UST CASE CLOSURE SUMMARY

Agency Information

Agency Name: North Coast Regional Water Quality Control Board (Regional Water Board)	Address: 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403
Agency Caseworker: Jo Bentz	Case No.: 1TSR063

Case Information

USTCF Claim No.: 6719	Global ID: T0609700585
Site Name: 76 Station No. 5658/5105	Site Address: 1950 Guerneville Road Santa Rosa, CA 95403 (Site)
Petitioner: ConocoPhillips Company Attention: Ed Ralston	Address: 76 Broadway Street Sacramento, CA 95818
USTCF Expenditures to Date: $0	Number of Years Case Open: 18

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609700585

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 June 1989 and October 1995. During the USTs removal, approximately 25 cubic yards (cy) and 360 cy of impacted soil were excavated in June 1989 and October 1995, respectively. The Site is an operating petroleum fueling facility. The Site is located in a mixed commercial and residential area.

Total petroleum hydrocarbons as gasoline (TPHg), benzene, methyl tert-butyl ether (MTBE), and tert-butyl alcohol (TBA) in the groundwater are either non-detect or have established a decreasing concentration trend in all wells, except for the TBA trend in monitoring well (MW) MW-1D. However, TBA concentrations in well MW-1D have been decreasing for three consecutive sampling events (since May 2012). The current TBA concentration in well MW-1D is below the California Department of Public Health Notification Level for Drinking Water.

The primary source has been removed and the secondary source has been removed to the extent practicable through excavation at the time of UST removal. Soil and groundwater have been evaluated to determine the extent and mobility of the release. Minimal residual mass remains beneath the Site. 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." 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 human health, safety, and environment because:
  - The plume is stable.
  - TPHg and benzene in groundwater are non-detect in all wells.
  - Natural attenuation appears to be established as evidenced by stable or decreasing groundwater concentration trends for MTBE and TBA in all wells, except for the TBA trend for well MW-1D. However, TBA concentrations in well MW-1D have been decreasing for three consecutive sampling events (since May 2012). The current TBA concentration in well MW-1D is below the California Department of Public Health Notification Level for Drinking Water.
  - No receptor has been identified on the west-southwest (down-gradient) of the Site (in the Safeway parking lot).
  - The closest private domestic supply well is located approximately 195 feet north (up-gradient) of the Site. TPHd, TPHg, and benzene have never been detected in the un-treated samples for this well. MTBE concentration in the un-treated samples has been below the WQO for five consecutive sampling events (since February 2012). Therefore, the residual petroleum constituents that remain are not likely to pose a threat to human health, safety, the environment, or to impact the water quality of the receptor.

- Petroleum Vapor Intrusion to Indoor Air – Site meets the exception for vapor intrusion to indoor air. The Site is an active petroleum fueling facility and has no release characteristics that can be reasonably believed to pose an unacceptable health risk.

- 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. The estimated naphthalene concentrations in soil meet the thresholds in Table 1 for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

Objections to Closure

Regional Water Board staff objected to UST case closure because:

1. The lateral and vertical extent of the shallow MTBE and TBA plume and whether the plume is stable or decreasing in areal extent have not been determined.

   Response: Lateral and vertical extent of shallow MTBE and TBA have been adequately defined. To the west of source-area well MW-7, groundwater samples were collected at a depth of 34 feet in the off-site boring CPT-3 in 2010 and the concentrations were below the WQO for MTBE and

non-detect for TBA. Before well MW-4 was destroyed in 1996, dissolved MTBE was non-detect. MTBE was tested using EPA Method 8021B for these sampling events. The screen interval for well MW-4 is 7.5 feet to 22.5 feet below ground surface (bgs). To the southwest of the Site, MTBE was detected at a concentration below the WQO and TBA was non-detect in well MW-8. The screen interval for well MW-8 is from 10 to 25 feet bgs. Well MW-5 (down-gradient from well MW-7) was non-detect for TPHd, TPHg, and benzene in groundwater samples collected from January 1994 to October 1995.

MTBE and TBA in groundwater are either non-detect or have established a decreasing concentration trend in all shallow wells. Therefore, natural attenuation appears to be established and the plume is stable. The Sensitive Receptor Survey does not identify any domestic well on the west-southwest of the Site (in the Safeway parking lot).

