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PLAN 09908

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May 3, 2016

Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110-2059

ATTENTION: Mrs. Kayla White Lewis
Groundwater Branch/Water Division

SUBJECT: **RNA CORRECTIVE ACTION PLAN**
Calera Garage
18th Avenue and 12th Street
Calera, Shelby County, Alabama
Facility ID No. 17566-117-007088
Incident No. UST96-02-09

Dear Mrs. White:

On behalf of our client, Lee Cofer, Polyengineering, Inc./Spectrum Environmental Services, Inc. (Poly/Spectrum) respectfully submits this Corrective Action Plan under CP39.

Should you have any questions or need additional information, please contact Bob White at (888) 739-0838 or Lyn Buntin (888) 793-4700.

Sincerely,
POLYENGINEERING, INC./SPECTRUM ENVIRONMENTAL SERVICES, INC.

Jamie Davies Cox
Geologist
Spectrum Environmental

James R. (Bob) White, P.G.
Senior Professional Geologist
Spectrum Environmental

ATTF CORRECTIVE ACTION PLAN
NAMR with Episodic Air Sparge and EFR Events

CALERA GARAGE

18th Avenue and 12th Street

Calera, Shelby County, Alabama

Facility ID No. 17566-117-007088

UST Incident No. UST93-02-09

March 31, 2016

Responsible Party:

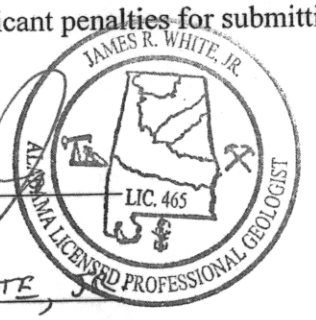
Mr. Lee Cofer
8371 US-31
Calera, Al 35040

UST Contractor:

Polyengineering, Inc. / Spectrum Environmental Services, Inc. (Poly/Spectrum)
1935 Headland Avenue
Dothan, Alabama 36303
334-793-4700

CERTIFICATION PAGE

I certify under penalty of law that this Corrective Action Plan and all plans, specifications, and technical data submitted within were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiring of the person or persons who directly gathered the enclosed information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.



Signature

JAMES R. WHITE, JR.

Name of Alabama Registered Professional Geologist

465

Registration Number

5-3-2016

Date

TABLE OF CONTENTS

SECTION 1.0 - UST Release Fact Sheet and Site Classification System Checklist

UST RELEASE FACT SHEET

GENERAL INFORMATION:

SITE NAME: Calera Garage
ADDRESS: 18th Avenue and 12th Street
FACILITY I.D. NO.: 17566-117-007088
UST INCIDENT NO.: UST93-02-09

RESULTS OF EXPOSURE ASSESSMENT:

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

CONTAMINATION DESCRIPTION:

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

Free product present in wells? { } Yes {X} No Maximum thickness measured: A sheen of product (unmeasurable amount) was detected on MW-9 during the last groundwater sampling event on 3/22/2016.

Maximum BETX concentrations measured in soil: 12,900 ug/L

Maximum BTEX or PAH concentrations measured in groundwater: 34.21 mg/L (RW-1) on 3/22/2016

ADEM UST Form - 001 (04/22/93)

ADEM GROUNDWATER BRANCH
UST SITE CLASSIFICATION SYSTEM
CHECKLIST

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

SITE NAME:	Calera Garage
SITE ADDRESS:	18th Avenue and 12th Street
	Calera, Shelby County, Alabama 35040
FACILITY I.D. NO.:	17566-117-007088
UST INCIDENT NO.:	UST 93-02-09
OWNER NAME:	Lee Cofer
OWNER ADDRESS:	18th Avenue and 12th Street, Calera, AL 35040
NAME & ADDRESS OF PERSON COMPLETING THIS FORM:	Jamie Davies Cox
	Spectrum Environmental, Inc.
	85 Spectrum Cove
	Alabaster, Alabama 35007

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

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

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

Enter the determined classification ranking:	G.1

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

SECTION 2.0 - Introduction

2.1 Executive Summary

The Calera Garage site is located at the intersection of 18th Avenue and 12th Street in Calera, Shelby County, Alabama, at Latitude 33° 06' 04" North and Longitude 86° 45' 10" West. The site is located in the Southeast ¼ of Section 21, Township 22 South, Range 2 West, as depicted on the Montevallo, Alabama, U.S.G.S. 7.5 minute Quadrangle, dated 1980 (Figure 1).

The site is surrounded by a mix of commercial and residential use properties. Specifically, a gasoline service station is located to the north, residential homes are located to the east, an automotive maintenance shop is located to the south, a school is located to the southwest, and a pharmacy is located to the northwest.

Investigative actions, as directed by the Alabama Department of Environmental Management (ADEM) have been conducted at the site since February of 1999. During these investigations, Benzene, EthylBenzene, Toluene, and Xylene/Methyl, tertiary, butyl ether (BETX/MtBE) and Naphthalene concentrations within the boundaries of the subject site have been reported to be in excess of established Initial Screening Levels (ISLs). Subsequent to an Alabama Risk Based Corrective Action Plan (ARBCA) Assessment of the subject site, certain COCs are in excess of calculated Tier II SSTLs.

Several technologies were evaluated as to applicability and cost effectiveness, considering site-specific conditions at the former Calera Garage site. All of the site data was reviewed to determine the most appropriate Corrective Action to be employed at the site. Based on our review of the site data, we are recommending Remediation through Natural Attenuation (RNA) combined with mobile enhance fluid extraction (EFR) and air sparging events. On an as-needed basis, EFRs with air sparging events may prove beneficial to expedite the attenuation of contaminants at the site.

2.2 Purpose of the Plan

The purpose of this Corrective Action Plan is to compile and evaluate site data in order to select and implement an effective corrective action methodology that will expedite site cleanup and is protective of potentially impacted receptors.

SECTION 3.0 - Summary of Site Geology and Previously Conducted Site Activities

3.1 Discussion of Site Geology

3.1.1 Physiographic Setting

The subject site is located in southwestern Shelby County and is situated in the Cahaba Valley District of the Alabama Valley and Ridge Physiographic section (Plannert and Pritchett, 1989). The general topography surrounding the site is typified by broad, relatively flat, uplands dissected by well-defined stream valleys (Sapp and Emplaincourt, 1975). The subject site is situated on a generally flat surface with a very low gradient to the south and southeast.

The subject site and general site area are underlain by sedimentary deposits of the Alabama Valley and Ridge physiographic province. Sedimentary deposits occupying the valleys consist of clays, sands, silts, and gravels originating from fluvial deposition or from the weathering of the underlying bedrock. These valleys are divided by northeast-southwest trending ridges, which are predominantly composed of Cambrian through Mississippian age carbonates, sandstones, and shales.

The bedrock underlying the site is classified as belonging to the Cambro-Ordovician aged Newala Limestone. The Newala is dark gray to light bluish gray compact to noncrystalline thick-bedded micritic or peloidal limestone and some fine to medium dolomite. (Raymond et.al. 1988).

3.1.2 Regional Hydrogeology

The site lies in the recharge zone of the Knox-Shady Aquifers in an area, which is designated, as susceptible to contamination. This aquifer is approximately 3,900 feet thick and is composed of siliceous dolomite in the lower part to fine- to coarse-grained limestone in the upper part. Based on a potentiometric surface map of the Knox-Shady Aquifers prepared in 1989 by Plannert and Pritchett, the depth to water is approximately 400 feet below surface elevation and the general gradient is to the west-southwest.

3.2 Description of Release and Past Environmental History

Calera Garage currently operates as an automobile repair business. Previously, the subject property was utilized as a retail gasoline station and service center. These activities ceased prior to the permanent closure of the UST system in April 1999.

A brief chronology of the environmental history at the site is described below.

