640	<0.005	<0.005
	4/25/24	0.080	0.226	0.023	0.171	0.499	<0.002	<0.005
	8/14/24	0.476	0.936	0.156	0.910	2.478	<0.010	<0.025
	10/30/24	0.072	0.200	0.020	0.148	0.440	<0.010	<0.025
	2/03/25	0.059	0.211	0.029	0.178	0.477	<0.0005	<0.001
MW-2	4/2/2021	0.031	0.219	0.022	0.136	0.408	<0.005	<0.005
	2/21/2022	0.044	0.181	0.020	0.116	0.361	<0.0005	<0.001
	1/11/23	0.054	0.119	0.009	0.065	0.247	<0.0005	<0.001
	10/3/23	0.011	0.020	<0.005	<0.015	0.031	<0.005	<0.005
	1/10/24	0.158	0.247	0.022	0.156	0.583	<0.005	<0.005
	4/25/24	0.197	0.460	0.052	0.340	1.049	<0.002	<0.005
	8/15/24	0.054	0.106	0.016	0.093	0.269	<0.010	<0.025
	10/30/24	0.030	0.087	0.007	0.066	0.190	<0.010	<0.025
	2/03/25	0.089	0.212	0.033	0.206	0.540	<0.0005	<0.001
MW-3	4/2/2021	2.55	19.70	2.85	15.80	40.90	<0.250	0.177
	2/22/2022	5.27	31.00	2.89	18.17	57.33	<0.100	0.211
	1/12/23	1.08	25.20	3.35	20.31	49.94	<0.0005	0.212
	10/4/23	1.56	12.50	1.68	9.84	25.58	<0.005	0.140
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	Not Sampled (Free Product Present)						
	10/30/23	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-4	4/2/2021	0.148	0.870	0.099	0.636	1.75	<0.025	<0.005
	2/21/2022	0.429	0.790	0.119	0.913	2.25	<0.0005	0.002
	1/12/23	0.936	2.27	0.201	1.49	4.90	<0.0005	0.011
	10/3/23	0.007	0.035	<0.005	0.032	0.07	<0.005	<0.005
	1/11/24	0.044	0.112	0.008	0.095	0.26	<0.005	<0.005
	4/24/24	Not Sampled (Covered with asphalt)						
	8/14/24	Not Sampled (Covered with asphalt)						
	10/30/23	Not Sampled (Covered with asphalt)						
	1/31/25	Not Sampled (Covered with asphalt)						
MW-6	2/22/2022	0.758	17.600	2.28	13.99	34.63	<0.001	0.553
	1/11/23	0.478	12.80	2.64	16.13	32.05	<0.0005	0.194
	10/4/23	0.801	11.30	1.51	9.38	22.99	<0.250	<0.250
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	Not Sampled (Free Product Present)						
	10/30/23	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-7	2/21/2022	1.37	9.750	1.09	7.56	19.77	<0.001	<0.002
	1/10/23	0.971	8.46	0.734	5.35	15.52	<0.0005	0.050
	10/4/23	0.156	3.32	0.515	3.13	7.12	<0.005	0.103
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	1.35	11.30	1.12	8.14	21.91	<0.400	<1.000
	10/30/24	2.06	14.40	1.32	9.60	27.38	<0.400	<1.000
	2/03/25	2.32	17.00	2.11	13.75	35.18	<0.050	0.194
MW-8	2/22/2022	4.24	31.50	3.55	23.59	62.88	<0.001	0.225
	1/11/23	0.221	33.50	4.11	25.82	63.65	<0.0005	0.193
	10/3/23	0.186	6.79	1.21	7.93	16.12	<0.005	0.109
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	1.72	17.80	1.97	13.06	34.55	<0.400	<1.000
	10/30/24	0.318	18.00	9.47	32.70	60.49	<0.400	0.755
	1/31/25	Not Sampled (Free Product Present)						
MW-9	2/21/2022	<0.0005	<0.0005	<0.0005	<0.002	--	<0.0005	<0.001
	1/10/23	<0.0005	0.0017	<0.0005	<0.002	0.0017	<0.0005	0.0017
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	0.008	<0.005	0.011	0.019	<0.005	<0.005
	4/24/24	<0.001	0.001	<0.001	<0.003	0.001	<0.002	<0.005
	8/14/24	<0.001	0.001	<0.001	<0.003	0.001	<0.002	<0.005
	10/30/24	<0.001	<0.005	<0.001	<0.003	--	<0.002	<0.005
	1/31/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-10	2/21/2022	<0.0005	<0.0005	<0.0005	<0.002	<0.002	<0.0005	<0.001
	1/10/23	<0.0005	0.0011	<0.0005	<0.002	--	<0.0005	<0.001
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	1/31/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-11	2/21/2022	<0.0005	<0.0005	<0.0005	<0.002	<0.002	<0.0005	<0.001
	1/11/23	<0.0005	0.0006	<0.0005	<0.002	--	<0.0005	<0.001
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	2/03/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-12S	1/12/23	1.22	10.4	1.62	9.90	23.14	0.0006	0.139
	10/4/23	1.03	8.62	0.925	5.27	15.85	<0.005	0.097
	1/10/24	Not Sampled (Free Product Present)						
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	3.87	16.50	1.66	10.34	32.37	<0.400	<1.000
	10/30/24	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-13S	1/12/23	0.498	6.93	0.756	5.02	13.20	<0.0005	0.043
	10/4/23	1.44	19.30	1.70	11.12	33.56	<0.005	0.171
	1/11/24	2.85	25.40	3.13	20.37	51.75	<0.500	<0.500
	4/24/24	Not Sampled (Free Product Present)						
	8/15/24	0.668	8.92	1.58	11.30	22.47	<0.002	<0.005
	10/30/24	Not Sampled (Free Product Present)						
	1/31/25	Not Sampled (Free Product Present)						
MW-14D	1/12/23	<0.0005	0.0006	<0.0005	<0.002	0.0006	<0.0005	<0.001
	10/3/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/31/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	2/03/25	<0.0005	<0.0005	<0.0005	<0.003	--	<0.0005	<0.001
MW-15D	1/10/23	<0.0005	0.006	0.0009	0.006	0.0129	<0.0005	<0.001
	10/3/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	2/03/25	<0.0005	0.0006	<0.0005	<0.003	--	<0.0005	<0.001
MW-16D	1/11/23	<0.0005	0.0009	<0.0005	<0.002	0.001	<0.0005	<0.001
	10/2/23	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	1/10/24	<0.005	<0.005	<0.005	<0.015	--	<0.005	<0.005
	4/24/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	8/14/24	<0.001	<0.001	<0.001	<0.003	--	<0.002	<0.005
	10/30/24	0.296	2.41	1.35	11.36	--	<0.002	0.136
	1/31/25	<0.0005	<0.0005	0.0012	0.012	--	<0.0005	<0.001
EPA Region 4 Regional Screening Limit (RSL)		0.005	1.0	0.7	10.0	- -	0.014[TW]	0.00012[TW]

