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: Kasey Ashley	Case No.: 1TMC054

Case Information

USTCF Claim No.: 445	Global ID: T0604500046
Site Name: Former Food & Liquor No. 166	Site Address: 180 North Main Street, Willits, CA 95490 (Site)
Petitioner: Tower Energy Group Attention: Mark Vasey	Address: 1983 West 190th Street Torrance, CA 90504
USTCF Expenditures to Date: $342,561	Number of Years Case Open: 23

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0604500046

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 and replaced in 1989. During the USTs removal, approximately 100 cubic yards (cy) of impacted soil were excavated. There is currently an active fueling facility on Site.

Based on the historical groundwater data, groundwater concentration trends for total petroleum hydrocarbons as gasoline (TPHg), benzene, methyl tert-butyl ether (MTBE), and tert-butyl alcohol (TBA) have been either stable or decreasing in all groundwater monitoring wells. Petroleum constituents have been monitored in Mill Creek since 2003. Historical data indicate that MTBE was only detected two times in Mill Creek. These detections were below the water quality objective (WQO). TBA was detected once at 16 µg/L in the creek. Petroleum constituents have not been detected in Mill Creek since 2004.

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 WQOs will be achieved within a reasonable time frame.

  Site conditions only pose a low threat to groundwater and Mill Creek because:
  - The plume is stable.
  - Natural attenuation appears to be established as evidenced by stable or decreasing groundwater concentration trends for TPHg, benzene, MTBE, and TBA in all groundwater monitoring wells and MTBE and TBA have not been detected in Mill Creek since 2004.
  - 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. The most current groundwater sampling event in August 2012 indicated that MTBE was detected at 8.7 µg/L in well MW-4, which is significantly lower than the criteria for the protection of freshwater aquatic life. Therefore, even in the worst case that MTBE plume could migrate to Mill Creek, it is highly unlikely that the residual MTBE would impair the beneficial uses of the creek.

- 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 groundwater plume is not fully defined to the south of well MW-4.

   Response: Dissolved concentrations of benzene and MTBE are at or near the WQOs. The concentration trend for TPHg in the groundwater has been decreasing in well MW-4. Historical data indicate that MTBE was only detected two times in Mill Creek. These detections were below

the WQO. TBA was detected once at 16 µg/L in the creek. Petroleum constituents have never been detected in Mill Creek since 2004. Also, to the south-southwest of well MW-4, petroleum constituents have never been detected in well MW-7. Therefore, the plume is adequately defined to the south of well MW-4.

2. A threatened discharge to Mill Creek remained unabated.

   Response: Petroleum constituents have been monitored in Mill Creek since 2003. Historical data indicate that MTBE was only detected two times in Mill Creek. These detections were below the WQO. TBA was detected once at 16 µg/L in the creek. Petroleum constituents have never been detected in Mill Creek since 2004.

   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. The most current groundwater sampling event in August 2012 indicated that MTBE was detected at 8.7 µg/L in well MW-4, which is significantly lower than the criteria for the protection of freshwater aquatic life. Therefore, even in the worst case that MTBE plume could migrate to Mill Creek, it is highly unlikely that the residual MTBE would impair the beneficial uses of the creek.

   Based on the above information, 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 Mill Creek.

3. Natural attenuation has not been established between well MW-4 and Mill Creek.

   Response: Historical groundwater data have demonstrated that groundwater concentration trends for TPHg, benzene, MTBE, and TBA have been either stable or decreasing in all wells. Also, since no MTBE or TBA has been detected since 2004, natural attenuation appears to be established.

4. In the absence of a well-defined groundwater plume, decreasing trends may be primarily attributed to mixing, dispersion, and dilution.

   Response: Based on the most current groundwater data in August 2012, the plume is adequately defined as evidenced by the non-detect wells on the north (well MW-2a), west (well MW-1a), east (well MW-6), and south (well MW-7).