Date	Activities	Comments
April 1999	USTs Closed	Elevated BTEX/MTBE concentrations were reported.
September 1999	Soil Management	Removal and disposal of contaminated soil.
December 1999	GWM	Sampled wells at the Discount Food Mart #175.
October 2000	Secondary Investigation	This included the installation of nine borings.
May 2001	GWM	Four wells had dissolved constituents in excess of ADEM ISL's.
September 2001	GWM	Five wells reported to contain concentrations above ISL's
December 2001	GWM	Four wells reported to contain concentrations above ISL's.
March 2002	GWM	Four wells reported to contain concentrations above ISL's.
March 2003	GWM	Six wells reported to contain concentrations above ISL's.
July 2003	GWM	Four wells reported to contain concentrations above ISL's.
September 2003	GWM	Three wells reported to contain concentrations above ISL's.
November 2003	GWM	Six wells reported to contain concentrations above ISL's.
June 2004	GWM	Four wells reported to contain concentrations above ISL's.
October 2004	GWM	Four wells reported to contain concentrations above ISL's.
June 2005	ARBCA Evaluation	The Tier II evaluation revealed that contaminant concentrations were still in excess of ADEM allowable limits.
September 2005	GWM	Four wells reported to contain concentrations above ISL's.
March 2006	GWM	During this event, eleven wells (6 on Calera Garage and 5 on Discount Food Mart) were sampled with seven wells reported to be above the ISLs (2 located at Calera Garage and 5 located at Discount Food Mart).
July 2007	Corrective Action Plan	Recommended Natural Attenuation Monitoring Reports (NAMRs) for the site with Enhance Fluid Recovery (EFR) events on an as needed basis.
October 2007	NAMR	No wells reported to contain concentrations above SSTLs.
January 2008	NAMR	During this event only monitoring well MW-9 reported benzene concentrations in excess of the SSTLs.
April 2008	NAMR	Benzene & MTBE concentrations exceeded the SSTLs in MW-3, MW-5, and MW-9.

Date	Activities	Comments
June 2008	EFR	During this EFR event a calculated 122 pounds of petroleum hydrocarbons (approximately 17 equivalent gallons of gasoline) were removed during this event.
July 2008	NAMR	Benzene and MTBE concentrations exceeded the SSTLs in MW-3, MW-5 and MW-9.
April 2009	NAMR	Seven wells produced samples that exceeded SSTLs (benzene and or MTBE). However, generally dissolved COC concentrations in the groundwater at the site appear to be declining.
September 2009	NAMR	Samples collected from MW-5, MW-9, and DFM-MW-3 reported concentrations in excess of the SSTLs.
October 2009	NAMR	Samples collected from MW-5, MW-9, and DFM-MW-3 reported concentrations in excess of the SSTLs.
September 2010	NAMR	Samples collected from MW-5 and MW-9 reported concentrations in excess of the SSTLs.
January 2011	NAMR	Samples collected from MW-5 and MW-9 reported concentrations in excess of the SSTLs.
April 2011	NAMR	Samples collected from MW-5, DFM-MW-3 and DFM-MW-26 reported concentrations in excess of the SSTLs.
December 2012	Well Installations/ EFR	RW-1 installed on December 3 and 8 hour EFR conducted on December 17.
January 2013	NAMR	Samples collected from MW-5, MW-9, DFM-MW-25 and RW-1 reported concentrations in excess of the SSTLs.
August 2013	EFR	8-hour EFR conducted with approximately 286.30 pounds of hydrocarbons recovered.
September 2013	NAMR	Samples collected from MW-5, MW-9, and RW-1 reported concentrations in excess of the SSTLs.
June 2014	NAMR	Samples collected from MW-5, MW-9, and RW-1 reported concentrations in excess of the SSTLs.
October 2014	EFR/ NAMR	Approximately 133.55 pounds of hydrocarbons were recovered during this event. Samples collected from MW-5, MW-9, and RW-1 reported concentrations in excess of the SSTLs
March 2015	EFR	Approximately 117.53 pounds of hydrocarbons were recovered during this event.
April 2015	NAMR	Samples collected from MW-3, MW-5, and RW-1 reported concentrations in excess of the SSTLs.
October 2015	EFR	Approximately 326.37 pounds of hydrocarbons were recovered during this event.
November 2015	NAMR	Samples collected from MW-5, MW-9, and RW-1 reported concentrations in excess of the SSTLs.
March 2016	NAMR	Samples collected from MW-5 and RW-1 reported concentrations in excess of the SSTLs. MW-9 had a sheen of free product.
April 2016	EFR	Approximately 360.83 pounds of hydrocarbons were recovered during this event.

3.3 SUMMARY OF PREVIOUS SITE INVESTIGATION RESULTS

3.3.1 UST Closure

During the closure of three 3,000-gallon gasoline USTs at the subject site on April 2, 1999, groundwater was encountered within 5 feet of the base of the tank pit. A visual sheen was observed on the water in the test pits adjacent to the USTs. Subsequently, two groundwater samples were collected and analyzed for the respective COCs. The results of the soil data indicated TPH concentrations ranging from BDL to 152 mg/Kg (piping trench sample #3), and the results of the groundwater sampling reported total BETX concentrations ranging from 1,080 µg/L (GW-2) and 59,570 µg/L (GW-1). MtBE concentrations were reported at 61,700 µg/L (GW-1) and 110 µg/L (GW-2).

Based on ADEM's review of the UST Closure Report and laboratory analytical findings, the ADEM approved a plan and cost proposal for a groundwater monitoring event. The groundwater monitoring event included all wells associated with the adjacent Majik Mart site as well as one monitoring well on the subject site. Laboratory analyses reported total BETX concentrations ranging from 9.49 µg/L to 12,900 µg/L (MW-29 – located on the subject site). Additionally, monitoring wells MW-3 and MW-23, located on the adjacent Majik Mart site, were observed with approximately 0.085 feet and 0.042 feet of free product, respectively.

Subsequent to the ADEM's review of the groundwater monitoring report, Mr. Cofer received a notice of the REQUIREMENT TO SUBMIT A SECONDARY INVESTIGATION PLAN in a letter dated January 28, 2000. This plan and associated cost proposal was submitted to the ADEM on February 10, 2000. This plan and cost proposal was approved, with modifications, by the ADEM on May 18, 2000.

3.3.2 Secondary Investigation

Secondary Investigation field activities commenced with attempts to gain offsite property access for the installation of outlying monitoring wells. After approximately 4 months of correspondence with the State of Alabama Highway Department, the City of Calera, Shelby County Board of Education, the Calera Baptist Church, Hardee's Food Systems, Inc., and individual property owners, Poly/Spectrum gained access to the City of Calera street right-of-way along 12th street, and the property containing the Calera High School. None of the other adjacent property owners would grant Poly/Spectrum permission to access their properties during this study. Investigative field activities commenced on September 20, 2000 at the site. Based on the findings of the UST closure at the site conducted in April 1999, and one groundwater monitoring event conducted in December 1999, the Alabama Department of Environmental Management

(ADEM) required that a Secondary UST Investigation be conducted to delineate the extent of petroleum hydrocarbon impact to the soils and groundwater at the site. Mr. Cofer received the Notice of Requirement letter to prepare a Secondary Investigation Work Plan on January 28, 2000. Subsequent to the receipt of the ADEM's approval of the plan in May 2000, Poly/Spectrum performed the approved field activities on September 20-25, 2000. Offsite property access limitations caused significant delays in the execution of the approved work plan.

The objective of the Secondary UST Investigation was to delineate the extent of petroleum hydrocarbon impact in the soils and groundwater at the site, which was identified during the closure of the UST system in April 1999, and the installation of monitoring wells for the delineation of a hydrocarbon plume for the adjacent Majik Mart station, located adjacent to the subject site. Elevated concentrations of contaminants (and free product at the Majik Mark station) were discovered in groundwater from wells located on the site and the adjacent site during previous groundwater monitoring events performed by Spectrum and others.

To accomplish the objective of the Secondary Investigation, nine soil borings were drilled to varying depths below surface elevation (bse) to observe and sample surficial and subsurface soils and for the installation of groundwater monitoring wells. One soil boring was drilled to a depth of 50 feet below surface and completed as a Type III monitoring well for the purpose of vertical delineation of the plume. Additionally, four soil borings were advanced to depths of 20' bse near the former UST piping and dispenser area for the collection of Chemical of Concern data. Soil samples were collected on 5-foot centers and were prepared for screening in the field using a Heath Model II FID. However, upon failure of the FID unit, the prepared samples were screened for laboratory submittal using visual and olfactory observations. Based on these field observations, certain soil samples were selected to be analyzed for Benzene, Ethylbenzene, Toluene, Xylenes (BETX), and MtBE in the laboratory. Laboratory analytical reports reported Benzene concentrations ranging from below the laboratory detection limit (BDL) to 8.0 mg/Kg (SB-B-B). Benzene concentrations were reported in excess of Initial Screening Levels (ISLs) (as set forth by the ADEM in the ARBCA Guidance Manual Table 5-4) in soil samples SB5-B, SB9-B & C, SB-A Surface, SB-A-A, SB-A-B, SB-B-B, SB-C-B, and SB-D-B. All soil samples with detectable concentrations of Toluene, Ethylbenzene, and Xylene concentrations were reported to be below respective ISLs. MtBE concentrations were reported to range from BDL to 21 mg/Kg (SB-B-B). Concentrations of MtBE were reported to be in excess of the ISL in soil samples SB3-C, SB-5 Surface, SB5-A, SB5-B, SB9-C, SB-A Surface, SB-A-A, SB-A-B, SB-B Surface, SB-B-A, SB-B-B, SB-C, and SB-D-C.