Notes:

*** Dilution factor raised the MDL above the EPA RSL*
BTEX analysis conducted per EPA Test Method 8260
Red italics indicates concentration exceeds ADEM / EPA RSL
Bold Highlighted results indicate detectable concentration. All others were measured less than practical quant. Limit (see data report).

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TABLE 3

EMISSIONS FROM GROUNDWATER
SEMMES QUICK STOP

Highest Concentrations per Contaminent		Calculation
CONTAMINENT	**CONCENTRATION (mg/L)**	**EMISSIONS (lbs/hr)**
Benzene	2.32	0.0581160
Toluene	17.00	0.4258500
Ethylbenzene	2.11	0.0528555
Xylenes	13.75	0.3444375
MTBE	0.0006	0.0000150
Naphthalene	0.194	0.0048597

Notes:

Concentrations are highest, most recent recorded

Emission calculations were done via the ADEM Form 448 guidance

ALLEN ENGINEERING AND SCIENCE

TABLE 4

EMISSIONS FROM SOIL VAPOR
SEMMES QUICK STOP

Highest Concentrations per Contaminent		Calculation
CONTAMINENT	**CONCENTRATION (mg/m^3)**	**EMISSIONS (lbs/hr)**
Benzene	2320.0	4.3332960
Toluene	17000.0	31.7526000
Ethylbenzene	2110.0	3.9410580
Xylenes	13750.0	25.6822500
MTBE	0.60	0.0011207
Naphthalene	194.0	0.3623532

Notes:

Concentrations are highest, most recent recorded

Emission calculations were done via the ADEM Form 448 guidance

MK ENVIRONMENTAL INC.