Based on these considerations, the residual MTBE and TBA that remain only pose a low threat to human health, safety, or the environment.

2. Site Conceptual Model for deeper groundwater is incomplete. More work is needed to characterize deeper groundwater, including flow direction, horizontal and vertical gradient, plume extent, and whether the plume is stable or decreasing in areal extent.
   Response: MTBE in groundwater has established a decreasing concentration trend in the deep well MW-1D. Dissolved TBA concentrations have been decreasing for three consecutive sampling events since May 2012 in well MW-1D. In addition, the most current groundwater results indicate that MTBE and TBA concentrations were below the WQO in well MW-1D and non-detect in the boring CPT-3 (down-gradient) at 46 feet and 75 feet. Therefore, the plume by Policy criteria definition is stable.

   Petroleum constituents have been analyzed from well MW-1D and the borings CPT-1 through CPT-3. Petroleum contaminant plume, including MTBE and TBA, in deeper groundwater have been adequately defined. Based on information provided in the record, deep groundwater flow direction is to the west or south-southwest.

3. The distance to the nearest receptor and potential threat to receptors from groundwater contamination at the Site have not been determined.
   Response: The closest domestic supply well is located approximately 195 feet north (up-gradient) of the Site and is closer to another open UST site (approximately 30 feet to this open UST site). TPHd, TPHg, and benzene have never been detected in the un-treated samples for this well. MTBE concentration in the un-treated samples has been below the WQO for five consecutive sampling events (since February 2012). After being treated, the sampling results for this well were non-detect for MTBE.

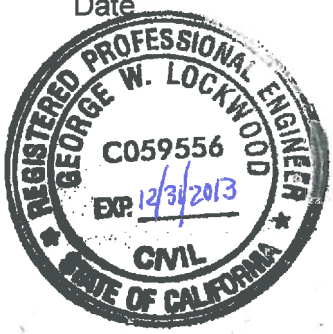
   Continued production from the aquifer will reduce/remove any remaining residual MTBE from the aquifer and is technically the most economical and only effective form of continued treatment. MTBE concentration will eventually reach non-detect over time. Therefore, the residual petroleum constituents that remain are not likely to pose a threat to human health, safety, the environment, or to impact beneficial uses.

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 — 7/9/2013
Trinh Pham — Date
Water Resource Control Engineer

Reviewed By: George Lockwood — 7/9/2013
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
<u>General Criteria</u> 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
Does nuisance as defined by Water Code, section 13050 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
Media-Specific Criteria 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	☐ Yes ☐ No ☒ NA

to the satisfaction of the regulatory agency?	
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 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

- Location: The Site is located on the southeast corner of the intersection of Marlow Road and Guerneville Road in a mixed commercial and residential area. The Site is an operating petroleum fueling facility.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system.
- Discovery Date: June 1989.
- Release Type: Petroleum[2].
- Free Product: None reported.

Table A: USTs

Tank No.	Size in Gallons	Contents	Status	Date
1	280	Waste Oil	Removed	January 1989
2	10,000	Gasoline	Removed	October 1995

Receptors

- Groundwater Basin: Santa Rosa sub-basin.
- Groundwater Beneficial Uses: Municipal and domestic water supply (MUN).
- Designated Land Use: Commercial.
- Public Water System: Sonoma County Water Agency.
- Distance to Nearest Supply Wells: The nearest domestic supply well is approximately 195 feet north (up-gradient) of the Site.
- Distance to the Nearest Surface Waters: Greater than 1,000 feet.

Geology/Hydrogeology

- Minimum Groundwater Depth: ~11 feet bgs.
- Maximum Groundwater Depth: ~16 feet bgs.
- Geology: The Site is underlain by fill materials to a depth of approximately one to four feet bgs. The fill materials are underlain by alluvium which consists predominantly of an irregularly interbedded sequence of clay, sandy clay, sandy silt, clayey sand, silty sand, and sand with gravel to 75 feet bgs.
- Hydrology: Several water-bearing units have been identified beneath the Site. Unit A comprises the water table aquifer and occurs at approximately 28 to 34 feet bgs and has variable thickness. Unit B occurs at approximately 46 to 54 feet bgs and has variable thickness. Unit C comprises a series of relatively coarse-grained beds, is approximately 5 feet thick, and occurs at depths ranging from 64 to 75 feet bgs. The historical shallow groundwater Unit A flow direction is predominantly to the south-southwest. The deep groundwater Unit B flow direction is to the west or south-southwest.