As stated above, nine soil borings were converted to 2-inch Type II groundwater-monitoring wells and one boring (SB-1) was converted to a 2-inch Type III monitoring well. The remaining four soil borings were grouted to the surface upon sample collection. Groundwater samples were collected on September 25, 2000, and analyzed for Benzene, Ethylbenzene Toluene, and Xylenes (BETX), MtBE, and Total Lead. The results of the BETX/MtBE analyses revealed Benzene concentrations ranging from BDL to 5.92 µg/L

(MW-1); Total BETX concentrations ranged from BDL to 5.92 µg/L (MW-1); and MtBE concentrations ranged from BDL to 1,730 µg/L (MW-1). Analytical results for Total Lead were reported to range from BDL to 62.3 µg/L (MW-6). Monitoring wells MW-4, MW-5, and MW-9 were observed to be dry during the sampling event.

Pursuant to the findings of the Secondary Investigation conducted at the subject site, Poly/Spectrum recommends that the extent of the petroleum hydrocarbon contaminate plume in the groundwater has not been defined. However, based on contaminant concentrations, monitoring well locations, and monitoring well distances from the former UST pit, Poly/Spectrum postulates that contaminants detected in monitoring wells MW-6, MW-7, and MW-8 could possibly have originated from another source.

Based on the findings of the Secondary Investigation, Poly/Spectrum recommended that the implementation of quarterly groundwater monitoring as well as a Tier I/Tier II evaluation to develop alternative corrective action limits for the site. Upon completion of the Tier I/Tier II evaluation, the ADEM granted approval to conduct an RNA corrective action plan.

3.3.3 Groundwater Monitoring Events

Poly/Spectrum has completed twenty-nine quarterly groundwater-monitoring events at the Calera Garage site. The field methods and procedures associated with the collection and analysis of the groundwater samples are discussed below and are indicative of the methods proposed to be used in subsequent groundwater monitoring events at the subject site.

Prior to the collection of the groundwater samples, the groundwater elevation was determined using an electronic water level indicator. After the water levels were recorded, three volumes of groundwater were purged from each well and the groundwater was allowed to recharge to the pre-purging elevation. Discrete samples of purge water were collected at intervals specific to each well and analyzed using field methods for Dissolved Oxygen, Temperature, pH, Conductivity, and Oxidation-Reduction Potential.

Depths to groundwater measurements were collected from the top of casing. From this data, the potentiometric surface elevation could be calculated. The potentiometric surface map for the data collected during the final groundwater-monitoring event on March 22, 2016 is attached as Figure 2

Groundwater samples were collected using disposable bailers and transferred directly from the bailer to laboratory prepared containers. Filled sample containers were given a unique identification number and placed on ice in an insulated container to await shipment to the laboratory. To prevent cross-

contamination, new bailer cord was used at each sampling location. Additionally, new disposable sampling gloves were worn at each sampling location and at all times while handling sampling equipment.

The most recent sampling even was collected on March 22, 2016. A total of seven groundwater samples were collected from nine monitoring wells located at the Calera Garage site. The groundwater samples were analyzed for the presence of Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), MtBE and Napthalene using EPA Method 8021. From the data gathered during this event, a Benzene Isoconcentration Map is provided as Figure 3, Toluene Isoconcentration Map is provided as Figure 4, Ethylbenzene Isoconcentration Map is provided as Figure 5, Xylene Isoconcentration Map is provided as Figure 5, MtBE Isoconcentration Map is provided as Figure 6, and Naphthalene Isoconcentration Map is provided as Figure 7.

Poly/Spectrum has compiled historical groundwater elevation and contaminant concentration data from the site. A brief discussion of the historical trends at the site is provided below.

Groundwater Elevation

Groundwater Elevation data has been collected at the site since May 7, 2001. The groundwater table appears to be influenced by seasonal changes in precipitation. Depending on seasonal variations, the site may act as a groundwater divide with flow directed in different directions during different times of the year.

Benzene and Total BTEX Concentrations

Benzene and Total BTEX data have been collected from the site since May 7, 2001. Monitoring Wells MW-5, MW-9, and RW-1 have historically been reported to contain elevated Benzene and total BTEX concentrations. Benzene concentrations have been reported to vary from event to event. Currently, the general trend indicates a decrease in the Benzene concentration at MW-5, MW-9, and RW-1, but concentrations still exceed the ISLs. The total BTEX concentrations from monitoring wells MW-5, MW-9 and RW-1 indicate a general decrease in Total BTEX concentrations; however their concentrations are still above the ISLs.

MtBE Concentrations

MtBE data has been collected at the site since May 7, 2001. MtBE concentrations for Monitoring Wells MW-5, MW-9 and RW-1 show a general decrease through time, however concentration are still above the ISLs for the last groundwater monitoring event.

Naphthalene Concentrations

Naphthalene data has been collected at the site since June 6, 2014. Naphthalene concentrations ranged from BDL to 0.846 mg/L (RW-1). MW- 9 and RW-1 naphthalene concentrations were above SSTLs established for this site. MW-5 method detection levels were set higher than SSTLs for groundwater due to the high dilution factor necessary for sampling.

3.4 Summary of ARBCA Report

3.4.1 TIER I ASSESSMENT

The Tier I ARBCA Assessment, led to the following conclusions:

- The site has been adequately investigated and characterized.
- There is no free product at the site nor have any utilities been threatened.
- The groundwater plume is stable or shrinking.
- On site soil and groundwater concentrations are not protective of current and reasonable future on-site receptors.
- Off-site soil and groundwater concentrations are protective of current and reasonable future off-site receptors.

3.4.2 TIER II ASSESSMENT

The Tier II ARBCA Assessment, led to the following conclusions:

- On site subsurface soil benzene concentration is not protective of an on-site commercial worker due from indoor inhalation pathways.
- Subsurface groundwater BTEX and MtBE concentrations exceed the groundwater resource protective target concentrations.
- Subsurface MtBE concentrations in MW-3 exceed the groundwater resource protective target concentrations.

The results from the Tier I and Tier II Risk-Based Corrective Action Assessment for the site are important and were used to design the Corrective Action Plan and to establish remedial goals protective of human health and the environment. A summary of the Tier II SSTLs protective of human health and the environment for all receptors, chemicals of concern, and routes of exposure are provided in Table 1.

3.4.3 SUMMARY OF WELLS EXCEEDING SSTL'Ss

For groundwater resource protection, soil concentrations at the source exceed the SSTL's for benzene. During the last groundwater monitoring event, monitoring wells MW-5, MW-9 and RW-1exceeded the SSTL's for BTEX and MtBE protective of groundwater resources.

Section 4.0 - Rational for Selection of Remediation by Natural Attenuation

4.1 Site Characterization

Poly/Spectrum conducted Preliminary and Secondary Investigations and groundwater monitoring at the site. Based on the evaluation of data collected from the site, the horizontal and vertical extent of soil and groundwater impact has been delineated. Since the previous Enhanced Fluid Recovery (EFR) Events have recovered a great deal of hydrocarbon it is recommended that EFRs continue at the site. Episodic Air sparging in conjunction with the EFR events is a viable method for corrective action at the Calera Garage site to expedite the cleanup time.

4.2 Site Remedial Goals

As stated previously, Table 1 below is provided that summarizes the Tier II SSTLs.

4.3 Evaluation of Plume Status

As of the latest groundwater sampling event, the plume appears to be relatively unchanged from the last four sampling events. The plume appears to be relatively stable at the present time.

4.5 Comparison of Site Remedial Goals to Estimated RNA Performance

Evaluating the stage(s) that Natural Attenuation is occurring at the site can be extremely useful in evaluating the remedial approach. However, the natural attenuation data collected at this site during groundwater monitoring events proved that Natural Attenuation alone was not effective in remediating groundwater. EFR events were scheduled in advance of sampling in order to monitoring the effectiveness of the events. Although EFR events have recovered additional contaminant mass, reduction of contaminants is not occurring at the rate desired.

4.6 Active Restoration (Natural Attenuation)

4.6.1 Natural Attenuation

Attenuation refers to the reduction/weakening in force, strength, value, or amount; to lessen density of; to dilute or rarefy; or to make less virulent. Attenuation is also a descriptive term of general processes and observed effects. There are two main mechanisms by which natural attenuation occurs: non-destructive and destructive mechanisms.

Non-destructive mechanisms result in the reduction of groundwater contaminants with no loss of mass from the system. Examples of non-destructive natural attenuation are dispersion/dilution, sorption

(contaminant mass transferred to aquifer solids), and volatilization (contaminant mass transferred to air phase).

Destructive mechanisms result in the reduction of groundwater contaminants that result in a mass loss of contaminants from the system. Examples of destructive natural attenuation are biodegradation (aerobic, anaerobic, and cometabolism), abiotic oxidation/reduction reactions, and hydrolysis.