765 Springer Dr
Lombard, IL 60148
630-920-1104 (office)
630-920-8013 (fax)
jgiltz@mkenv.com

QUOTATION

Date	4/8/2025
Quote No.	225018B
Reference	Semmes
Page No.	1 of 4
Freight	Included
Terms	per contract
Ship Via	FLATBED
F.O.B.	Factory

SOLD TO:	**SHIP TO:**
Jordan Hollinghead Allen Engineering and Science 1100-C Dauphin Street Mobile, AL. 36604 Direct: 251-243-0722	Semms Quick Stop Spice Pond Rd Eight Mile, AL 36613

Quotation valid for 30 days

QUANTITY		UNIT PRICE	AMOUNT
	200 amp 3/60/480 volt 3 wire plus ground electrical service Brought to Fused Main Disconnect Interior electrical will comply with NEC requirements for Class 1, Division 2, Group D Hazardous locations Motors will be TEFC construction suitable for Class 1, Div. 2, Group D		
1	8 x 16 foot refurbished building enclosure with removable, sliding wall panel design • All metal frame construction. No wood load bearing members • Structural steel base, roof frame, and vertical posts. Steel frame base to be painted with a finish coat of semi-gloss urethane paint. • Exterior shall be aluminum with outdoor rated white finish • Systems 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 • Furnish with lockable man 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 • 12,000 BTU XP heater with XP thermostat. All components fully piped, wired & factory tested	176,088.00	$176,088.00
1	DPVE Unit - 40 HP Oil Sealed LRVP. 500 CFM • 3-phase, 60-Hz, TEFC motor • Structural steel base frame • Vacuum transducer integrated with telemetry system programmed to alarm at loss of vacuum or at a preset value • heat exchanger • 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, temperature pressure gauges.		
1	180 gallon Primary Air/Water Separation Vessel • Epoxy-coated carbon steel, vacuum-rated AWS-1 • Separation capacity of AWS 1 should be 30 gallons per minute (gpm) on average, with surge flow rates up to 50 gpm • The inlet connection shall be 4-inch horizontal pipe with no threads located on the sid of tank at the approximate center above the level switch high/high (LSHH) • The vapor outlet shall be a 4-inch connection located on near the top of the tank • The liquid effluent shall be a FPT 2-inch opening located approximately 6 inches from the bottom of vessel • Clean out port, 10 inch diameter , designed to allow for easy opening. No flange connection. • 2-inch gate valve bottom drain/cleanout • Stilling well installed on outside of tank and constructed of 2-inch clear PVC pipe for housing liquid level switches, intrinsically-safe (I.S) Intrinsically safe conductivity probes as follows: o Level switch low (LSL) and Level switch high (LSH) o Level switch high (LSHH) o Level probes shall be mounted on top of and protrude into the stilling well. o Sufficient flexible conduit and connections shall be provided to facilitate removal of the switch/connection box without disassembly • Automatic vacuum relief • One (1) 0-30 in. Hg vacuum gauge easily accessible and at a visible location above knee level • 2-inch air dilution valve with Solberg filter.		
1	Air/Oil Separator Vessel back pressure gauge air- oil separator filter heat exchanger 4-inch schedule 40 PVC exhaust stack; stubbed through the ceiling Exhaust stack will be sealed at the roof junction outlet with a permanent flashing.		

MK ENVIRONMENTAL INC.