[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.)

Corrective Actions

- Three USTs and approximately 385 cy of impacted soil were removed in June 1989 and October 1995.
- 13 monitoring wells and 13 soil borings have been constructed at the Site.

Table B: Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	<0.05	0.015
Ethylbenzene	0.014	<0.1
Naphthalene	Not Analyzed	Not Analyzed
PAHs*	Not Analyzed	Not Analyzed

*Poly-aromatic hydrocarbons as benzo(a)pyrene toxicity equivalent

Table C: February 2013 Groundwater Sampling Results

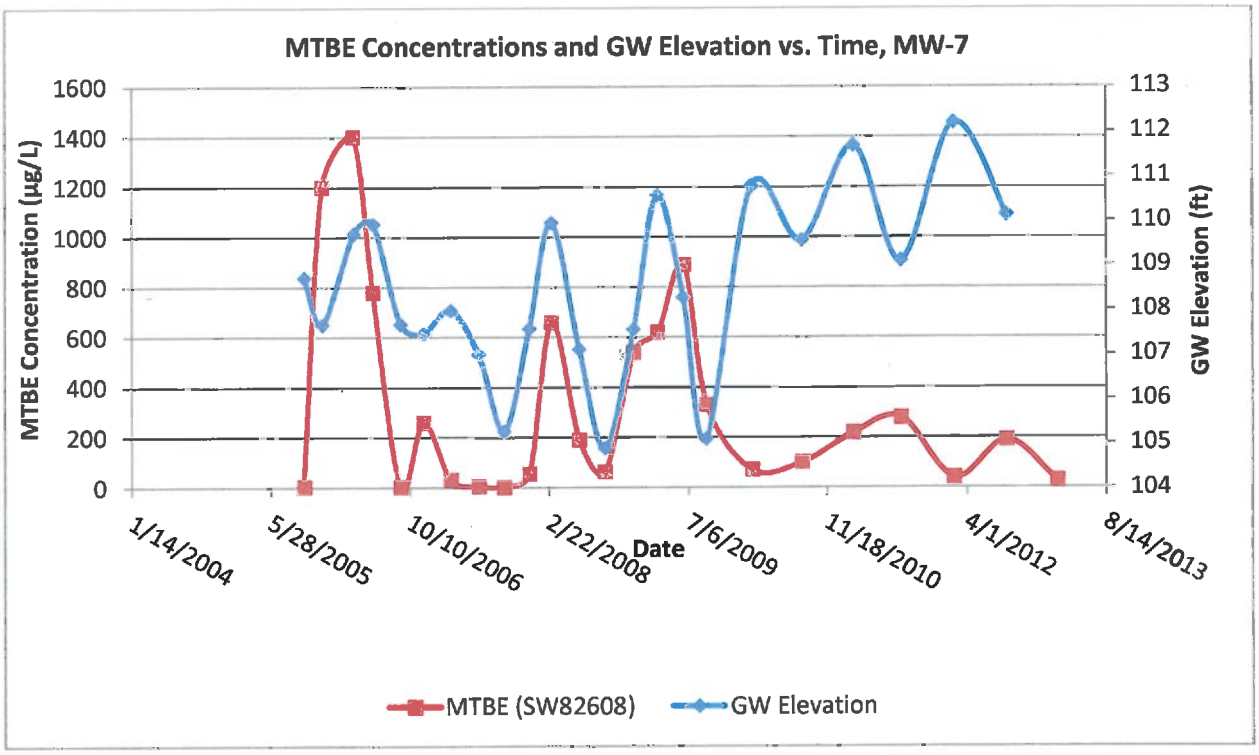
Well No.	DRO/TPHd (µg/L)	TPHg (µg/L)	Benzene (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1	<50	<50	<0.5	190	5.2
MW-1D	<50	<50	<0.5	0.72	11
MW-3	<50	<50	<0.5	<0.5	<5
MW-6	Not available	Not available	Not available	Not available	Not available
MW-7	<50	<50	<0.5	27	380
MW-8	<50	<50	<0.5	1.9	<5
MW-9	Not available	Not available	Not available	Not available	Not available
MW-10	<50	<50	<0.5	1.6	<5
MW-11	<50	<50	<0.5	3.2	<5
MW-12	<50	<50	<0.5	1.2	<5
WQO	**100[1]**	**5[2]**	**1[3]**	**5[4]**	**12[5]**