Biodegradation involves biologically mediated oxidation/reduction reactions, which is fundamentally an electron transfer process. Electrons are transferred from more reduced compounds to more oxidized compounds (e.g. Fe^{3+} to Fe^{2+}). The energy released during this process is used by microbes to sustain metabolism and growth. Electron donors are what the microbes eat and electron acceptors are what the microbes' breath. Examples of electron donors are naturally occurring carbon or groundwater contaminated with hydrocarbons. Examples of naturally occurring electron acceptors would be O_2, NO_3, Mn^{4+}, Fe^{3+}, SO_4, and CO_2.

Natural attenuation is occurring at all groundwater contaminated sites to some extent. The question is not whether natural attenuation is occurring, but whether natural attenuation is occurring to the degree needed to meet remedial goals in a workable timeframe. Natural attenuation can result in complete mineralization of contaminants to innocuous products, not just transfer compounds to another phase or location. This remedial option allows continuing use of site infrastructure may be more cost effective than engineered remediation systems.

Although there are many positive factors of natural attenuation, the following are some drawbacks:

- Highly subject to natural and anthropogenic changes in local hydrogeologic and hydrogeochemical conditions (groundwater gradients/velocity, changes in electron donor/acceptor concentrations),
- Degradation can result in toxic byproducts,
- Aquifer heterogeneity may complicate site characterization,
- Time frame for completion may be prohibitively long,
- Should not be considered a presumptive remedy,
- May not be appropriate for all compounds of concern at a site, and
- Cannot be *assumed* to be a viable option for a site as a sole source remedial methodology.

Depending on the contaminant of concern, Natural Attenuation will progress as follows:

Aerobic degradation→*Nitrate-Reducing*→*Manganogenic*→*Ferrogenic*→*Sulfate-Reducing*→*Methanogenesis*

In order to demonstrate the effectiveness of Natural Attenuation as a remedial alternative, one must do the following:

- Compile and review available site data,
- Characterize the site,
- Refine the site conceptual model,
- Evaluate Natural Attenuation,
- Prepare long-term monitoring plan,
- Present results to regulatory authority, and
- Monitor and evaluate effectiveness.

4.6.2 Applicability to the Calera Garage Site

Poly/Spectrum has characterized the site to the extent possible and assimilated all data. Natural Attenuation has been used as a viable remedial approach and data should continue to be collected during RNA Groundwater Monitoring Events. However, In addition to the RNA approach, Poly/Spectrum is recommending that EFR events combined with air sparging techniques. Monitoring Wells MW-5 and RW-1 would be utilized as extraction points and four air sparge points would be installed within the radius of influence of MW-5 and RW-1. Poly/Spectrum is proposing four, 24-hour EFRs with air sparging events to be conducted at quarterly intervals. A RNA groundwater monitoring event will be conducted within 14 days after each EFR with air sparge event.

4.6.3 Air Sparge/EFR Events

In addition to the RNA approach, Poly/Spectrum is recommending that combined EFR/Air Sparge events be conducted to increase the effectiveness of RNA at the site. Specifically, the addition of air sparge will accelerate the removal of contaminant mass (and subsequent removal of the contaminant mass via vacuum extraction and the introduction of oxygen into the subsurface to support RNA for a period of time after the EFR/Air Sparge event.

Monitoring Wells MW-5 and RW-1 are proposed to be used as extraction points during the EFR events. These wells have demonstrated the highest contaminant concentrations during the recent sampling events conducted at the site. Monitor Wells #9 or other wells as site conditions dictate, will be used to monitor drawdown during the EFR events. The purpose of the EFR events will be to aggressively attack source contaminants. Essentially, the EFR events are proposed to effectuate (1) the removal of free product and petroleum contaminated groundwater; (2) "strip" hydrocarbons from the surface of the soil in the source area; and (3) introduce oxygen into the subsurface of the source area to enhance the biological reduction of contaminants.

Air sparging involves the injection of air or oxygen through a contaminated aquifer. Injected air traverses horizontally and vertically in channels through the soil column, creating an underground stripper that removes volatile and semivolatile organic contaminants by volatilization. The injected air helps to flush the

contaminants into the unsaturated zone. Soil Vapor Extraction is implemented in conjunction with air sparging and EFR to remove the generated vapor-phase contamination from the vadose zone. Oxygen added to the contaminated groundwater and vadose-zone soils also can enhance biodegradation of contaminants below and above the water table. Poly/Spectrum are recommending that four sparge points (one inch wells) be installed near Monitoring Wells MW-5 and RW-1 to enhance bidegradation and volatilization of contaminants.

One 24-hour EFR/Air Sparge event is proposed to be conducted per quarter to aggressively attack the source zone. After the initial source reduction, RNA is being proposed to monitor site contaminant trends until the ACALs are attained.

SECTION 5.0 – GROUNDWATER MONITORING PROGRAM

5.1 Selected Wells to be Monitored

Based on historical data collected at the Calera Garage site, Poly/Spectrum proposes to collect groundwater samples during the proposed RNA groundwater monitoring events from the following groundwater monitoring wells:

Calera Garage: MW-1, MW-2, MW-3, MW-4, MW-5, MW-9, MW-10, and RW-1.

MW-5, MW-9 and RW-1 are located within the contaminant plume, the remaining wells were outside of the plume or were at the edge of the plume during the last sampling event conducted at the site and have historically been BDL or recorded small concentrations of contaminants, but are selected as RNA Monitoring Wells due to their upgradient, crossgradient or downgradient positions relative to the source area.

5.2 Frequency of Monitoring

Upon approval from the ADEM to implement the proposed Remediation by Natural Attenuation Corrective Action Plan, the groundwater shall be monitored at the site as follows:

- Quarterly for the first year; and
- Quarterly, or less frequent based on site trends, for years 2+

5.3 Duration of Monitoring

Based on historic declines in contaminant levels at the site and the fact that multiple EFR with air sparging events are proposed to enhance the remedial process, it is estimated that it will take between one and three years to reach the SSTL's calculated for the site.

5.4 Proposed Monitoring Parameters and Methods

Each well will be sampled and analyzed for the presence of Benzene, Ethylbenzene, Toluene, and total Xylenes (BETX) and MTBE using EPA Method 8021 and PAHs by EPA Method 8270c. In addition to the chemical analysis listed above, Poly/Spectrum is recommending analyses for the following constituents to determine what natural attenuation processes are active at the site:

Analytical Parameter	Analytical Methodology
Nitrate	Ion Chromatography Method E300; anion method
Sulfate {SO_4^{2-}}	Ion Chromatography Method E300; anion method
Iron (II) {Fe^{2+}}	ICP Method 3500FE
Manganese {MN4+}	EPA Method 6010

5.5 Field Methods and Procedures for Sampling

Prior to the collection of the groundwater samples, the groundwater elevation will be determined using an electronic water level indicator. After the water levels are recorded, groundwater will be purged from each well and the groundwater will be allowed to recharge to the pre-purging elevation.

Depths to groundwater measurements will be collected from the top of casing. From this data, the potentiometric surface elevation will be calculated and graphically depicted on the potentiometric surface map to be included as an attachment to the Natural Attenuation Monitoring Report.

Discrete samples of purge water will be collected at intervals specific to each well and analyzed using field methods for Temperature, pH, Conductivity, Dissolved Oxygen, and Oxidation-Reduction Potential (ORP). Purging will continue until three well volumes and the parameters of temperature (to within 0.5 °C), pH (to within 0.1 s.u. units) and conductivity (to within 10%) have stabilized. Samples for dissolved oxygen will be analyzed in the field using an YSI dissolved oxygen Meter and flow through cell, and measured in parts per million. The calculation for determining the appropriate volume of purge water to be removed from each monitoring well is:

$$\mathbf{V = 0.041\ d^2\ h}$$

Where:

V = Volume of water in gallons
h = depth of water in feet
d = diameter of well in inches

Samples for Oxidation Reduction Potential will be analyzed in the field using a portable field meter and measured in mV.

Groundwater samples will be collected using disposable bailers and transferred directly from the bailer to the laboratory prepared containers. Filled sample containers will be given a unique identification number and placed on ice in an insulated container to await shipment to the laboratory. To prevent cross-contamination, new bailer cord will be used at each sampling location. Additionally, new disposable sampling gloves will be worn at each sampling location and at all times while handling sampling equipment.

Groundwater purged from the wells during sampling will be temporarily stored on site in 55 gallon drums labeled as non-hazardous petroleum contact water. The purge water will be removed and disposed by the EFR contractors during the next event following sampling.

