UST CASE CLOSURE SUMMARY

Agency Information

Agency Name: County of Santa Clara, Department of Environmental Health (County)	Address: 1555 Berger Drive #300 San Jose, CA 95112
Agency Caseworker: Mr. Gerald O'Regan	Case No.: 06S1E32D01f

Case Information

USTCF Claim No.: 2333	Global ID: TO609300005
Site Name: Spartan Gas	Site Address: 1415 Oakland Road San Jose, CA 95112 (Site)
Petitioner: Mr. Tom Kearney Caster Companies, Inc.	Address: 4607 Mission Gorge Place San Diego, CA 92120
USTCF Expenditures to Date: $788,913	Number of Years Case Open: 25

URL: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0609300005

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 Low-Threat Policy. This Case 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 Case are as follows:

The release at the Site was discovered in January 1991. The former underground storage tanks (USTs) were removed from the Site in March 1993. During 1999, approximately 2,162 cubic yards of contaminated soil was excavated to depths ranging from 14 to 16 feet below ground surface (bgs). During 2006, air sparging/vapor extraction system was operated at the Site from mid-June to December. Approximately 6 gallons of petroleum hydrocarbons were removed during system operations. The Site is currently operated as a storage facility. No USTs remain on-Site.

The petroleum release is limited to soil and groundwater to a depth of approximately 40 feet bgs. The nearest surface body is Coyote Creek located approximately 1,500 feet northeast. The nearest public supply well regulated by the California Department of Public Health is located approximately 3,000 feet southeast of the Site. Public water is supplied by Santa Clara Valley Water District. The affected groundwater beneath the Site is not currently being used as a source of drinking water or for any other designated beneficial use, and it is highly unlikely that the affected groundwater will be used as a source of drinking water or for any other beneficial use in the foreseeable future. Public supply wells are usually constructed with competent sanitary seals and intake screens that are in deeper more

protected aquifers. Remaining petroleum constituents are limited, stable and declining. Remedial actions have been implemented and further remediation is not necessary. Additional assessment/monitoring will not likely change the conceptual model. Any 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 Media-Specific Criteria – Site meets the criterion in **CLASS 3**. The contaminant plume that exceeds water quality objectives (WQOs) is less than 250 feet in length. Free product has been removed to the maximum extent practicable, may still be present below the site where the release originated, but does not extend off-Site. The plume has been stable or decreasing for a minimum of five years. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary. The property owner is willing to accept a land use restriction if the regulatory agency requires a land use restriction as a condition of closure.

  Petroleum Vapor Intrusion to Indoor Air – Site meets **CRITERIA (2) b**. A Site-specific risk assessment for the vapor intrusion pathway was conducted and demonstrates that human health is protected.

  During 2011 Human Health Risk Assessment (HHRA), Risk-Based Screening Levels (RBSLs) and calculated daily absorbed dose were applied for potentially complete vapor intrusion pathway involving residential and commercial land use. The evaluation of vapor intrusion pathway did not indicate significant risk.

- Direct Contact and Outdoor Air Exposure – Site meets **CRITERIA (3) b**. A Site-specific risk assessment from exposure shows that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

Objections to Closure

County staff objected to UST case closure because:

1. The downgradient portion of the contaminant plume has migrated onto a school property which is located to the west of the site. A construction project consisting of approximately 20,000 square feet is underway on the school property. One of the buildings is located near the downgradient portion of the contaminant plume. This building includes an approximately 4,000 square foot basement which is 13 feet deep.
   RESPONSE: The contaminant plume that exceeds WQOs from the on-Site source has migrated beneath a parking lot for the adjacent school property. During 2011, an HHRA was conducted during construction of the school building located approximately 200 feet downgradient and west of the on-Site secondary source area. Soil samples collected from soil borings MW-6 and MW-7 beneath the driveway of the adjacent school building indicate non-detect concentrations for TPHg. Since 2003, benzene concentrations in wells AS-28B and AS-29B have been below 100 micrograms per liter (µg/L).

Indoor air samples were collected from the basement of the school building during 2011. The HHRA states that benzene concentrations were essentially identical in interior and exterior air samples, indicating no significant dose contribution from interior sources. An outdoor air sample was also collected to the west of the Site to determine ambient air and air quality in the area above known soil and groundwater impact. The HHRA also states that outdoor air does not appear to pose a significant risk above that posed by the ambient air concentrations.