Jordan Hollinghead
Allen Engineering and Science

Date 4/8/2025
Quote No. 225018B
Reference Semmes

QUANTITY		UNIT PRICE	AMOUNT
2	1.5 hp AWS1 and 3.0 hp Sump Transfer Pump with composite impeller discharge capacity under 26-in. Hg vacuum 3-Phase 60-Hz 208/230-volt TEFC motor with a minimum 1.15 service factor 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 has been designed with large passages to minimize seizing due to calcium or iron buildup Cast iron housing with composite impeller, direct-driven Schedule 40 pipe and fittings Check valve installed on discharge piping Suction pipe shall be constructed of Schedule 40 galvanized pipe cut and connected with a Fernco© 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 port Hand-Off-Auto Control mounted in main electrical panel.		
1	SA50 Stripperator OWS and air stripper 304 stainless steel constructior The air stripper shall be located inside the enclosure and shall include the following: Minimum capacity of 50-gpm Aeration tube design air stripper Effluent sump with sight glass/tube Includes a 10-inch clean out port on sump and 1-inch bottom mounted drain valve Aluminum AMCA rated spark resistant blower 3-Phase 60-Hz TEFC motor with a 1.15 service factor Class l, Division 2, Group D hazardous locations Intake blower silencer 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 blower air flow rate. Backpressure gauge 8-inch galvanized discharge stack with exterior 90-degree elbow	-	
1	Telemetry • cellular connection Connection and monthly service fee to be added and billed separately Remote restart and shut down capabilities data logging and alarm call out via text or email		
1	CONTROL PANEL MK shall provide a single control panel per system for all equipment, sized for the proposed equipment, and based on electrical loading table provided to the County. 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. Add interlocks for the oxidizer with the liquid ring system install bypass and interlock selector switches into control panel. Modify control panel, enginieering and drawings.		
1	200 Amp Fused Main Disconnect mounted to the system building for the DPVE system Includes: (1) Weatherhead with extension pole and bracket support (1) 200 amp electric meter socket base installed		
1	Water Meters Flow totalizing water meters will include: • Air Stripper Sump discharge meter will be a minimum 1 -inch		
2	Bag filter housings, stainless steel construction 25 micron filter bags piped in parallel case of spare 25 micron, size 2 bag filters		

Jordan Hollinghead
Allen Engineering and Science

Date 4/8/2025
Quote No. 225018B
Reference Semmes

QUANTITY		UNIT PRICE	AMOUNT
2	Activated polishing carbon beds filled with 500 pounds of reactivated carbon in each 1" inlet and outlet		
1	External product settling tank 2000 gallon capacity or larger product draw off with shut off valve 2" gravity outlet for flow to OWS high level switch integrated with control panel		
1	MK parts and major equipment labor warranty Comprehensive parts and on site labor warranty for 1 year		
1	Startup and Training for DPVE system (1) full day including travel and per diem. Minimum (14) day notice for scheduling purposes.		
1	DPVE Packaged System & Settling Tank Outbound Freight to site Off loading and placement by others		
	Notes:		
	DPVE Telemetry Data and connection service, monthly service rate $135.00* DPVE with Catox Telemetry Data and connection service, monthly service rate $165.00* * Telemetry date and connection service pricing subject to change.		
	MK Environmental refurbished DPVE packaged system with full warranty available upon request		

EQUIP. SUB TOTAL	$176,088.00
NET TOTAL	$176,088.00

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

Jerry Giltz
MK Environmental Inc.