Section 6.0 – Reporting

Subsequent to each quarterly groundwater-monitoring event, Poly/Spectrum will complete the ADEM's "Natural Attenuation Monitoring Report (NAMR)" forms for review by the ADEM. The NAMR for Calera Garage will contain the following information:

Section 1 - Site Summary
Section 2 - Site Maps
Section 3 - Well Inventory Table
Section 4 - History of Sampling
Section 5 - Sampling Methodology
Section 6 - Historical Monitoring Well Chemicals of concern Data
Section 7 - Historical Monitoring Well Intrinsic Groundwater Data
Section 8 - Groundwater Elevation Data
Section 9 - Monitoring Costs v. Time

Each NAMR submittal will be provided on the most recent forms posted on the ADEM website. As the form is changed or updated by the ADEM, the new forms will be utilized.

SECTION 7.0 – SCHEDULE OF IMPLEMENTATION

Upon approval by ADEM of the plan herein submitted, the following estimated plan on implementation is anticipated:

90 Days from approval	Initial EFR + Air Sparge event
110 Days from approval	Initial RNA Groundwater sampling event
150 Days from approval	Initial NAMR Report Submittal
180 Days from approval	Second EFR + Air Sparge event
200 Days from approval	Second RNA Groundwater sampling event
240 Days from approval	Second NAMR Report submittal
270 Days from approval	Third EFR + Air Sparge event
290 Days from approval	Third RNA Groundwater sampling event
330 Days from approval	Third NAMR Report submittal
360 Days from approval	Fourth EFR + Air Sparge event
380 Days from approval	Fourth RNA Groundwater sampling event
420 Days from approval	Forth submittal NAMR Report

Generally, the above schedule for groundwater sampling and reporting will be repeated in subsequent years until the SSTL's are achieved. Additional EFR events are not presently anticipated but may be considered in the future based on the response to the first years events and the contaminant decline curve.

8.1 QA/QC Requirements

Quality Assurance/Quality Control procedures and EPA required decontamination procedures will be utilized to ensure sample quality. It is the responsibility of the field sampling staff to assure that the samples collected arrives at the laboratory in the appropriate container, with the appropriate preservative, and within the holding times for each analysis.

8.2 Sample Containers & Preservation

All samples should be placed in the appropriate containers and preserved as recommended in Table 1 of Appendix G of the Alabama Investigation and Remediation Guidance document, latest revision (September 2005). All sample containers should be new, pre-cleaned or properly decontaminated with the appropriate certification.

8.3 Sample Handling

The effectiveness of sample handling techniques will be measured by collecting duplicates and trip blank samples. A description of these Quality Control techniques is described below:

8.3.4 Duplicate Sample

The purpose of a duplicate sample is to estimate the variability of a given characteristic or contaminant associated with a population. Poly/Spectrum are proposing to collect one blind duplicate sample for every 10 samples collected during any given sampling event.

8.3.5 Trip Blanks

A sample that is prepared prior to the sampling event in the actual container and is stored with the investigative samples throughout the sampling event. They are then packaged for shipment with the other samples and submitted for analysis. At no time after their preparation are trip blanks to be opened before the reach the laboratory. Trip blanks are used to determine if samples were contaminated during storage and/or transport back to the laboratory (a measure of sample handling variability resulting in positive bias in contaminant concentration). If samples are to be shipped, trip blanks are to be provided with each shipment but not for each cooler.

8.4 Sample Identification

8.4.1 Labeling

Samples collected for specific field analysis or measurement data should be recorded directly in bound field logbooks, sample collection forms, or recorded directly on the Chain-of-Custody Record. Samples collected for laboratory analyses should include sample labels or sample tags. The following information should be written on the sample labels or tags using waterproof, non-erasable ink:

(a) Project number;
(b) Field identification or sample station number;
(c) Date and time of sample collection;
(d) Designation of the sample as a grab or composite;
(e) Type of sample (water, wastewater, leachate, soil, sediment, etc.);
(f) The preservative used (if any); and
(g) The general types of analyses to be performed.

8.4.2 Information to be retained in a bound logbook or sample collection form should include:

(a) Project number;
(b) Field identification or sample station number;
(c) Date and time of sample collection;
(d) Designation of the sample as a grab or composite;
(e) The signature of either the sampler(s) or the designated sampling team leader and the field sample custodian;
(f) Whether the sample was preserved or unpreserved, and if preserved, identify the preservative used;
(g) The general types of analyses to be performed;
(h) All field measurements collected during the purging of monitoring wells (pH, Specific Conductivity, Temperature, and Turbidity);
(i) Water levels and total well depths measured during the sampling event; and,
(j) Any relevant comments (such as readily detectable or identifiable odor, color, or known toxic properties).

8.5 CHAIN-OF-CUSTODY

The original or copies of the chain-of-custody forms should be submitted with all the original laboratory reports to the Department. If copies are submitted, the copies should represent the same data and

information, which are present on the original chain-of-custody forms. All information on the chain-of-custody forms should be recorded in a legible manner. Chain-of-custody forms should originate in the field immediately upon sampling soils or groundwater. The chain-of-custody forms should stay with the samples at all times until properly relinquished to the laboratory for analysis. Information which should be present on all chain-of-custody forms include the following:

1. Site name and address.
2. Date and time of sampling of each sample.
3. Sample identification numbers.
4. Name of sampler(s).
5. Analytical laboratory to be utilized.
6. Analytical methods to be used.
7. Type of sample (*i.e.,* composite, grab, etc.).
8. Matrix sampled (soil, water sludge, etc.).
9. Number and type of sample container.
10. Remarks regarding sampling, if applicable.
11. Preservatives used for each sample (also indicate if placed on ice).
12. Personnel relinquishing samples; times and dates.
13. Personnel receiving samples; times and dates.

A. Project Identification and Schedule

Client: Lee Cofer / ADEM Telephone No.: _____

Planned Start Date: January 2007 Expected Completion Date: December 2008

Site Name: Calera Garage

Site Address: 18th Avenue and 12th Street, Calera, Alabama 35040

B. Planned Activity

_____ New Tank Installation

____ Tank/Piping Upgrade

_____ Tank Removal and Soil Sampling

____ Tank Abandonment and Soil Sampling

_____ Carbon Treatment

___ DPVE

_____ Thermal Oxidation

__X_ Other (describe) RNA / EFR

C. Emergency Telephone Numbers and Addresses

Make sure:

_____ You know where the nearest telephone is located

_____ You have change if it's a pay phone, or

_____ The battery is charged or you have an adapter if it's a cellular phone

_____ Attach a map to plan showing route to nearest hospital or emergency facility.

Fire/Explosion Telephone: ___911_____

Leak/Release Telephones: ADEM 334-271-7700

CHEMTREC 800-424-9300

Medical

Shelby Baptist Medical Center
1000 1st Street North
Alabaster, Alabama
205 620 8100

Utilities
Note: Alabama One Call 1-800-292-8525 "Call Before You Dig" will be notified prior to any underground investigations and are responsible for locating the utilities listed below:

Electric	Telephone: _____
Gas	Telephone: _____
Water	Telephone: _____
Sewer	Telephone:_____
Telephone	Telephone:_____
TV Cable	Telephone:_____

D. Job Functions

Project Manager:	Oversees planning, scheduling and excavation of project; meets with the owner; serves as the contact person for all public media.
Project Supervisor:	Oversees the whole project on-site; is responsible for quality assurance/quality control; may perform sampling and monitoring.
Safety Officer:	Implements site safety plan; authorized to make changes, if necessary; trains on-site personnel in safety procedures.
Science Advisor:	Directs and coordinates scientific studies, sample collection, field monitoring, analysis of samples and interpretation of results; recommends remedial action plans and corrective actions; provides technical guidance to project manager.

Extraction Truck	Responsible for hook-up of equipment, operation of equipment, and transporting fluids off site for disposal. Operator must review, sign and comply with this plan.
Technician:	Responsible for O & M of site equipment; collecting samples; site housekeeping.

E. Site Description

Provide directions that are sufficiently detailed so a person unfamiliar with the site can get here by following these directions.

Go south on Interstate 65 from Birmingham, take exit 228 (Highway 25-Calera,Columbiana); turn right (west) at end of ramp onto highway 25; go approximately ¾ mile, cross railroad tracks to intersection of highway 31. Turn left (south). Site is on left two blocks south of turn.

Release History

____ No evidence of a tank leak or soil contamination

_X_ Suspected or known leak or soil contamination.

_X_ Suspected or known ground-water contamination.

G. Weather Conditions

Note and record in a daily field log the general weather conditions at the site, including the wind direction and the wind speed.

H. Security On-Site

Identify the edge of the work area with, for example, a 4-ft. safety barricade, emergency tape or safety cones, post signs stating "No Smoking" and "Do Not Enter" around the perimeter. Only personnel activity involved in the project should be allowed inside the work area.