1	Taste and odor threshold (USEPA Health Advisory)
2	Taste and odor threshold (McKee and Wolf)
3	California Primary Maximum Contaminant Level (MCL)
4	California Secondary MCL
5	California Department of Public Health Notification Level for Drinking Water

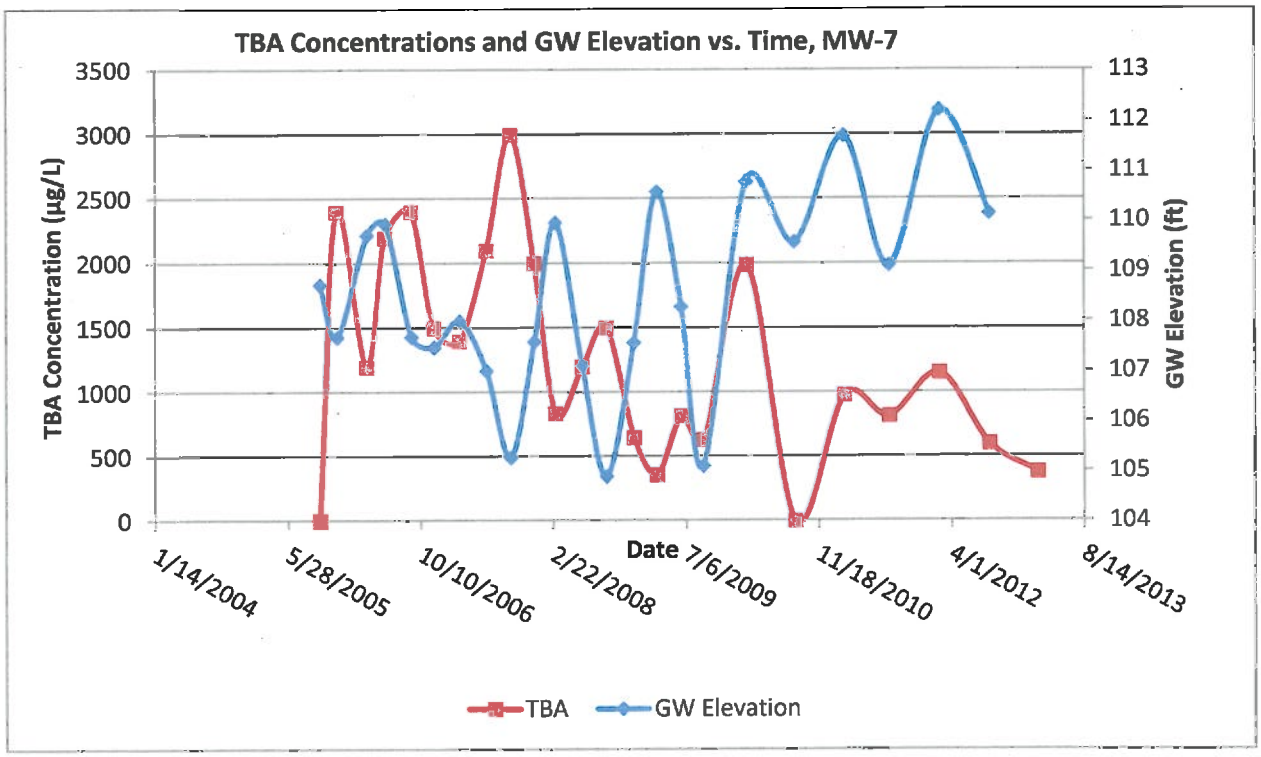
Groundwater Trends

MTBE and TBA in groundwater are either non-detect or have established a decreasing concentration trend in all wells, except for the TBA trend in well MW-1D. However, TBA concentrations in well MW-1D have been decreasing for three consecutive sampling events since May 2012. The current TBA concentration in well MW-1D is below the California Department of Public Health Notification Level for Drinking Water.