Jordan Hollinghead
Allen Engineering and Science

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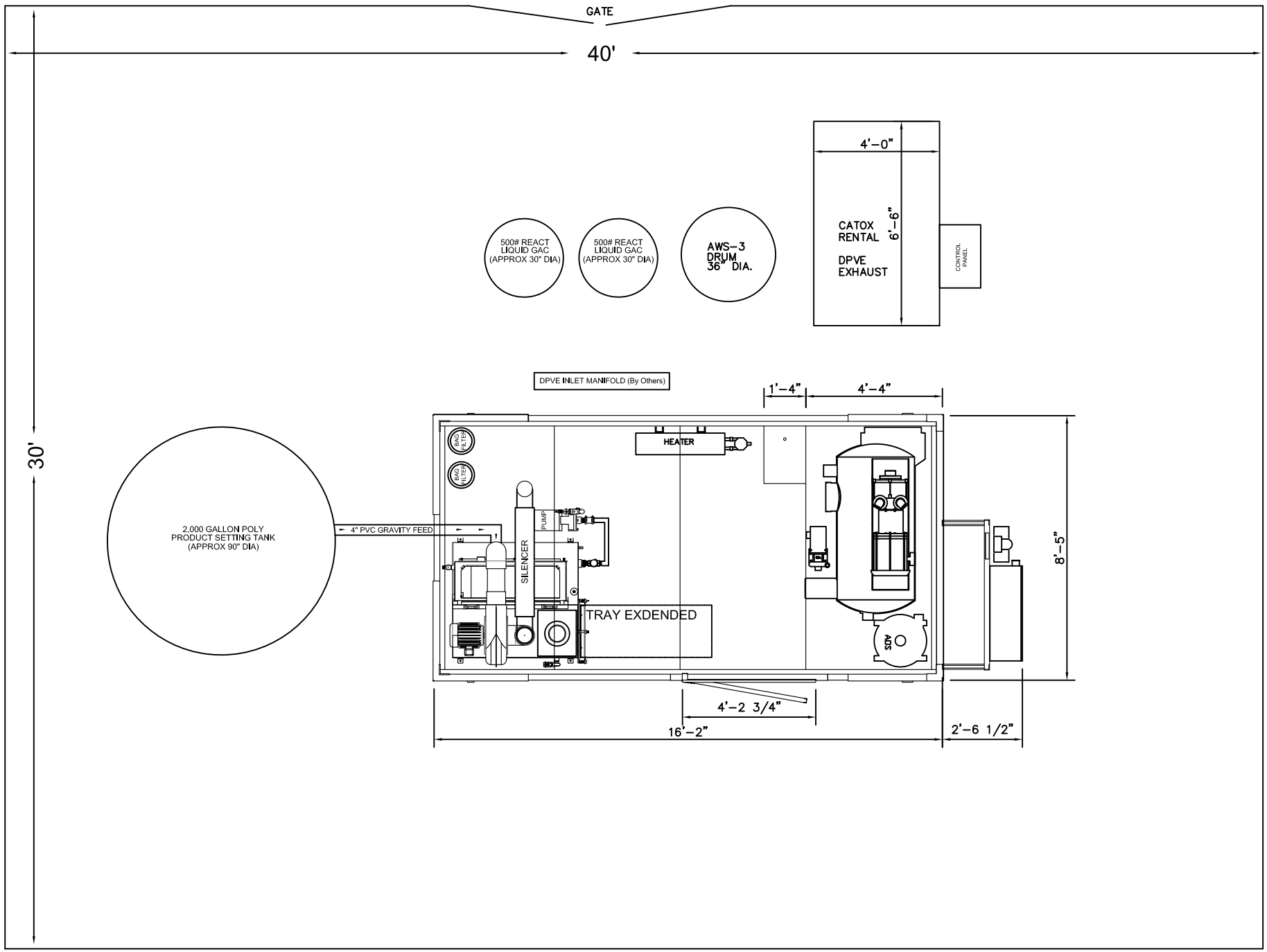
Reference Semmes