Chemical Hazards

List all chemicals present on the site. Attach Material Safety Data Sheets (MSDS).

1._BTEX, MtBE _____

2._ _HCl (preservative in VOA vials)_____

3._____

4._____

5._____

I. Potential Health and Safety Hazards

__X__ Fire/explosion	__X__ Noise
_____ Excavation cave-ins	__X__ Underground utilities
_____ Trips and falls	_____ Oxygen deficiency
_____ Confined space entry	__X__ Heat/cold
_____ Falling objects from backhoe	__X__ Biological hazards (poisonous plants, snakes, rodents)
_____ Backhoe falling into excavation	__X__ Eye hazards (sample splashing; high pressure lines)

J. Personal Protective Equipment (PPE)

_____ Hard hat	_____ Cotton clothing to minimize static electricity
__X__ Safety glasses	__X__ Liquid-proof gloves for sampling or cleaning equipment
_____ Chemical resistant safety boots	_____ Flashlight (explosion proof)
__X__ Hearing protection	_____Face shields
_____ Respirators within 25 feet of all on-site personnel when work is in progress.	__X__Latex gloves

K. Decontamination Procedures

Gloves shall be disposed of after each use. If other equipment becomes contaminated, notify Safety Officer, who will determine whether to clean or dispose.

L. Standing Orders

No smoking, no eating, no drinking in the work area.
No matches, lighters or other open fires allowed in the work area.

M. Air Monitoring Equipment

None required during this phase of work.

N. Emergency Equipment

_____ First aid/splint kit

_____ Absorbents with a salvage drum

__X__ Fire extinguishers (2)

_____ Stretcher

_____ At least one person trained in First Aid and CPR should be on-site at all times.

Note: Do not give oxygen to any person who has been overcome by explosive vapors.

O. Affirmations

The Safety Officer will review the contents of this plan with all on-site personnel before the start of work on the first day of the project. Each on-site person will be afforded the opportunity to have all his or her questions answered by the Safety Officer. Each on-site person must read this plan, sign below and enter the date before he or she will be allowed inside the work area.

Name	Date
1._____	_____
2._____	_____
3_____	_____
4._____	_____

5._____ _____

6._____ _____

7._____ _____

8._____ _____

9._____ _____

10._____ _____

This Safety Plan has been reviewed, approved and explained to all on-site personnel.

_____ _____

Sign Date

APPENDIX A

FIGURES

Figure 1 - Site Locator Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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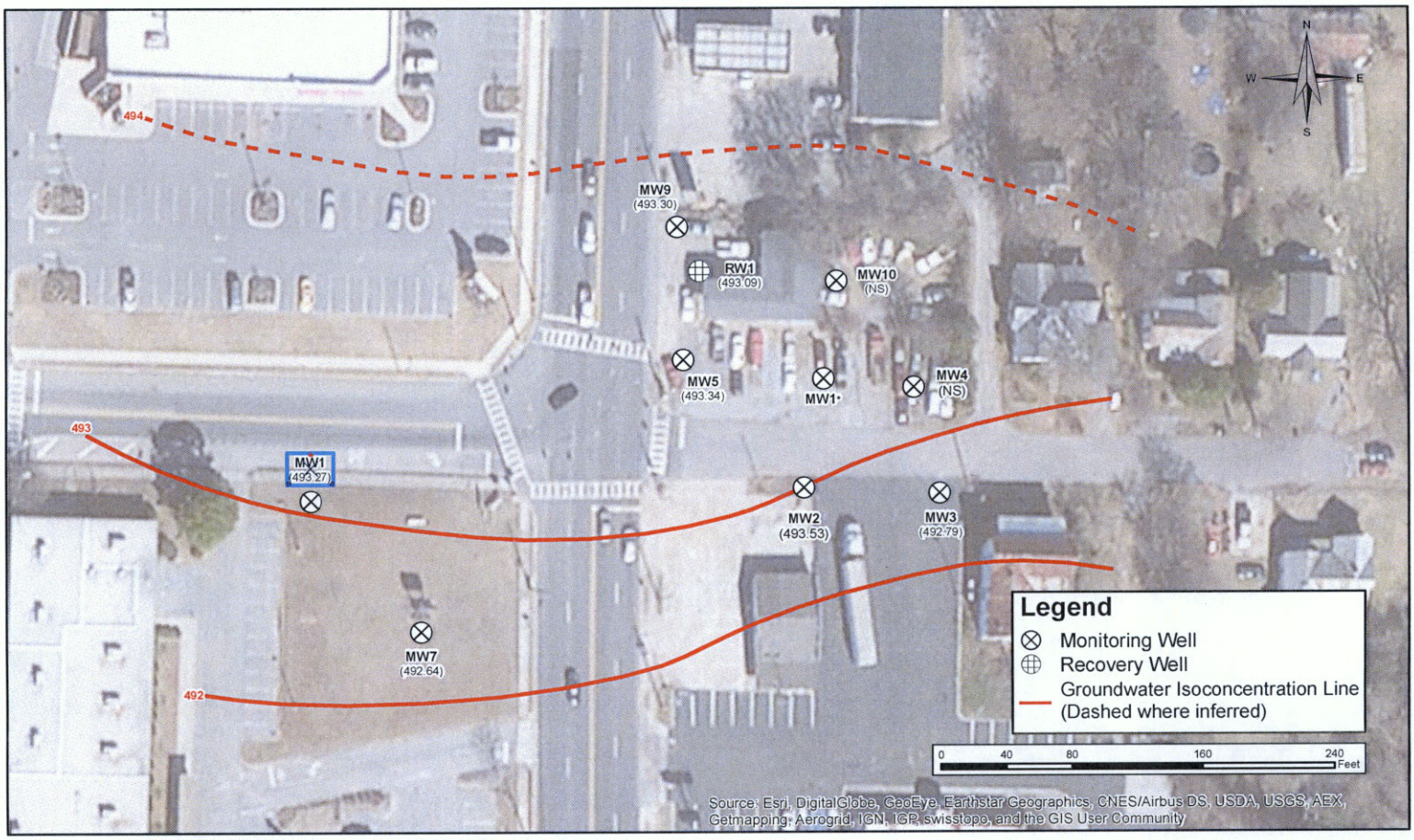

* Omitted Groundwater Data

Figure 2 - Groundwater Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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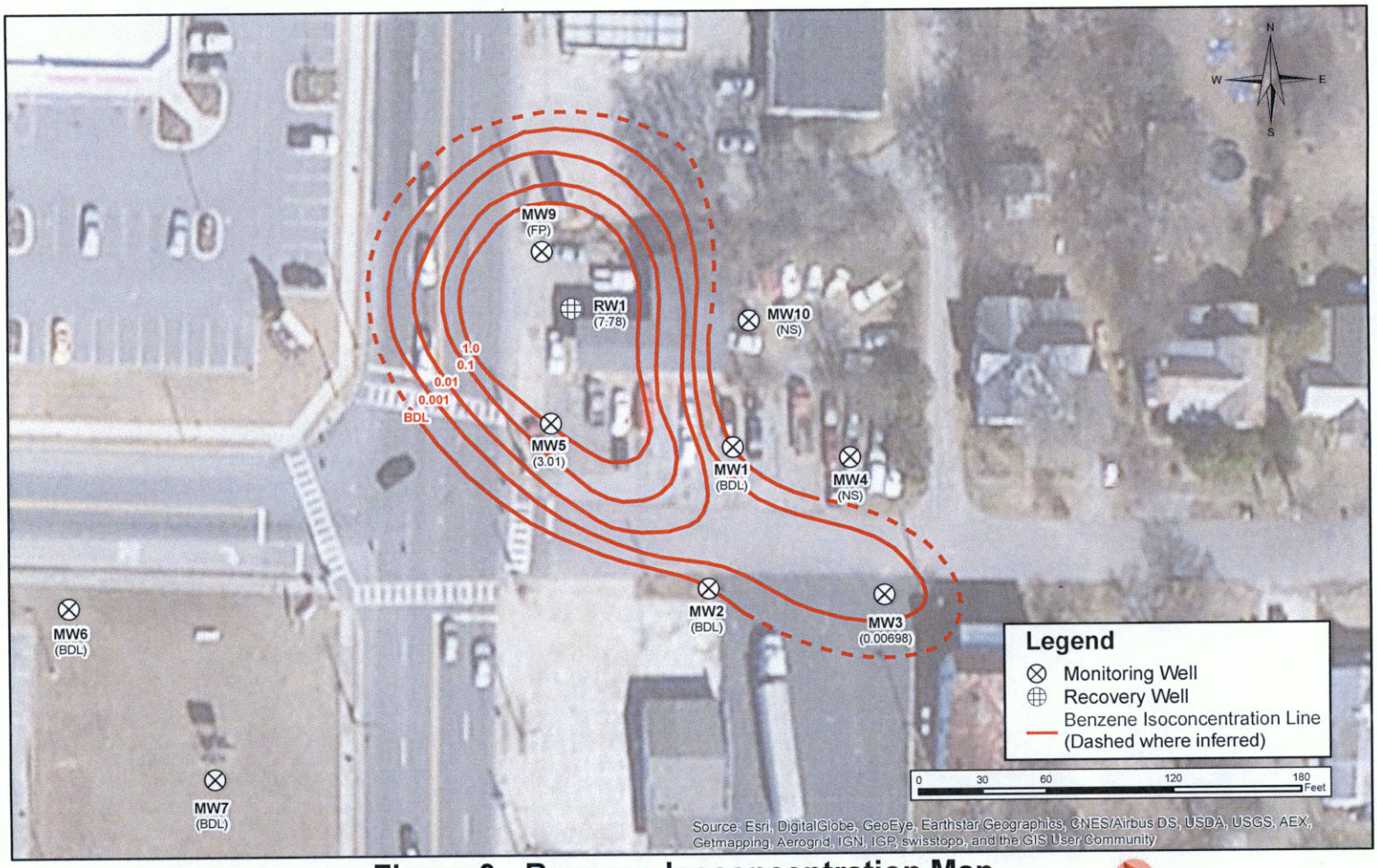