2. Several wells in the southern portion of the plume have significant levels of benzene. The downgradient edge of the southern portion of the plume is moving toward the west and the extent of this portion of the plume is not defined. Additional assessment including construction of additional monitoring wells will be required to define the downgradient edge of the southern portion of the plume.
   RESPONSE: There are two water-bearing zones, A Zone and B Zone, beneath the Site. The petroleum hydrocarbon plume to the northwest is delineated by wells AS-21A and AS-23A in the A Zone and by wells AS-28B, MW-1, and MW-26 in the B Zone. Groundwater concentrations in AS-21A, AS-23A, AS-28B, and MW-1 have been below WQOs since 2010. Groundwater concentrations in MW-26 were low to non-detect between 2003 and the last sampling event in 2008.

   During 2012, elevated benzene concentrations were detected in wells AS-11A, AS-11B to the south and AS-30B to the west of the former USTs. However, concentration trends are stable or decreasing in these wells. The plume is stable to decreasing. Additional site assessment including construction of additional monitoring wells will not likely change the conceptual site model.

3. Dissolved concentrations and free product require additional active remediation so that the site will reach cleanup goals in a reasonable time frame.
   RESPONSE: During 1999, approximately 2,162 cubic yards of contaminated soil was excavated to depths between 14-16 feet bgs. An air sparging/vapor extraction system was operated at the Site from June-December 2006. Approximately 6 gallons of petroleum hydrocarbons were removed from the Site. Free product was observed since 2008 directly beneath the former USTs in wells AS-8B, and AS-23B and in the downgradient well MW-19A. During 2012, free product thicknesses in wells AS-8B, AS-23B, and MW-19A were 0.02 feet, 0.04 feet, and 0.85 feet, respectively. No free product has ever been reported off-Site. Free product has been removed to the maximum extent practicable. Further remediation is not necessary.

Spartan Gas
1415 Oakland Road, San Jose

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: _____ 7/3/13
Charlow Arzadon
Water Resource Control Engineer
Date

Reviewed By: _____ 7/3/2013
Benjamin Heningburg, PG No. 8130
Senior Engineering Geologist
Date

Has secondary source been removed to the extent practicable?	☒ Yes ☐ No
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 water quality objectives 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 water quality objectives stable or decreasing in areal extent?	☒ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives 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

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

The Site complies with 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 Underground Storage Tank (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

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

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 at the intersection of Oakland Road and East Gish Road in San Jose. The Site is operated as a self-storage building.
- The Site is bounded by commercial properties.
- Nature of Contaminants of Concern: Petroleum hydrocarbons only.
- Primary Source of Release: UST system
- Discovery Date: 1991
- Release Type: Petroleum[2]
- Free Product: Observed in wells AS-8B, AS-23B, and MW-19A between 2008 and 2012. Free product was also observed in well AS-9A during 2008.

Table A. USTs:

Tank No.	Size	Contents	Status	Date
1	6,000 gallon	Gasoline	Removed	1993
2	1,000 gallon	Gasoline	Removed	1993
3	550 gallon	Gasoline	Removed	1993
4	350 gallon	Gasoline	Removed	1993
5	350 gallon	Gasoline	Removed	1993
6	350 gallon	Gasoline	Removed	1993
7	175 gallon	Gasoline	Removed	1993
8	175 gallon	Gasoline	Removed	1993
9	175 gallon	Gasoline	Removed	1993

Receptors

- Groundwater Basin: Santa Clara Valley
- Groundwater Beneficial Uses: Municipal and domestic supply (MUN); agricultural supply (AGR); freshwater replenishment (FRESH); industrial service supply (IND); industrial process supply (PROC)
- Designated Land Use: General commercial (GC)
- Public Water System: Santa Clara Valley Water District
- Distance to Nearest Surface Waters: Coyote Creek is located approximately 1,500 feet northeast.
- Distance to Nearest Supply Wells: Supply well is located approximately 3,000 feet to the south-southeast.

Geology/ Hydrogeology

- Average Groundwater Depth: ~15 feet bgs (A zone); ~18 feet bgs (B zone)
- Minimum Groundwater Depth: ~10 feet bgs (A zone); ~10 feet bgs (B zone)
- Groundwater Flow Direction: predominantly west (A zone); northwest (B zone)
- Geology: Soil consists of silty sands to a depth of 10 to 15 feet bgs. Below 15 feet bgs consists of silty clay or clay.

[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.)

- Hydrogeology: Groundwater beneath the site is unconfined.

