State Water Resources Control Board

UST CASE CLOSURE SUMMARY

Agency Information

Agency Name: County of Orange-Health Care Agency (County)	Address: 1241 E. Dyer Road, #120 Santa Ana, CA 92705-5611
Agency Caseworker: Julie Wozencraft	Case No.: 99UT011

Case Information

USTCF Claim No.: 17363	Global ID: T0605902250
Site Name: Savala Equipment	Site Address: 16402 E. Construction Circle Irvine, CA 92606 (Site)
Petitioner: Savala Equipment Attention: Leonard Savala	Address: 16402 E. Construction Circle Irvine, CA 92606
USTCF Expenditures to Date: $276,532	Number of Years Case Open: 13

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605902250

Summary

The Low-Threat Underground Storage Tank Case Closure Policy (Policy) contains general and media-specific criteria, and cases that meet those criteria are appropriate for closure pursuant to the Policy. This Site meets all of the required criteria of the Policy. A summary evaluation of compliance with the Policy is shown in **Attachment 1: Compliance with State Water Board Policies and State Law**. The Conceptual Site Model upon which the evaluation of the case has been made is described in **Attachment 2: Summary of Basic Site Information.** Highlights of the Conceptual Site Model of the Site follow:

The release at this Site was discovered when the underground storage tanks (USTs) were removed in January 1999. During the USTs removal, approximately 22 tons of impacted soil were excavated. The Site is located in an industrial park and is currently used as an equipment rental and engineering construction headquarters. No USTs are currently on-site. A pump and treat test was conducted from November 2004 through January 2005 and removed approximately 43,700 gallons of groundwater and 1.1 pounds of total petroleum hydrocarbons. Peters Canyon Channel is located approximately 190 feet southeast of well MW-13 (down-gradient). The sides of the Peters Canyon Channel are concrete lined but the bottom of the channel is natural.

Based on the historical groundwater data, groundwater concentration trends for methyl tert-butyl ether (MTBE) and tert-butyl alcohol (TBA) have been either stable or decreasing in all wells, except for monitoring well (MW) MW-13. However, MTBE concentrations in well MW-13 have been decreasing in the last three sampling events. Historically, both total petroleum hydrocarbons as gasoline (TPHg) and

benzene have been low or non-detect in all wells since 2005. The most current groundwater sampling event in July 2010 shows that benzene is currently non-detect in 10 wells that were sampled. Benzene was not sampled in the remaining four wells since it has never been detected in these wells.

The petroleum release is limited to the shallow soil and groundwater. The affected groundwater is not currently being used as a source of drinking water or any other designated beneficial use, and it is highly unlikely that the affected groundwater will be used as a source of drinking water or any other beneficial use in the foreseeable future. Public supply wells are usually constructed with competent sanitary seals. Production intervals are in deeper protected aquifers. Remaining petroleum constituents are limited, stable, and declining. Remedial actions have been implemented and further remediation would be ineffective and expensive. Additional assessment/monitoring will not likely change the conceptual model. Remaining petroleum constituents do not pose significant risk to human health, safety, or the environment.

Rationale for Closure under the Policy

- General Criteria – Site meets all eight general criteria under the Policy.

- Groundwater – Site meets Policy Groundwater-Specific Class "5". Based on an analysis of site-specific conditions, under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health, safety, and the environment and water quality objectives (WQOs) will be achieved within a reasonable time frame.