Figure 3 - Benzene Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date:3-22-2016

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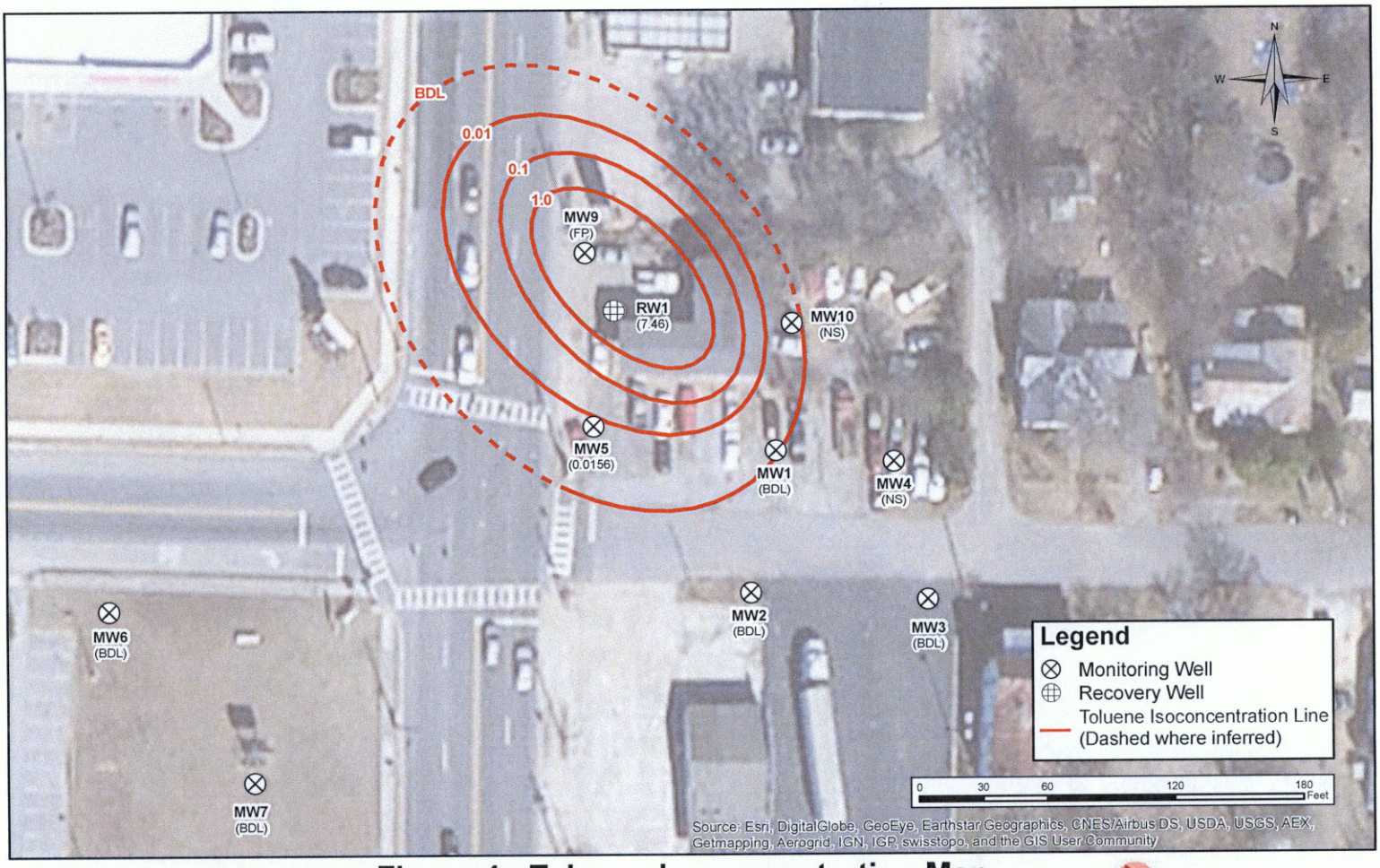

Figure 4 - Toluene Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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Figure 5 - Ethylbenzene Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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Figure 6 - Xylene Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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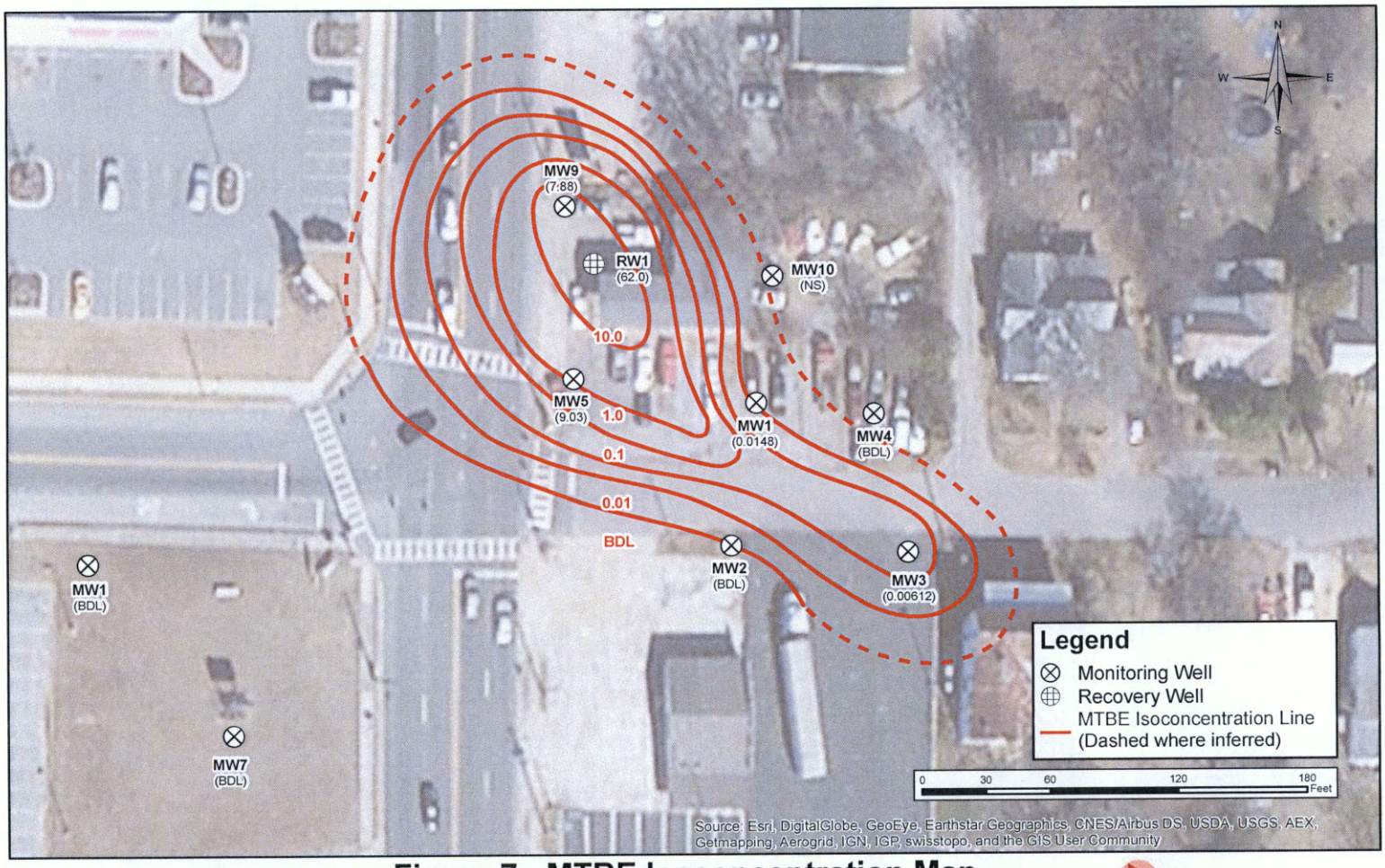