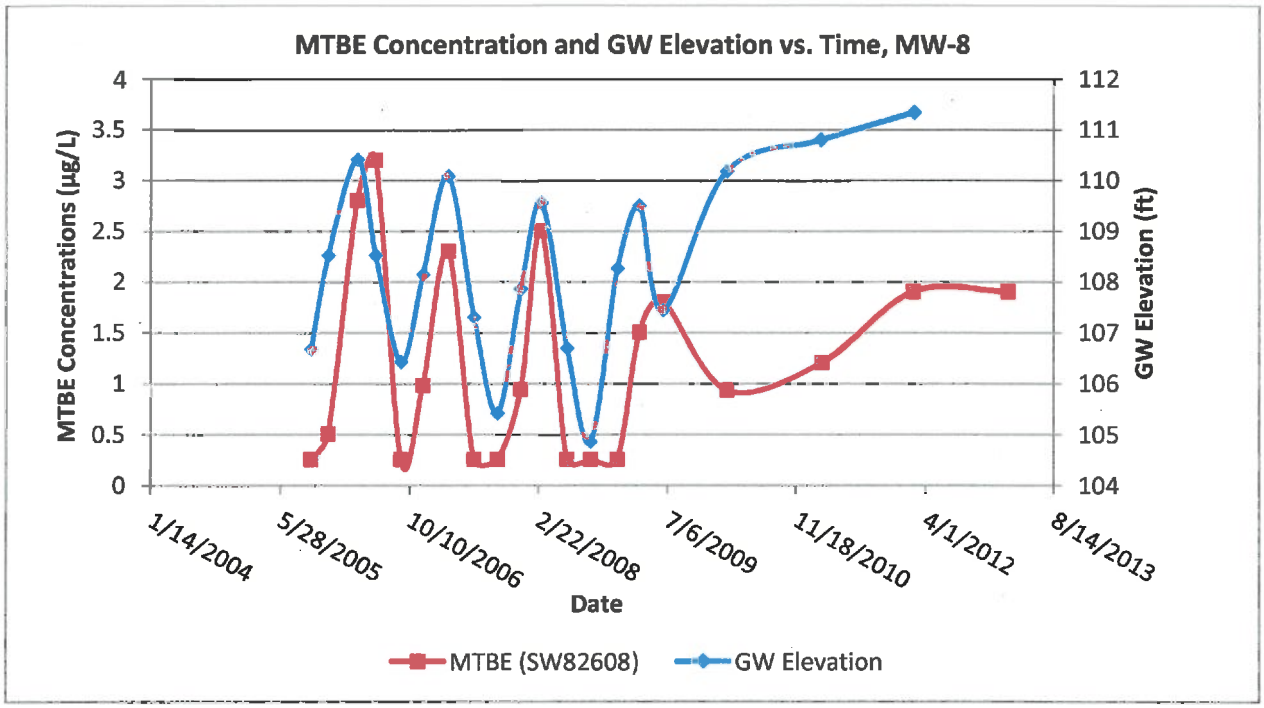
MTBE IN GROUNDWATER (µg/L) (FEBRUARY 2013), WELL MW-7