  Site conditions pose only a low threat to groundwater and Peters Canyon Channel because:
  - The plume is stable.
  - Natural attenuation appears to be established as evidenced by stable or decreasing groundwater concentration trends for MTBE and TBA in all wells, except for well MW-13. However, MTBE concentrations in well MW-13 have been decreasing in the last three sampling events. Historically, benzene has been low or non-detect in all wells and TPHg has been at the WQO or non-detect in all wells since 2005. The most current groundwater sampling event in July 2010 shows that benzene is currently non-detect in 10 wells that were sampled.
  - Natural attenuation appeared to also be established in well MW-13 as evidenced by a decrease in MTBE concentrations. Concentrations of TBA are expected to decrease as natural attenuation continues to degrade residual petroleum constituents.
  - USEPA National Recommended Water Quality criteria for the protection of freshwater aquatic life for MTBE are 51,000 µg/L (4-day average) and 151,000 µg/L (one-hour average). USEPA National Recommended Water Quality criteria for the protection of freshwater aquatic life for TBA have not been established. From the groundwater data for the most current sampling event in July 2000, MTBE was detected at 31 µg/L in well MW-13, which is significantly lower than the criteria for the protection of freshwater aquatic life. Therefore, even in the unlikely event that MTBE from well MW-13 could reach Peters Canyon Channel, it is highly unlikely that the residual MTBE would impair the beneficial uses of the channel.

- Petroleum Vapor Intrusion to Indoor Air – Site meets Policy Class "a".

- Direct Contact and Outdoor Air Exposure – Site meets the Policy Class "a". Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 of the Policy.

Objections to Closure

County staff objected to UST case closure because:

1. There is no demonstration that the TBA plume is either stable or decreasing and that monitored natural attenuation analytical data from existing wells and down-gradient of the TBA plume need to be provided.

   Response: TBA is a by-product of biodegradation of MTBE. Based on scientific studies of the natural attenuation of TBA, the median attenuation rate for TBA is similar to the rates for MTBE and benzene and that TBA is not likely to pose a significant threat to the groundwater. Groundwater concentration trends have been either stable or decreasing for MTBE and TBA in all wells, except for well MW-13. However, MTBE concentrations in well MW-13 have been decreasing in the last three sampling events. Natural attenuation appeared to be established in all wells, including well MW-13 as evidenced by a decrease in MTBE concentrations. Concentrations of TBA are expected to decrease as natural attenuation continues to degrade residual petroleum constituents.

   Based on these conditions, the plume is stable and petroleum constituents, including TBA, in groundwater will continue to degrade through processes of adsorption, dispersion, dilution, volatilization, and biological degradation. Additional monitoring will not likely change the conceptual model. Remaining petroleum constituents do not pose significant risk to human health, safety, or the environment.

2. TBA plume has not been delineated between well MW-13 and Peters Canyon Channel.

   Response: Although well MW-13 has not yet reached non-detect, the plume is adequately defined. As stated in the response to County's objection to closure above, TBA is a by-product of biodegradation of MTBE and not likely to pose a significant threat to the groundwater. Natural attenuation appeared to be established in all wells, including well MW-13 as evidenced by a decrease in MTBE concentrations. Concentrations of TBA are expected to decrease as natural attenuation continues.

3. Peters Canyon Channel is rarely dry and flows from the channel drain into the Newport Bay, which is an important local resource for wildlife habitat and recreational use.

   Response: Based on the historical groundwater data, groundwater concentration trends for MTBE and TBA have been either stable or decreasing in all wells, except for well MW-13. However, MTBE concentrations in well MW-13 have been decreasing in the last three sampling events. Concentrations of TBA are expected to decrease as natural attenuation continues. Historically, TPHg and benzene have been low or non-detect in all wells since 2005. The most current groundwater sampling event in July 2010 shows that benzene is currently non-detect in 10 wells that were sampled. Therefore, the residual petroleum constituents that remain only pose a low threat to human health, safety, or the environment and are not likely to impair the beneficial uses of Peters Canyon Channel and Newport Bay.