   Historical data indicate that MTBE was only detected two times in Mill Creek. These detections were below the WQO. TBA was detected once at 16 µg/L in the creek. Petroleum constituents have never been detected in Mill Creek since 2004.

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 — 4/3/2013
Trinh Pham — Date
Water Resource Control Engineer

Reviewed By: G Lockwood — 4/3/2013
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
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 on the northwest corner of North Main Street (Highway 101) and Bittenbender Lane in Willits. The Site is an operating petroleum fueling facility.
- The Site is bounded by commercial facilities to the north, south, and east along North Main Street and to the west by a steep hill bodering a residential neighborhood. The Site is located approximately 30 feet north of Mill Creek.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system.
- Discovery Date: April 1989.
- Release Type: Petroleum[2].
- Eight monitoring wells have been installed at the Site.
- Free Product: None reported.

Table A: USTs

Tank	Size in Gallons	Contents	Status	Date
2 USTs	10,000	Gasoline	Removed	April 1989
1 UST	500	Waste Oil	Removed	April 1989

Receptors

- Groundwater Basin: North Coastal.
- Groundwater Beneficial Uses: Municipal and domestic water supply (MUN).
- Designated Land Use: Commercial.
- Public Water System: City of Willits Water Department.
- Distance to Nearest Supply Wells: Greater than 1,000 feet.
- Distance to the Nearest Surface Waters: Mill Creek is ~ 30 feet south of the Site.

Geology/Hydrogeology

- Average Groundwater Depth: ~ 13 feet bgs.
- Geology: Soil types vary significantly across the Site. On the western portion of the Site, the lithology consists of bedded chert. On the eastern portion of the Site, a light gray clayey soil is present.
- Hydrology: Groundwater flows to the southeast.

Corrective Actions

- Three USTs and approximately 100 cy of impacted soil were removed in April 1989.
- A dual phase extraction test was performed in April 2008.

[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	<0.005	<0.005
Ethylbenzene	<0.005	<0.005
Naphthalene	Not Analyzed	Not Analyzed
PAH*	Not Analyzed	Not Analyzed

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

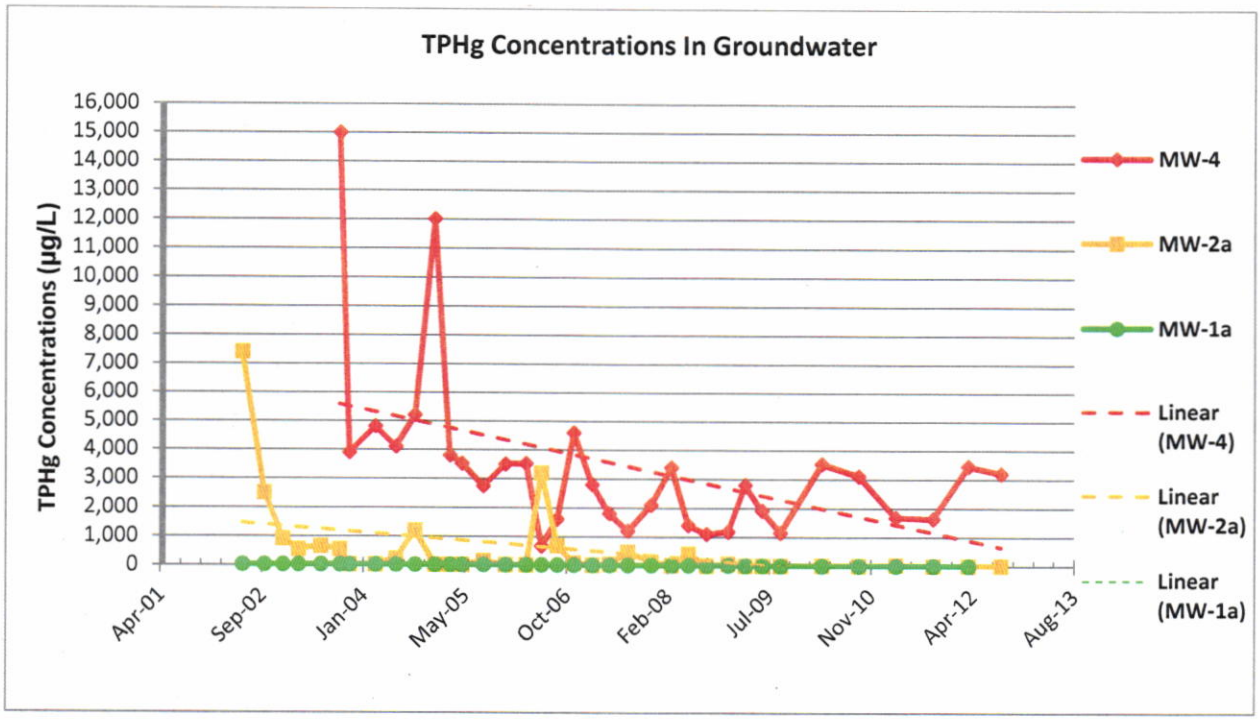
Table C: August 2012 Groundwater Sampling Results