Corrective Actions

- Nine USTs were removed from facility in 1993.
- During 1999, approximately 2,162 cubic yards of contaminated soil was excavated to depths ranging from 14-16 feet bgs.
- Approximately 6 gallons of petroleum hydrocarbons were removed from the Site during the operation of an air sparging/vapor extraction system between June-December 2006.

Table B. Concentrations of Petroleum Constituents in Soil

Constituent	Maximum 0-5 feet bgs (mg/kg)	Maximum 5-10 feet bgs (mg/kg)
Benzene	9.8	24
Ethylbenzene	2.1	9.5
Naphthalene	Not Analyzed	Not Analyzed
PAHs*	Not Analyzed	Not Analyzed

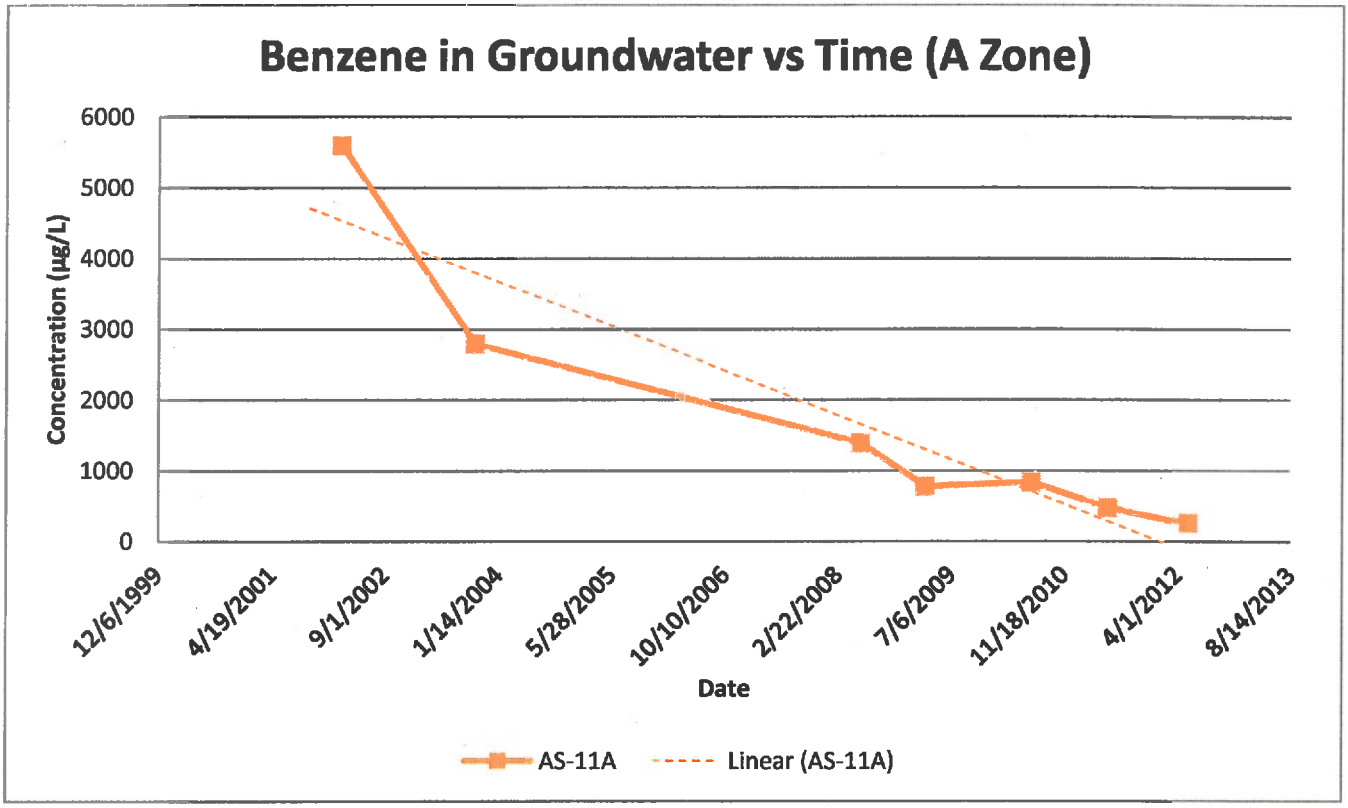
*Poly-aromatic hydrocarbons as benzo(a)pyrene toxicity equivalent