   USEPA National Recommended Water Quality criteria for the protection of freshwater aquatic life for MTBE are 51,000 µg/L (4-day average) and 151,000 µg/L (one-hour average). USEPA National Recommended Water Quality criteria for the protection of freshwater aquatic life for TBA have not been established. From the groundwater data for the most current sampling event in July 2000,

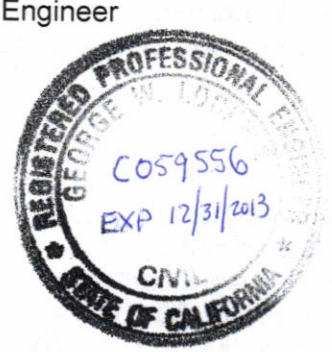
MTBE was detected at 31 µg/L in well MW-13, which is significantly lower than the criteria for the protection of freshwater aquatic life. Therefore, even in the worst case that MTBE from well MW-13 could reach Peters Canyon Channel, it is highly unlikely that the residual MTBE would impair the beneficial uses of the channel.

Recommendation for Closure

The corrective action performed at this Site ensures the protection of human health, safety, the environment and is consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations, applicable state policies for water quality control and the applicable water quality control plan, and case closure is recommended.

Prepared By: Trinh pham — 4/22/2013
Trinh Pham — Date
Water Resource Control Engineer

Reviewed By: GWLockwood — 4/22/2013
George Lockwood, PE#59556 — Date
Senior Water Resource Control Engineer



ATTACHMENT 1: COMPLIANCE WITH STATE WATER BOARD POLICIES AND STATE LAW

The Site complies with the State Water Resources Control Board policies and state law. Section 25296.10 of the Health and Safety Code requires that sites be cleaned up to protect human health, safety, and the environment. Based on available information, any residual petroleum constituents at the Site do not pose significant risk to human health, safety, or the environment.

The site complies with the requirements of the Low-Threat UST Case Closure Policy as described below.[1]

Is corrective action consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations? The corrective action provisions contained in Chapter 6.7 of the Health and Safety Code and the implementing regulations govern the entire corrective action process at leaking UST sites. If it is determined, at any stage in the corrective action process, that UST case closure is appropriate, further compliance with corrective action requirements is not necessary. Corrective action at this Site has been consistent with Chapter 6.7 of the Health and Safety Code and implementing regulations and, since this case meets applicable case-closure requirements, further corrective action is not necessary, unless the activity is necessary for case closure.	☒ Yes ☐ No
Have waste discharge requirements or any other orders issued pursuant to Division 7 of the Water Code been issued at this site?	☐ Yes ☒ No
If so, was the corrective action performed consistent with any order?	☐ Yes ☐ No ☒ NA
General Criteria General criteria that must be satisfied by all candidate sites:	
Is the unauthorized release located within the service area of a public water system?	☒ Yes ☐ No
Does the unauthorized release consist only of petroleum?	☒ Yes ☐ No
Has the unauthorized ("primary") release from the UST system been stopped?	☒ Yes ☐ No
Has free product been removed to the maximum extent practicable?	☐ Yes ☐ No ☒ NA
Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☒ Yes ☐ No
Has secondary source been removed to the extent practicable?	☒ Yes ☐ No

[1] Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☒ Yes ☐ No
Nuisance as defined by Water Code section 13050 does not exist at the site?	☒ Yes ☐ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☒ No
<u>Media-Specific Criteria</u> Candidate sites must satisfy all three of these media-specific criteria: **1. Groundwater:** To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds WQOs must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:	
Is the contaminant plume that exceeds WQOs stable or decreasing in areal extent?	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds WQOs meet all of the additional characteristics of one of the five classes of sites? If YES, check applicable class: ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☒ **5**	☒ Yes ☐ No ☐ NA
For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?	☐ Yes ☐ No ☒ NA
2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies. **Is the site an active commercial petroleum fueling facility?** Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.	☐ Yes ☒ No
a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4? If YES, check applicable scenarios: ☐ **1** ☐ **2** ☒ **3** ☐ **4**	☒Yes ☐ No ☐ NA
b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?	☐ Yes ☐ No ☒ NA

c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA
3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c).	
a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?	☒ Yes ☐ No ☐ NA
b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?	☐ Yes ☐ No ☒ NA

ATTACHMENT 2: SUMMARY OF BASIC INFORMATION (Conceptual Site Model)

Site Location/History

- The Site is located in an industrial park and is approximately 190 feet northwest of Peters Canyon Channel.
- The Site is currently used as an equipment rental and engineering construction headquarters.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system.
- Discovery Date: January 1999.
- Release Type: Petroleum[2].
- 14 monitoring wells have been installed at the Site.
- Free Product: None reported.