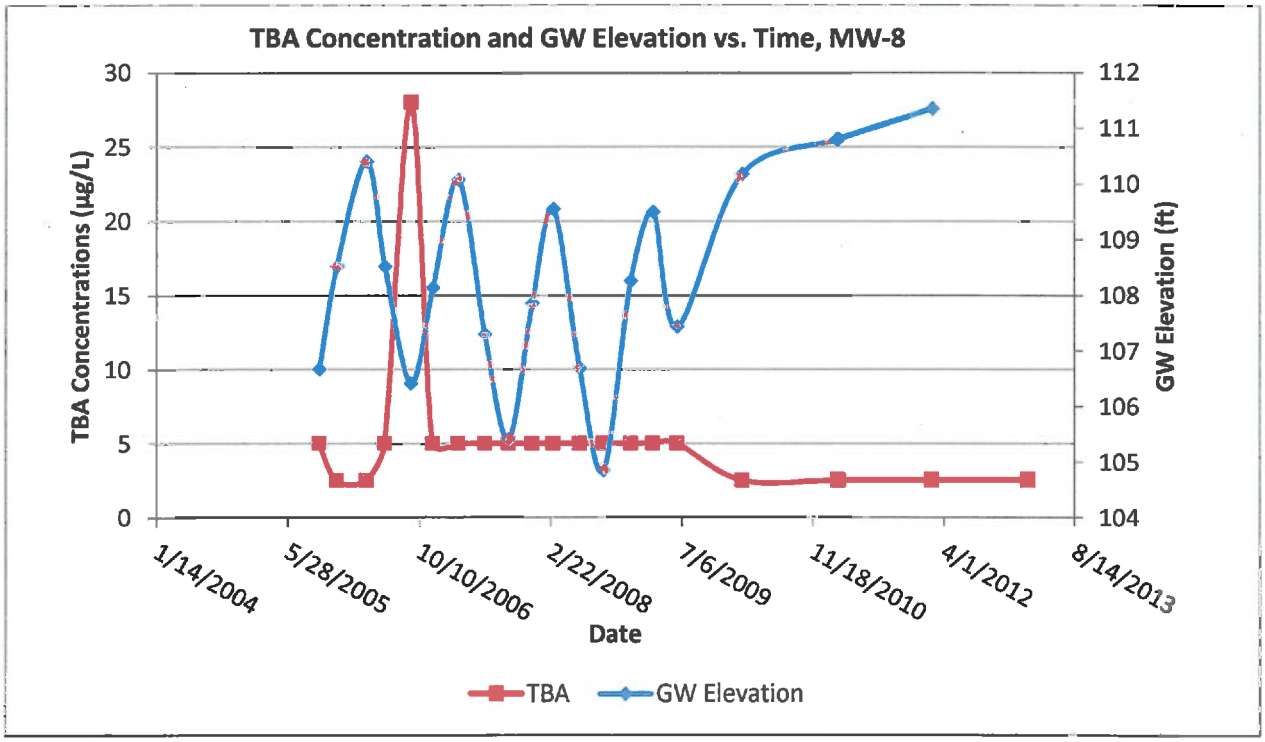
TBA IN GROUNDWATER (µg/L) (FEBRUARY 2013), WELL MW-7