Figure 7 - MTBE Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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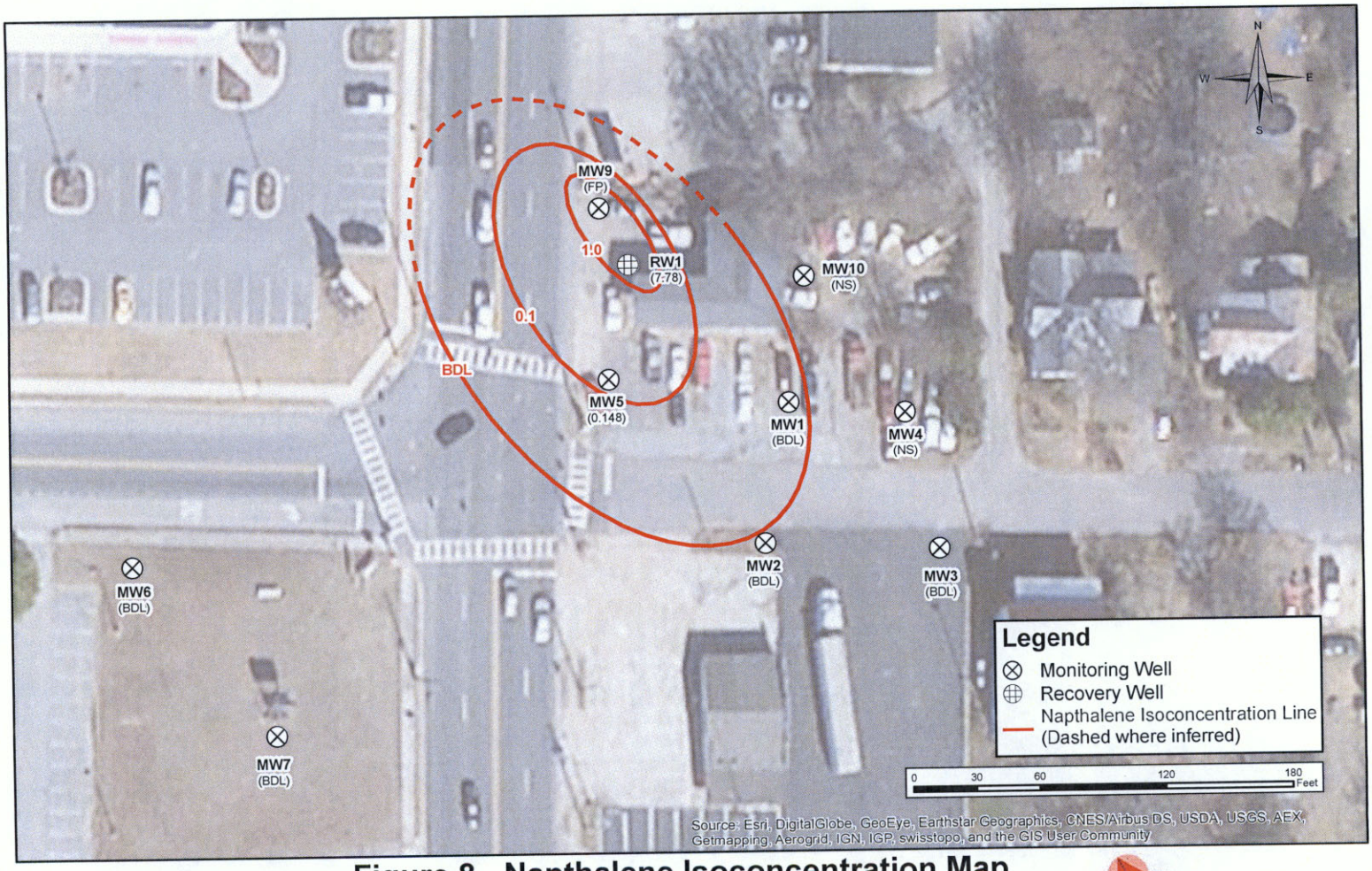

Figure 8 - Napthalene Isoconcentration Map

Calera, Alabama

Calera Garage CP41

Project Number: 1077-009-41

Project Manager: Bob White

Date: 3-22-2016

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APPENDIX B

TABLES

TABLE 1 - Tier II SSTLs

Media/Area	Applicable Tier II Media-Pathway Comparison	Benzene	Toluene	Ethylbenzene	Xylenes	MtBE	Naphthalene
Surficial Soils (mg/kg)	Onsite Outdoor Inhalation, Ingestion, and Dermal Contact	39.4127	124.5516	44.5372	48.9020	377.4162	
	Onsite Tier II Target Levels for surficial soils	**39.4127**	**124.5516**	**44.5372**	**48.9020**	**377.4162**	
	Offsite Outdoor Inhalation, Ingestion, and Dermal Contact	22.6592	124.5516	44.5372	48.9020	94.7292	
	Offsite Tier II Target Levels for surficial soils	**22.6592**	**124.5516**	**44.5372**	**48.9020**	**94.7292**	
Subsurface Soils (mg/kg)	Onsite Indoor Inhalation of Vapor From Subsurface Soil	0.2265	24.0302	44.5372	24.2063	912.3134	
	Onsite Outdoor Inhalation of Vapor From Subsurface Soil	70.6435	124.5516	44.5372	48.9020	8551.2708	
	Onsite Tier II Target Level - Subsurface Soil	**0.2265**	**24.0302**	**44.5372**	**24.2063**	**912.3134**	
	Offsite Indoor Inhalation of Vapor From Subsurface Soil	0.0346	2.2371	6.4544	2.2535	84.9365	
	Offsite Outdoor Inhalation of Vapor From Subsurface Soil	26.5878	124.5516	44.5372	48.9020	8551.2708	
	Offsite Tier II Target Level - Subsurface Soil	**0.0346**	**2.2371**	**6.4544**	**2.2535**	**84.9365**	
Groundwater (mg/L)	Onsite Indoor Inhalation of Vapor from Groundwater	12.3965	526.0000	169.0000	175.0000	44664.3282	
	Onsite Outdoor Inhalation of Vapor from Groundwater	1750.0000	526.0000	169.0000	175.0000	48000.0000	
	Onsite Ingestion of Groundwater	NA	NA	NA	NA	NA	
	Onsite Tier II Target Level for Groundwater	**12.3965**	**526.0000**	**169.0000**	**175.0000**	**44664.3282**	
	Offsite Indoor Inhalation of Vapor from Groundwater	1.8918	108.4357	169.0000	91.7427	4157.9816	
	Offsite Outdoor Inhalation of Vapor from Groundwater	1725.2643	526.0000	169.0000	175.0000	48000.0000	
	Offsite Ingestion of Water	NA	NA	NA	NA	NA	
	Offsite Tier II Target Level for Groundwater	**1.8918**	**108.4357**	**169.0000**	**91.7427**	**4157.9816**	**4157.9816**
Groundwater Resource Protection (mg/L)	**Allowable Soil Concentration at Source Protective of POE**	0.0048	1.1142	0.8680	13.1484	0.0168	0.0168
	Allowable Groundwater Concentration at Source Protective of the POE	**0.0214**	**4.2858**	**3.0001**	**42.8584**	**0.0857**	**0.0857**
	Allowable GW Concentration at POC 54 feet from source (MW-2)	0.0159	3.1882	2.2317	31.8818	0.0638	0.0638
	Allowable GW Concentration at POC 65 feet from source (MW-4)	0.0134	2.6817	1.8772	26.8173	0.0536	0.0536
	Allowable GW Concentration at POC 71 feet from source (MW-10)	0.0122	2.4309	1.7016	24.3087	0.0486	0.0486
	Allowable GW Concentration at POC 90 feet from source (MW-3)	0.0089	1.7850	1.2495	17.8499	0.0357	0.0357

Contaminant concentrations presented in mililgrams per liter (mg/L)
Domain for Source Groundwater: Monitoring Well MW-5, MW-9
Compliance Well MW-2 is the POC 54 feet downgradient of the source
Compliance Well MW-4 is the POC 65 feet downgradient of the source.
Compliance Well MW-10 is the POC 71 feet downgradient of the source.
Offsite wells include MW-2, MW-3, and Discount food Mart wells DFM-MW-3, DFM-MW-5, DFM-MW-23, DFM-MW-25, DFM-MW-26, DFM-MW- 27