Well No.	TPHg (µg/L)	Benzene (µg/L)	MTBE (µg/L)	TBA (µg/L)
MW-1a	<20	<0.2	<0.2	<2.4
MW-2a	<20	<0.2	0.36	<2.4
MW-3a	<20	<0.2	<0.2	<2.4
MW-4	3,200	1.2	8.7	9.5
MW-5	<20	<0.2	6.8	<2.4
MW-6	<20	<0.2	<0.2	<2.4
MW-7	NA	NA	NA	NA
MW-8	NA	NA	NA	NA
WQO	**5[1]**	**1[2]**	**5[3]**	**12[4]**

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
NA	Not available

Groundwater Trends

Reported TPHg in groundwater has demonstrated stable or decreasing trends over time in all wells.

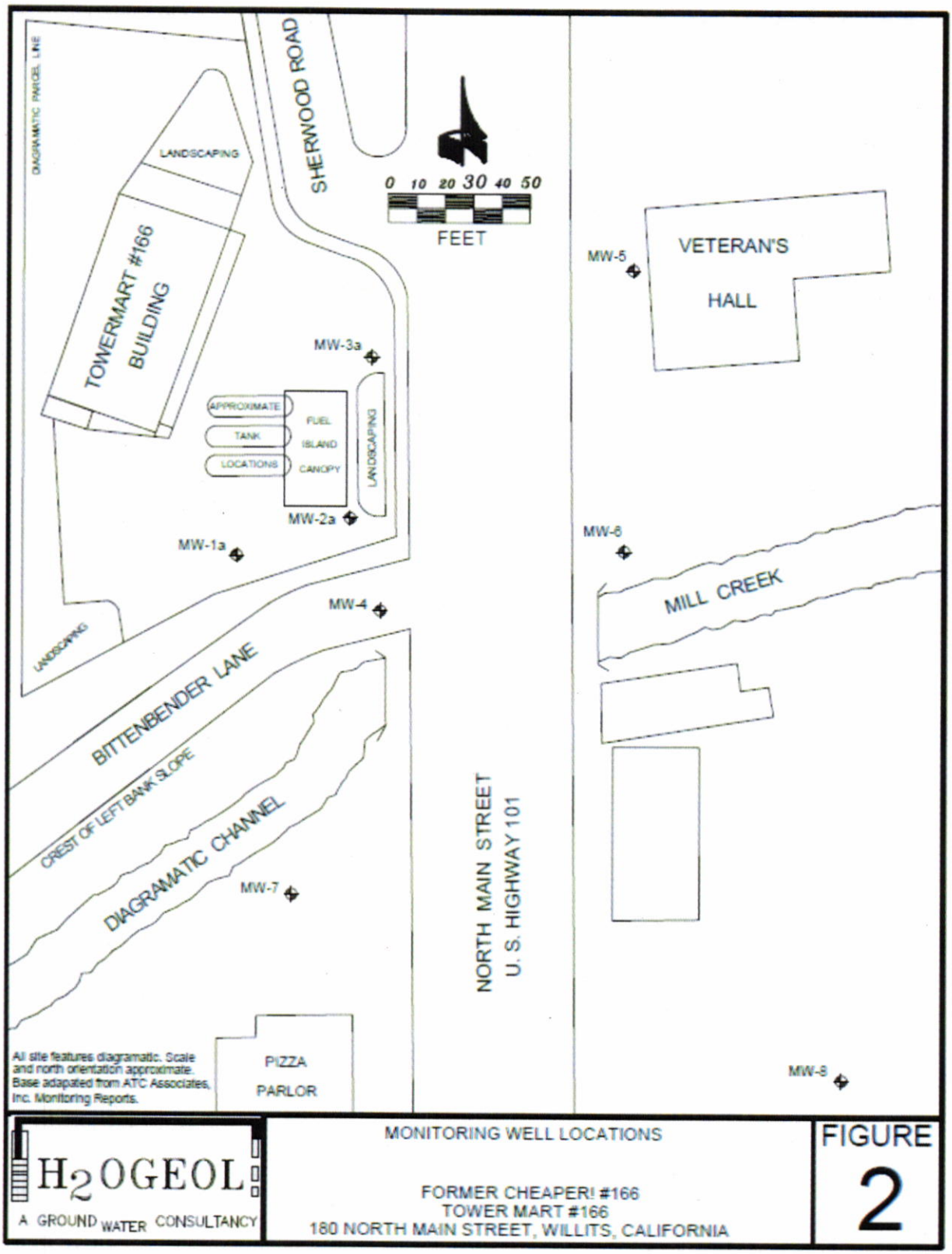


Evaluation of Risk Criteria

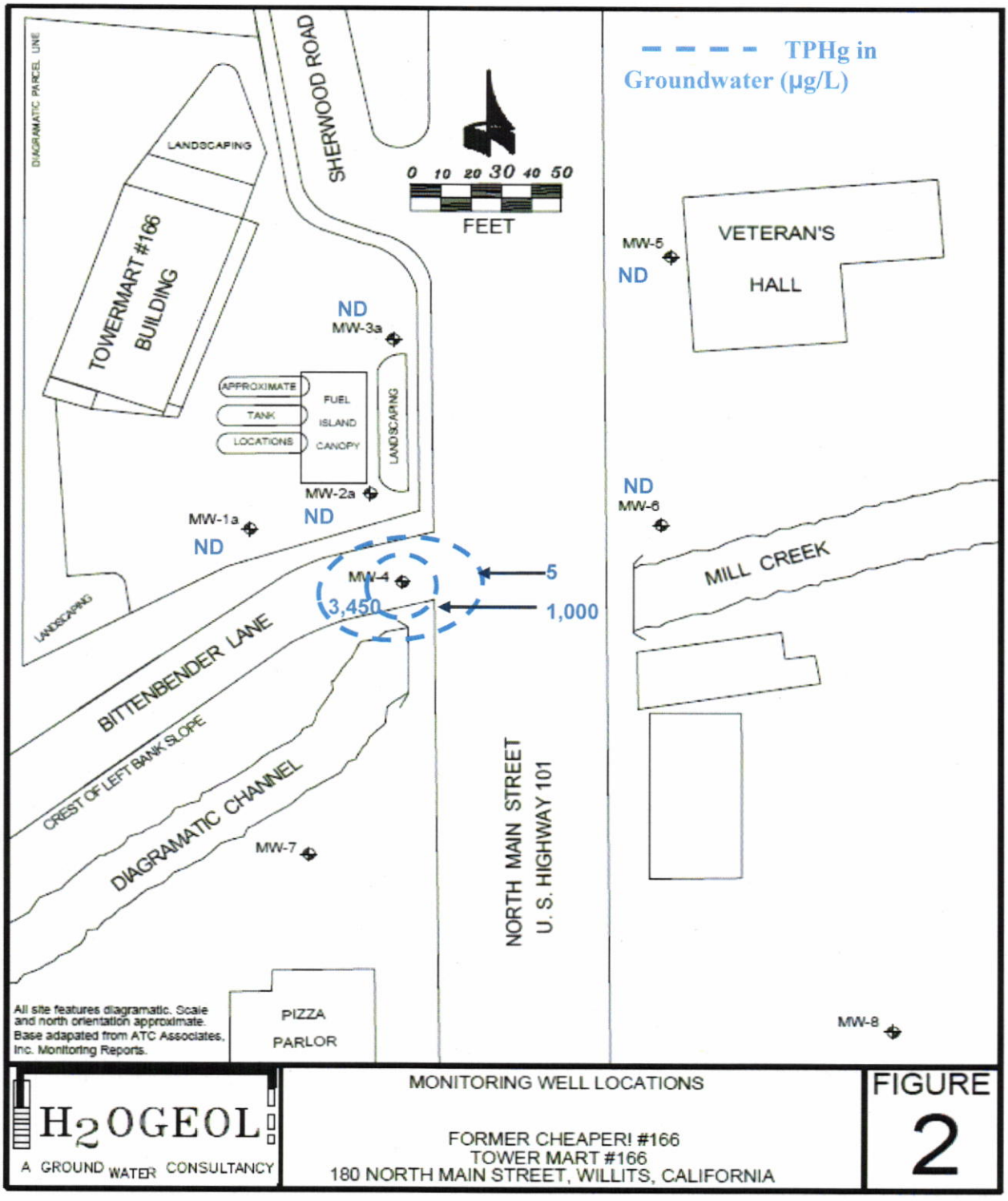
- Maximum Petroleum Constituent Plume Length above WQOs: TPHg groundwater plume is ~ 60 feet, benzene groundwater plume is ~ 60 feet, MTBE groundwater plume is ~ 60 feet.
- Petroleum Constituent Plume Determined Stable or Decreasing: Yes.
- Soil/Groundwater Sampled for MTBE: Yes, see Table C above.
- Residual Petroleum Constituents Pose Significant Risk to the Environment: No.
- Residual Petroleum Constituents Pose Significant Vapor Intrusion Risk to Human Health: No. Site meets exception for active petroleum fueling facility. 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 of the Policy. 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).