Table A: USTs

Tank No.	Size in Gallons	Contents	Status	Date
1	10,000	Gasoline	Removed	January 1999
1	550	Waste Oil	Removed	January 1999
3	10,000	Diesel Fuel	Removed	January 1999

Receptors

- Groundwater Basin: East Coastal Plain.
- Groundwater Beneficial Uses: Municipal and domestic water supply (MUN).
- Designated Land Use: Commercial.
- Public Water System: Irvine Ranch Water District.
- Distance to Nearest Supply Wells: Greater than 1,000 feet.
- Distance to the Nearest Surface Waters: Peters Canyon Channel is ~ 190 feet southeast of well MW-13.

Geology/Hydrogeology

- Minimum Groundwater Depth: ~ 7 feet bgs.
- Maximum Groundwater Depth: ~ 11 feet bgs.
- Geology: The Site is underlain by 30 feet of inorganic mud with lenses of sand. From 30 to 55 feet bgs is a layer of sandy gravel with a trace of mud.
- Hydrology: Groundwater flows to the southeast.

Corrective Actions

- Five USTs and approximately 22 tons of impacted soil were removed in January 1999.
- A pump and treat test was conducted from November 2004 through January 2005 and removed approximately 43,700 gallons of groundwater and 1.1 pounds of total petroleum hydrocarbons.

[2] "Petroleum" means crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute. (Health & Saf. Code, § 25299.2.)

Table B: Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	<0.5	0.04
Ethylbenzene	38	0.22
Naphthalene	<5	0.14
PAHs*	--	--

* Poly-aromatic hydrocarbons as benzo(a)pyrene toxicity equivalent.
-- Not available

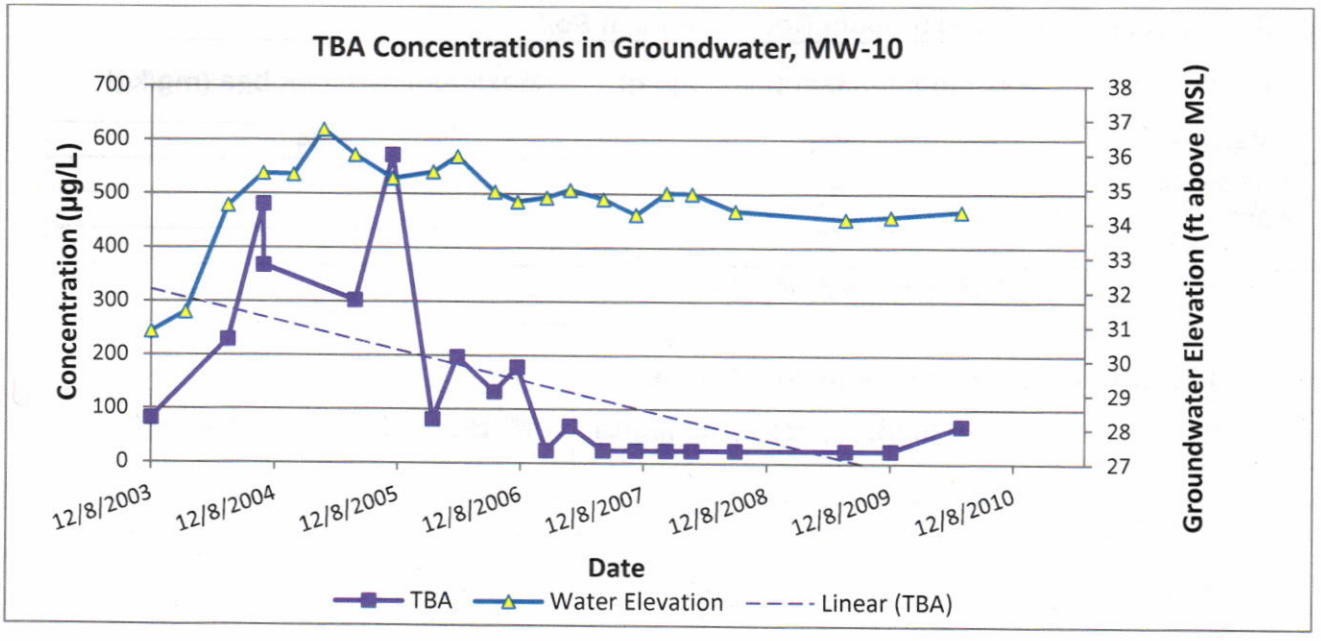
Table C: July 2010 Groundwater Sampling Results