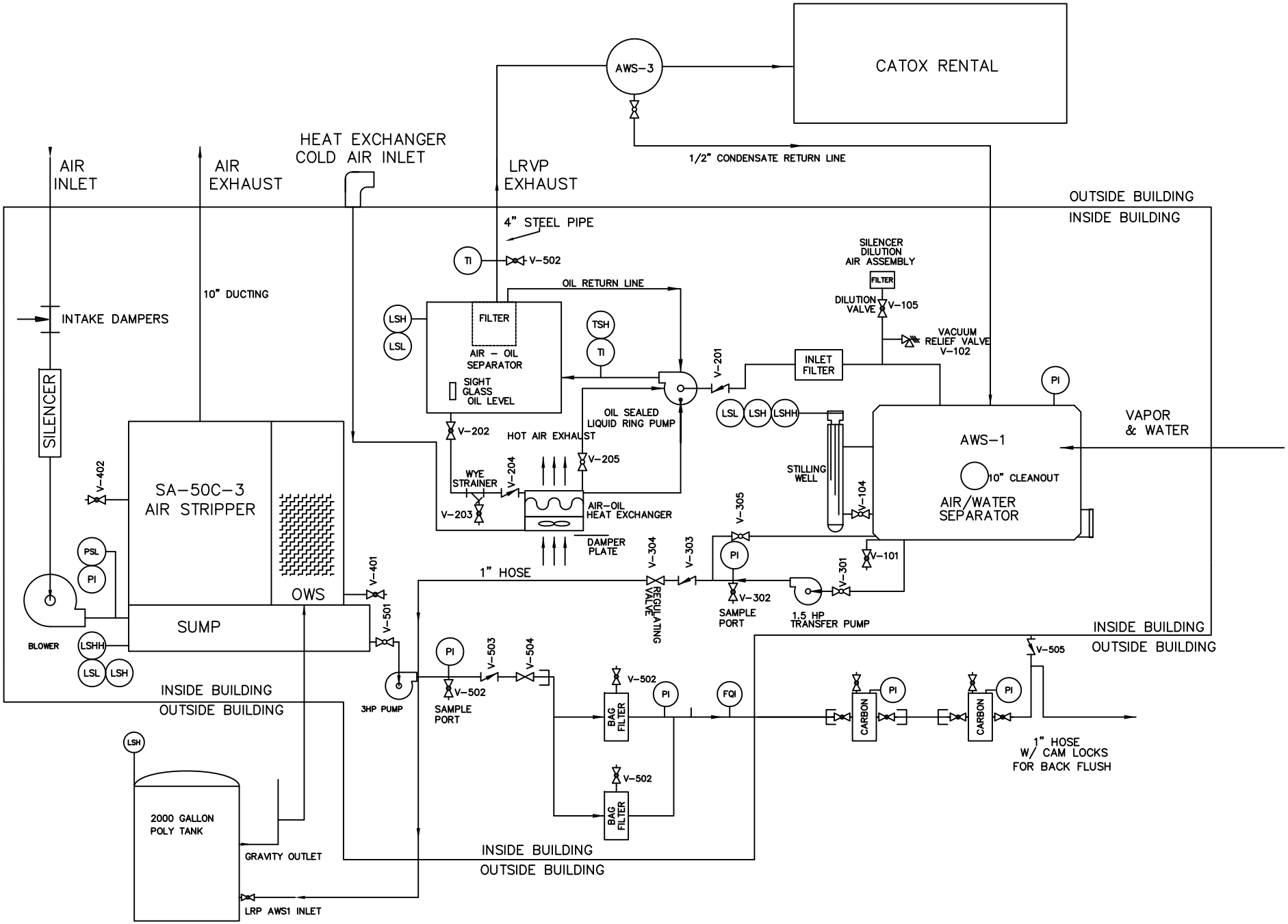
QUANTITY		UNIT PRICE	AMOUNT
	OPTIONAL OFF GAS DPVE TREATMENT & SERVICES; ADD TO THE NET TOTAL		
1	Catalytic Electric or Thermal Gas Fired Oxidizer rental for treatment of DPVE vapors 300 or 500 CFM oxidizer base on availability at the time of order. integrated process blower automatic dilution valve PLC touch screen interface circular chart recorder for inlet and outlet data logging 95-99% destruction efficiency high temperature shut down (6) month rental commitment required 3-pole, 480v supply beaker **ADD $ 4,500 per month rate for 6 months minimum to the net total (totaling $27,000)**		
1	AWS3 knock out tank prior to oxidizer to minimize condensed liquids from entering burner or vapor phase carbon bed. **ADD $ 1,250.00 to the net total**		
1	Startup and Training for oxidizer rental system (1) full day including travel and per diem. Minimum (14) day notice for scheduling purposes. **ADD $ 1,000 to the net total (startup at the same time as the DPVE system)**		
1	Oxidizer Rental Outbound Freight to site Off loading and placement by others **ADD $ 500 to the net total (shipped at the same time as the DPVE system)**		
	Total off gas treatment & services (page 4 of 4) ADD, $29,750		
	Notes: 1) Return freight and loading after rental provided by others. Contact MK for a quote to offer these services. 2) Oxdizier rental clock starts at the time of shipment and stops upon successful return and inspection at the contractors fabrication shop.		

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

Jerry Giltz
MK Environmental Inc.



SCALE: NONE	MK ENVIRONMENTAL INC.	SITE LAYOUT WATER AND VAPOR TREATMENT SYSTEM	ALLEN ENGINEERING AND SCIENCE SEMMES QUICK STOP 5600 LOTT ROAD EIGHT MILE, AL MK PROJECT# 223559B	1 | 04/7/25 | JAG | DRAFT	FIGURE NUMBER M-1
DESIGNED: JAG | CHECKED BY:					
DRAWN BY: JAG | DRAWN DATE: 04/7/25					



V	VACUUM	I	INDICATOR
P	PRESSURE	FQI	FLOW QTY IND. (TOTALIZER)
S	SWITCH	FRI	FLOW RATE INDICATOR
L	LIQUID LEVEL OR LOW	T	TEMPERATURE

SCALE:	NONE
DESIGNED:	JAG
CHECKED BY:	
DRAWN BY:	JAG
DRAWN DATE:	04-7-25

MK ENVIRONMENTAL INC.