MTBE IN GROUNDWATER (µg/L) (FEBRUARY 2013), WELL MW-8



TBA IN GROUNDWATER (µg/L) (FEBRUARY 2013), WELL MW-8

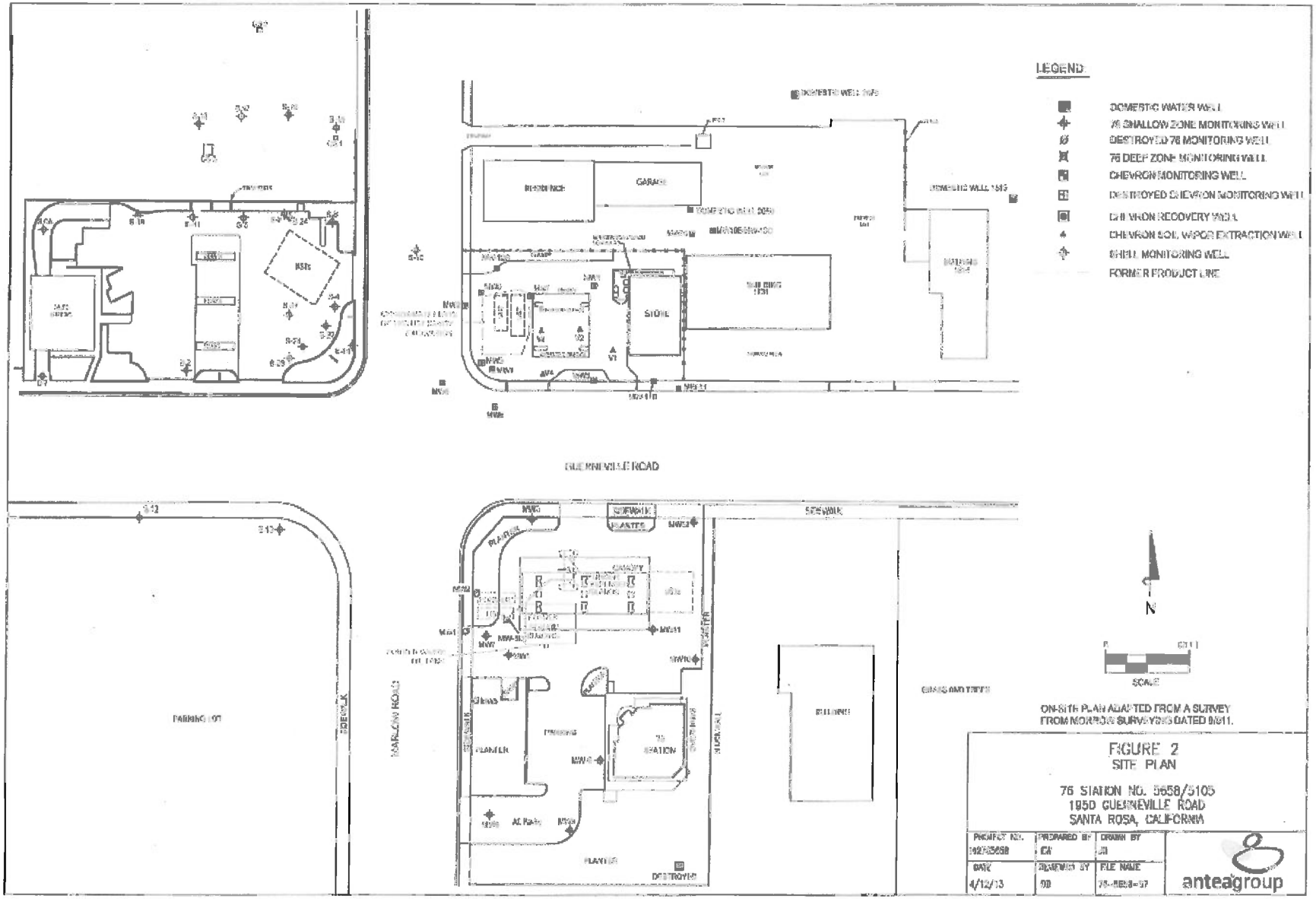


Evaluation of Risk Criteria

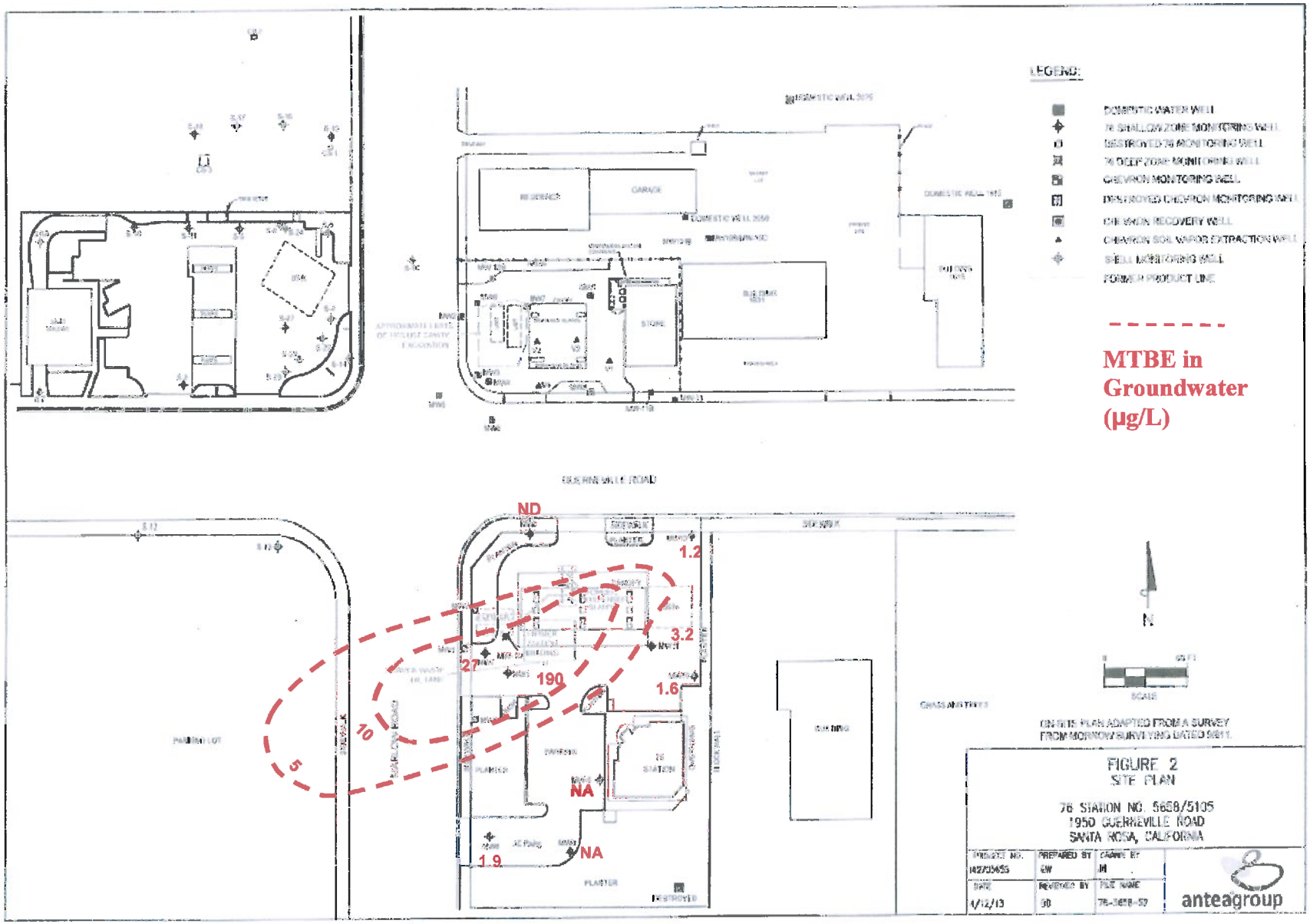
- Maximum Petroleum Constituent Plume Length above WQOs: MTBE groundwater plume is ~ 300 feet, TBA groundwater plume is ~ 200 feet.
- Petroleum Constituent Plume Determined Stable or Decreasing: Yes.
- Soil/Groundwater Sampled for MTBE: Yes, see Table C above.
- Residual Petroleum Constituents Pose Significant 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. There are no soil sample results in the case record for naphthalene. However, the relative concentration of naphthalene in soil can be conservatively estimated using the published relative concentrations of naphthalene and benzene in gasoline. Taken from Potter and Simmons (1998), gasoline mixtures contain approximately 2 percent benzene and 0.25 percent naphthalene. Therefore, benzene concentrations can be directly substituted for naphthalene concentrations with a safety factor of