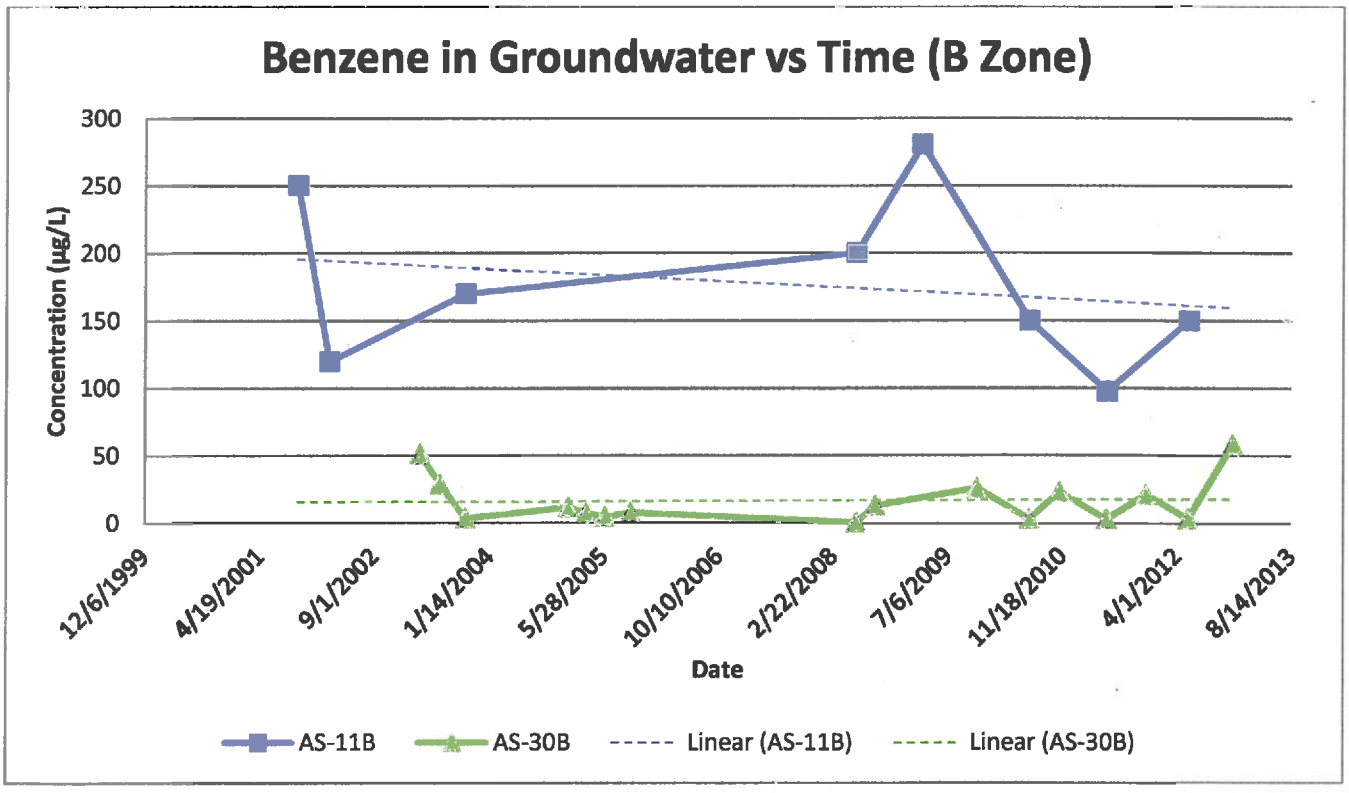
Table C. Concentrations of Petroleum Constituents in Groundwater (2012)

Well ID	Sample Date	TPHg	TPHd	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-1	12/3/12	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5
MW-17A	12/3/12	160	96	<0.5	3.0	<0.5	<0.5	<30
MW-24B	12/3/12	360	480	**21**	1.5	0.76	1.2	<5
AS-11A	5/23/12	1900	3400	**260**	8.7	1.9	5.0	**150**
AS-1AB	5/23/12	1500	4700	**150**	18	3.4	20	<210
AS-21A	12/3/12	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
AS-28B	12/3/12	130	95	<0.5	1.5	<0.5	0.53	<5
AS-29A	12/3/12	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
AS-30B	12/3/12	4,300	1,300	**58**	19	2.7	12	<17
AS-31A	12/3/12	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
AS-32B	12/3/12	<50	<50	<0.5	<0.5	<0.5	<0.5	**5.8**
WQOs		--	--	**1**	**150**	**700**	**1,750**	**5**

Notes:
DTW – depth to water
TPHg – total petroleum hydrocarbons as gasoline
TPHd – total petroleum hydrocarbons as diesel
MTBE- methyl tert-butyl ether
µg/L – micrograms per liter
"<" – indicates result is below the laboratory reporting limit

Groundwater Trends:
Reported concentrations of benzene at the Site have demonstrated stable or decreasing trends.