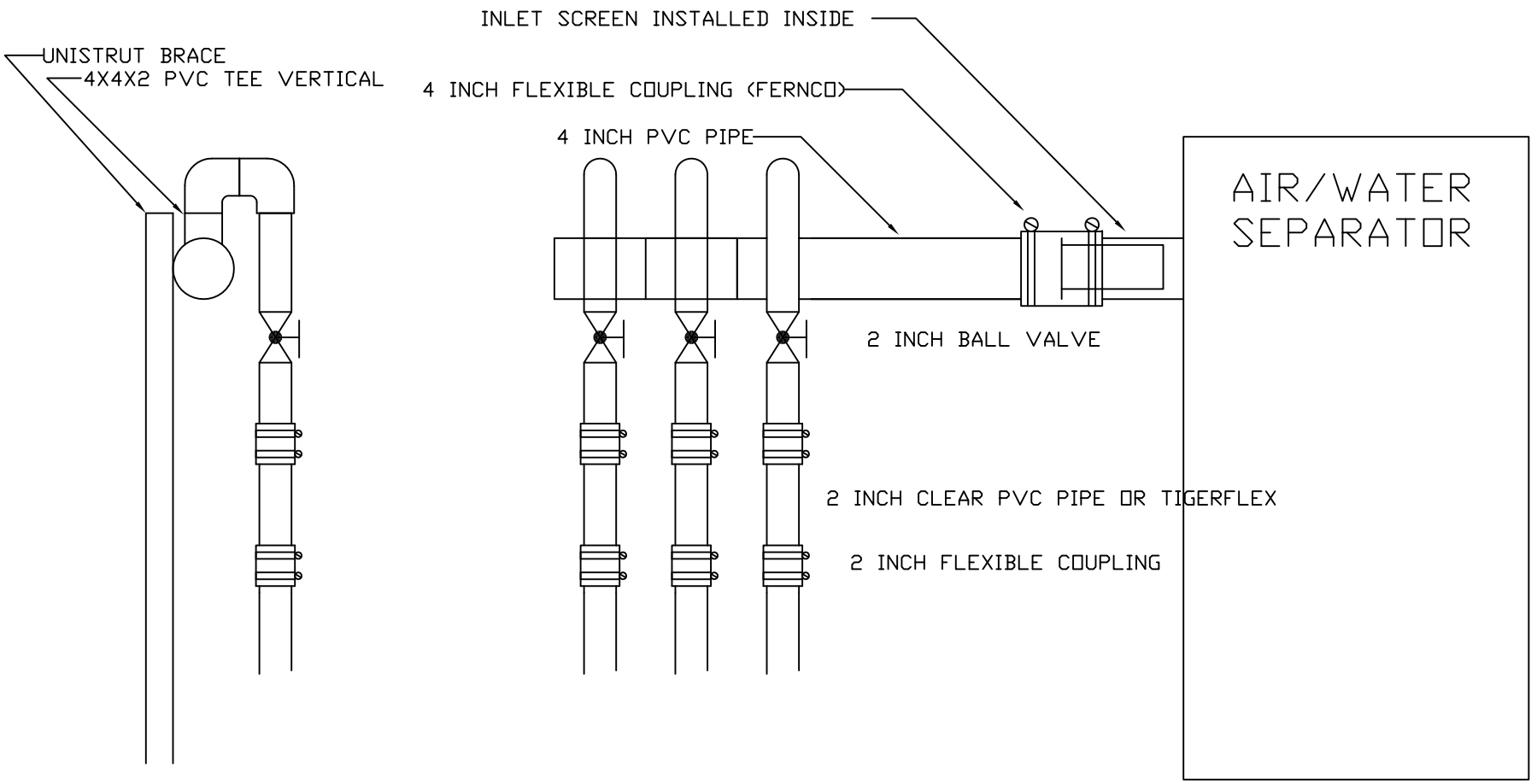
PID

ALLEN ENGINEERING AND SCIENCE
SUMMES QUICK STOP
5600 LOTT ROAD
EIGHT MILE, AL.
MK PROJECT# 225018B

1	04/7/25	JAG	DRAFT	

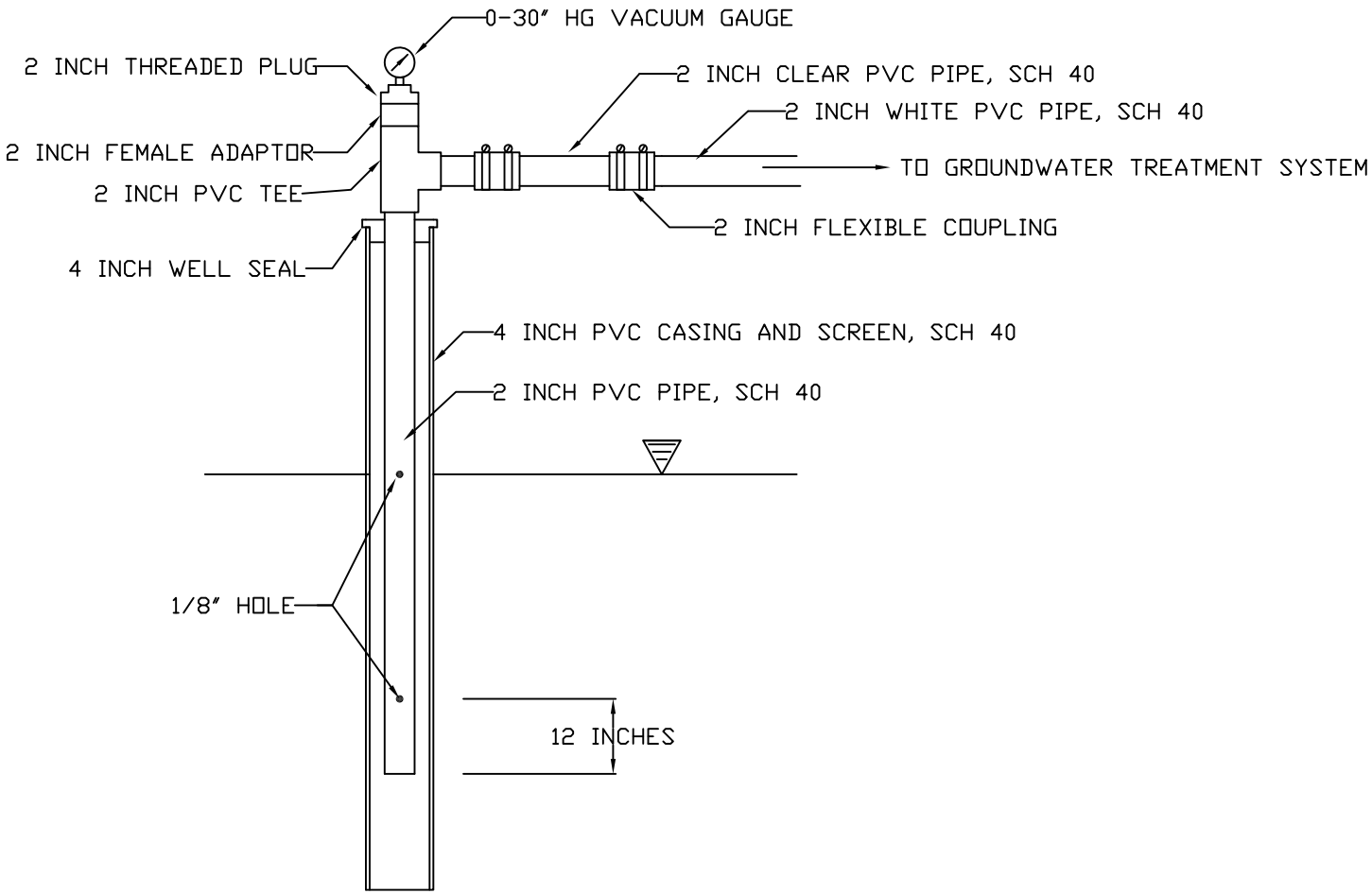
FIGURE NUMBER
M-2

INLET MANIFOLD DETAIL



MK ENVIRONMENTAL INC.	DATE:	DRAWN BY:	JOB NUMBER	DRAWING NUMBER	TYPICAL INLET MANIFOLD DUAL PHASE EXTRACTION
	4-07-25	EHT	XXXXXX		

WELL HEAD DETAIL



MK ENVIRONMENTAL INC.	DATE: 4-07-25	DRAWN BY: EHT	JOB NUMBER xxxxxx	DRAWING NUMBER TYPICAL WELL HEAD DESIGN DUAL PHASE EXTRACTION