eight. Benzene concentrations from the Site are below the naphthalene thresholds in Table 1. Therefore, estimated naphthalene concentrations meet the thresholds in Table 1 for direct contact by a factor of eight. It is highly unlikely that naphthalene concentrations in the soil, if any, exceed the threshold.

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

SITE MAP


LEGEND
DOMESTIC WATER WELL
76 SHALLOW ZONE MONITORING WELL
DESTROYED 76 MONITORING WELL
76 DEEP ZONE MONITORING WELL
CHEVRON MONITORING WELL
DESTROYED CHEVRON MONITORING WELL
CHEVRON RECOVERY WELL
CHEVRON SOIL VAPOR EXTRACTION WELL
SHELL MONITORING WELL
FORMER PRODUCT LINE
GARAGE
STORE
GUERNEVILLE ROAD
SIDEWALK
PLANTER
PARKING LOT
MARALDO ROAD
76 STATION
DESTROYED
N
SCALE
ON-SITE PLAN ADAPTED FROM A SURVEY FROM MORROW SURVEYING DATED 8/611.
FIGURE 2
SITE PLAN
76 STATION NO. 5658/5105
1950 GUERNEVILLE ROAD
SANTA ROSA, CALIFORNIA
PROJECT NO.
PREPARED BY
DRAWN BY
CA
JB
DATE
REVIEWED BY
FILE NAME
4/12/13
SD
anteagroup

MTBE IN GROUNDWATER (µg/L) – FEBRUARY 2013



TBA IN GROUNDWATER (µg/L) – FEBRUARY 2013