Well No.	TPHg (µg/L)	Benzene (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	--	<1	<3	392
MW-2	--	<1	<3	74
MW-3	--	<1	<3	711
MW-4	--	<1	4.8	418
MW-5	--	<1	5.7	102
MW-6	--	<1	3.1	1,010
MW-7	--	<1	<3	2,740
MW-8	--	--	--	--
MW-9	--	--	--	--
MW-10	--	<1	29	71
MW-11	--	--	--	--
MW-12	--	--	--	--
MW-13	<50	<1	31	206
MW-14	<50	<1	<3	<50
WQO	**5[1]**	**1[2]**	**5[3]**	**12[4]**

- Not available
1 Taste and odor threshold (McKee and Wolf)
2 California Primary Maximum Contaminant Level (MCL)
3 California Secondary MCL
4 California Department of Public Health Notification Level for Drinking Water

Groundwater Trends

Reported TBA concentrations in groundwater have demonstrated stable or decreasing trends over time in all wells, except for well MW-13.

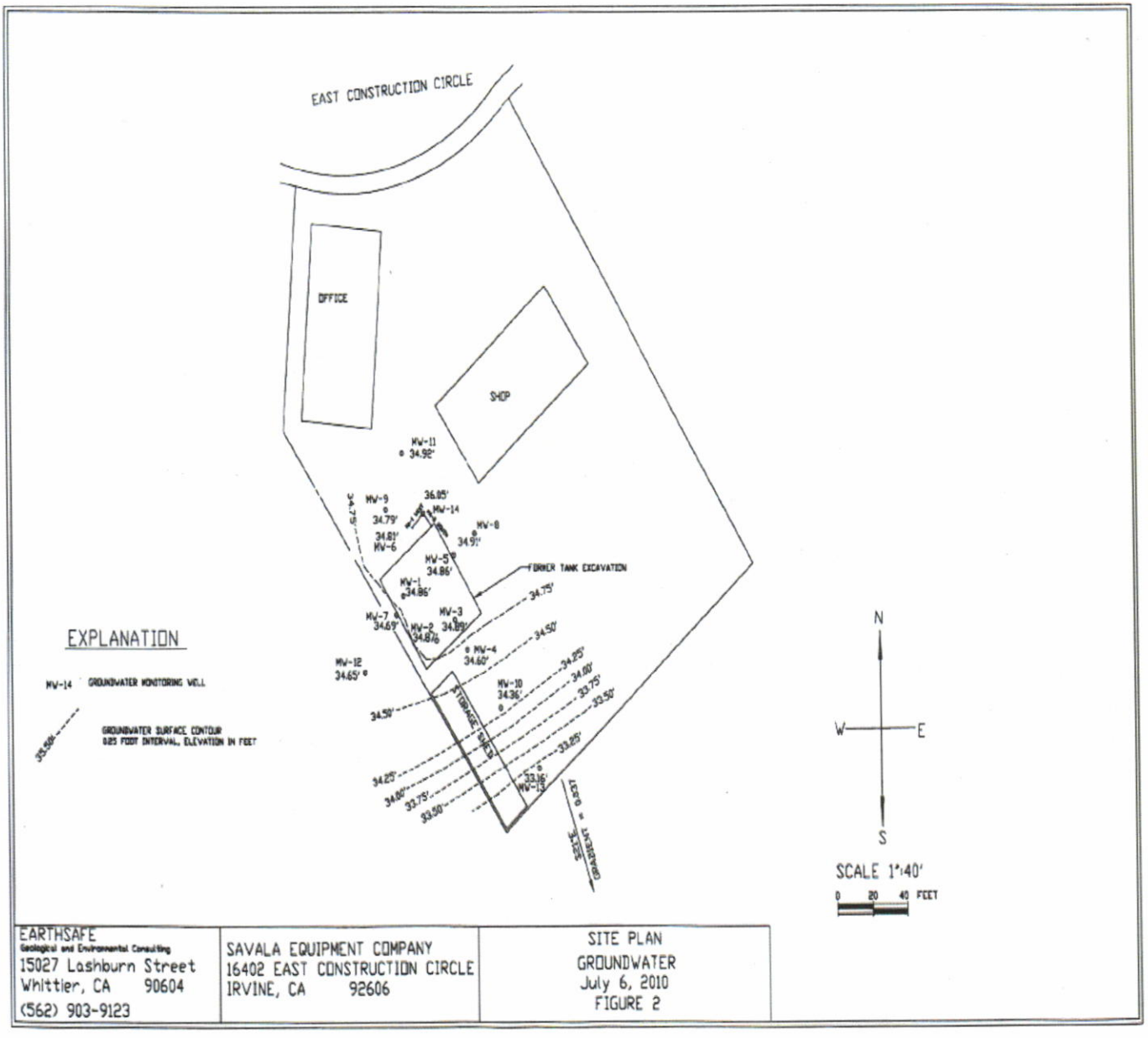


Evaluation of Risk Criteria