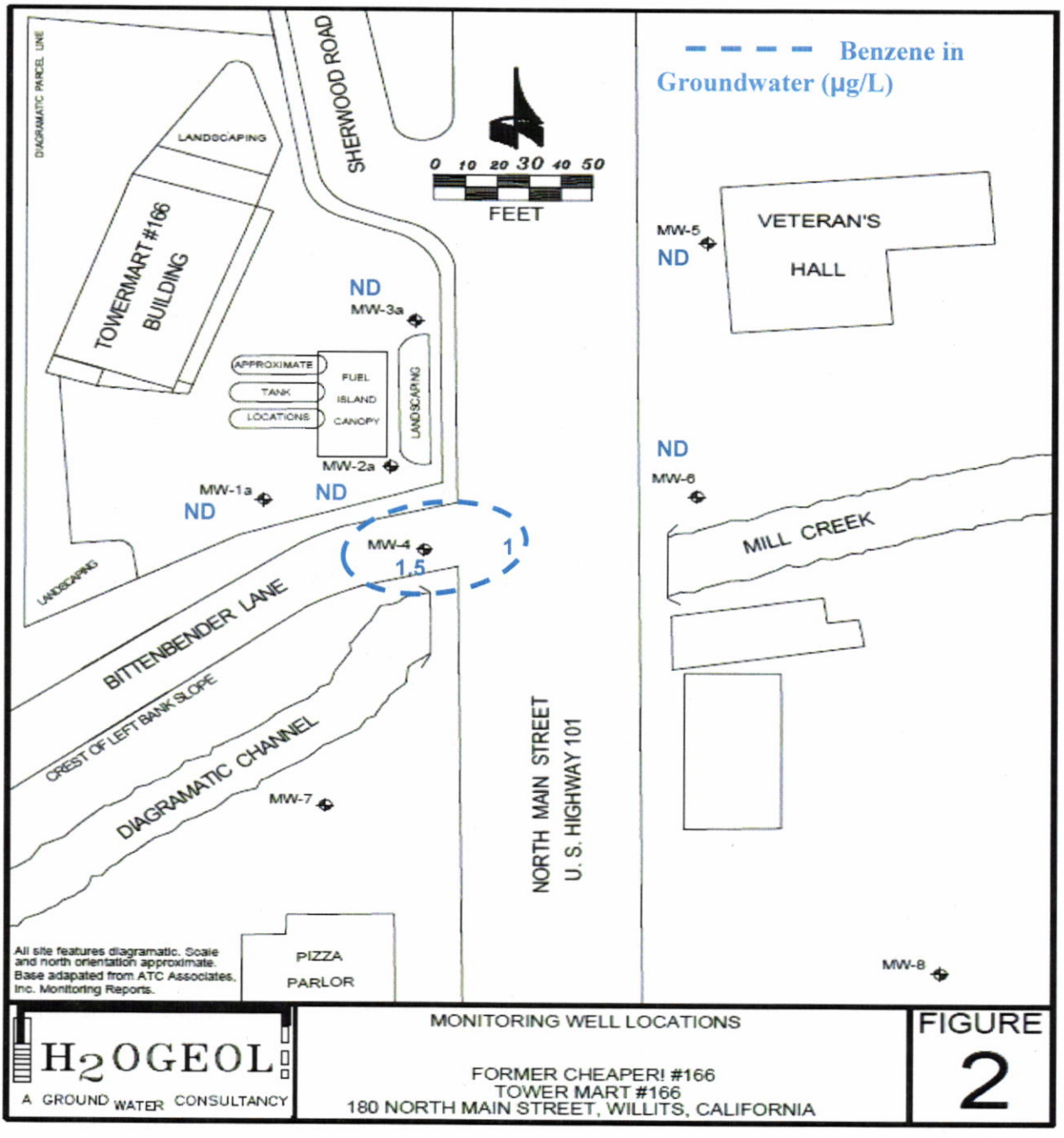
SITE MAP


DIAGRAMATIC PARCEL LINE
LANDSCAPING
SHERWOOD ROAD
0 10 20 30 40 50
FEET
TOWERMART #166 BUILDING
VETERAN'S HALL
MW-5
MW-3a
APPROXIMATE
TANK
LOCATIONS
FUEL ISLAND CANOPY
LANDSCAPING
MW-2a
MW-1a
MW-6
MILL CREEK
MW-4
LANDSCAPING
BITTENBENDER LANE
CREST OF LEFT BANK SLOPE
DIAGRAMATIC CHANNEL
MW-7
NORTH MAIN STREET
U. S. HIGHWAY 101
All site features diagramatic. Scale and north orientation approximate. Base adapted from ATC Associates, Inc. Monitoring Reports.
PIZZA PARLOR
MW-8
H2OGEOL
A GROUND WATER CONSULTANCY
MONITORING WELL LOCATIONS
FORMER CHEAPER! #166
TOWER MART #166
180 NORTH MAIN STREET, WILLITS, CALIFORNIA
FIGURE
2

TPHg IN GROUNDWATER (µg/L) – MARCH 2012



BENZENE IN GROUNDWATER (µg/L) – MARCH 2012



MTBE IN GROUNDWATER- MARCH 2012