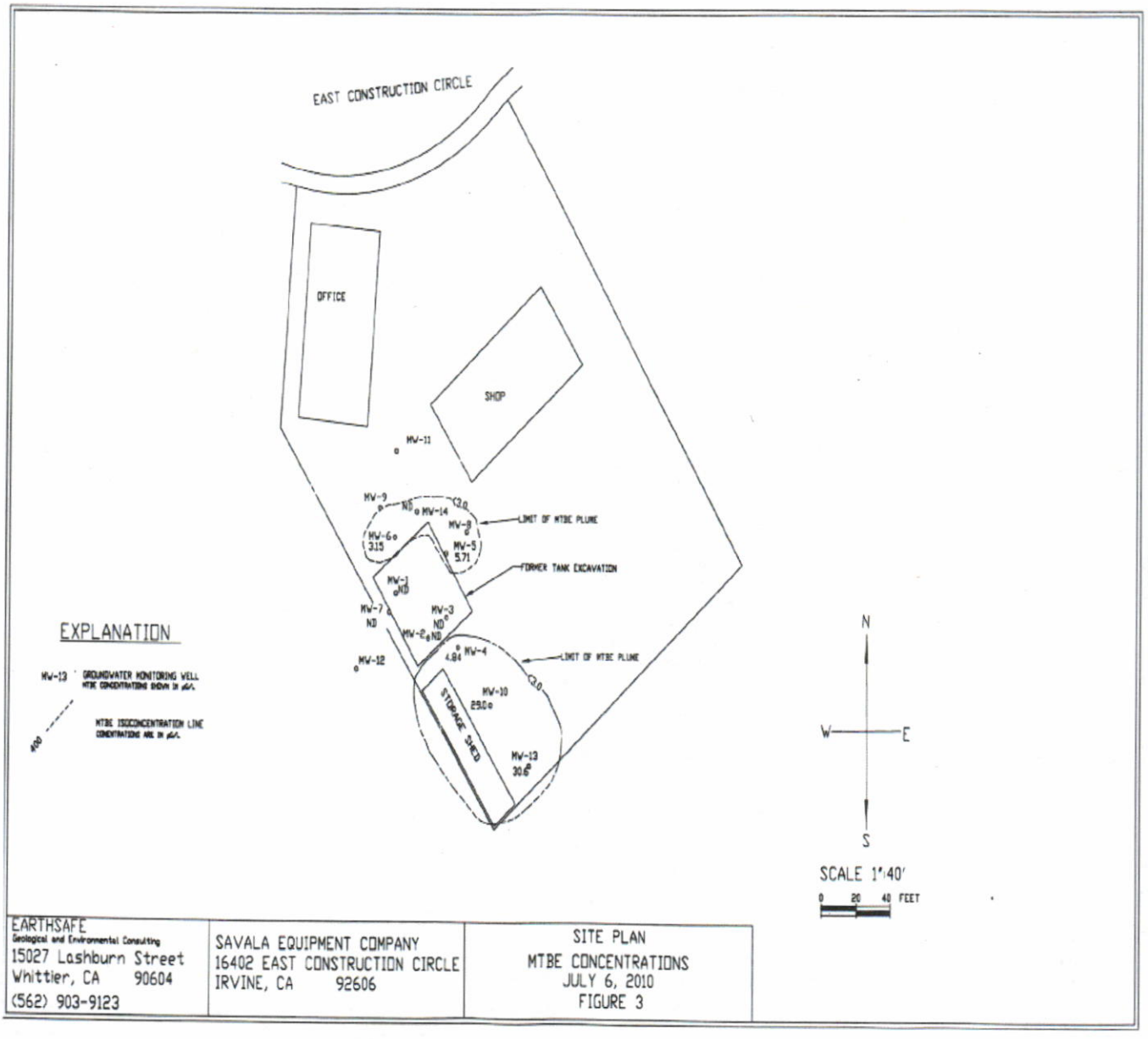
- Maximum Petroleum Constituent Plume Length above WQOs: MTBE groundwater plume is ~ 160 feet, TBA groundwater plume is ~ 210 feet.
- Petroleum Constituent Plume Determined Stable or Decreasing: Yes.
- Soil/Groundwater Sampled for MTBE: Yes, see Table C above.
- Residual Petroleum Constituents Pose Significant Risk to the Environment: No.
- Residual Petroleum Constituents Pose Significant Vapor Intrusion Risk to Human Health: No. Petroleum constituents most likely to pose a threat for vapor intrusion were removed during soil excavation. The residual petroleum constituents in soil and groundwater are acceptable because site conditions are protective of human health.
- Residual Petroleum Constituents Pose a Nuisance[3] at the Site: No.
- Residual Petroleum Constituents in Soil Pose Significant Risk of Adversely Affecting Human Health: No.
- Residual Petroleum Constituents Pose Significant Direct Contact and Outdoor Air Exposure to Human Health: No. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1.

[3] Nuisance as defined in California Water Code, section 13050, subdivision (m).

SITE MAP


EAST CONSTRUCTION CIRCLE
OFFICE
SHOP
FORMER TANK EXCAVATION
EXPLANATION
MW-14 GROUNDWATER MONITORING WELL
GROUNDWATER SURFACE CONTOUR
0.25 FOOT INTERVAL, ELEVATION IN FEET
N
W
E
S
SCALE 1"=40'
0 20 40 FEET
EARTHSAFE
Geological and Environmental Consulting
15027 Lashburn Street
Whittier, CA 90604
(562) 903-9123
SAVALA EQUIPMENT COMPANY
16402 EAST CONSTRUCTION CIRCLE
IRVINE, CA 92606
SITE PLAN
GROUNDWATER
July 6, 2010
FIGURE 2

MTBE IN GROUNDWATER (µg/L) – JULY 2010



TBA IN GROUNDWATER (µg/L) – JULY 2010