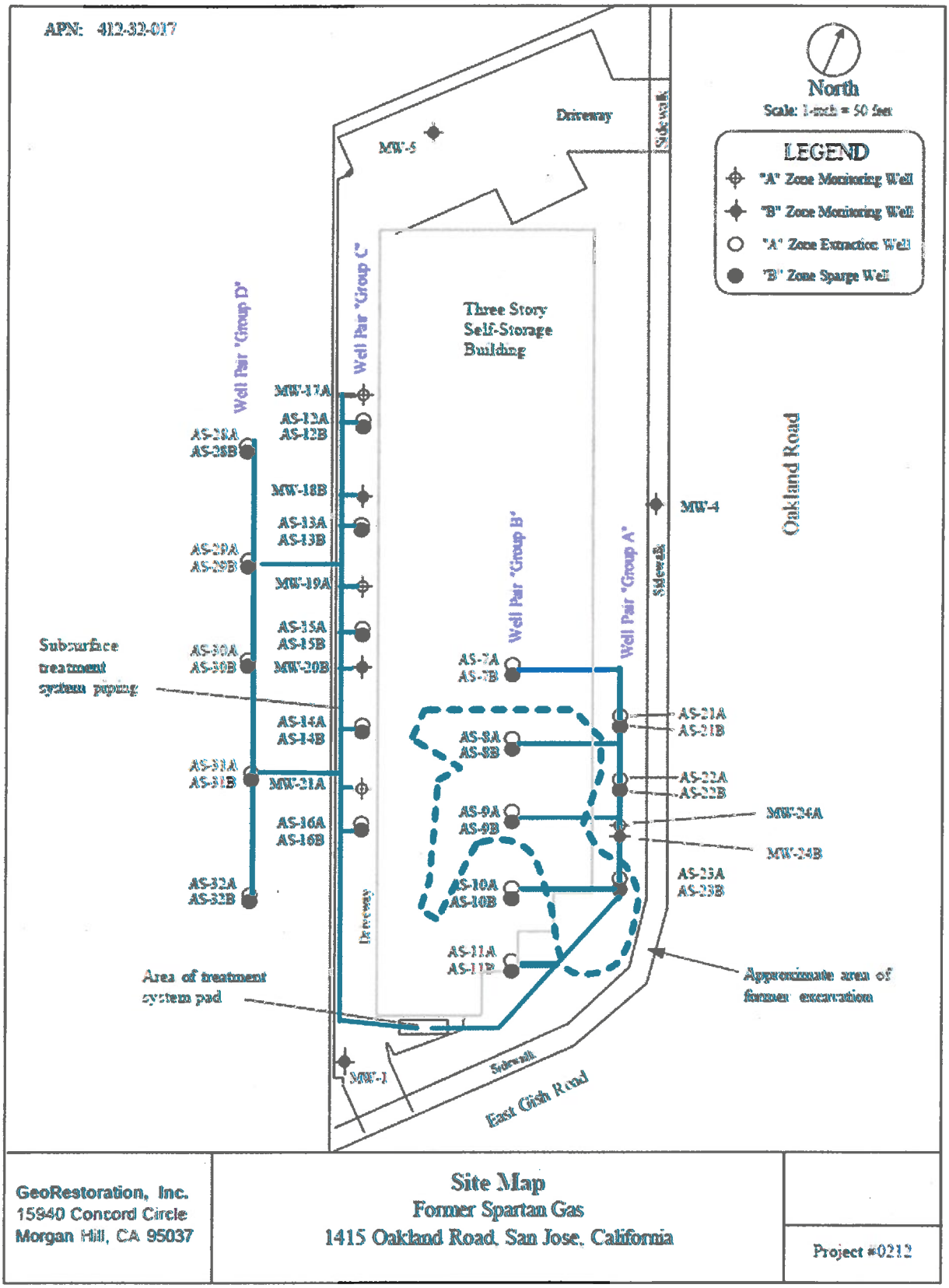


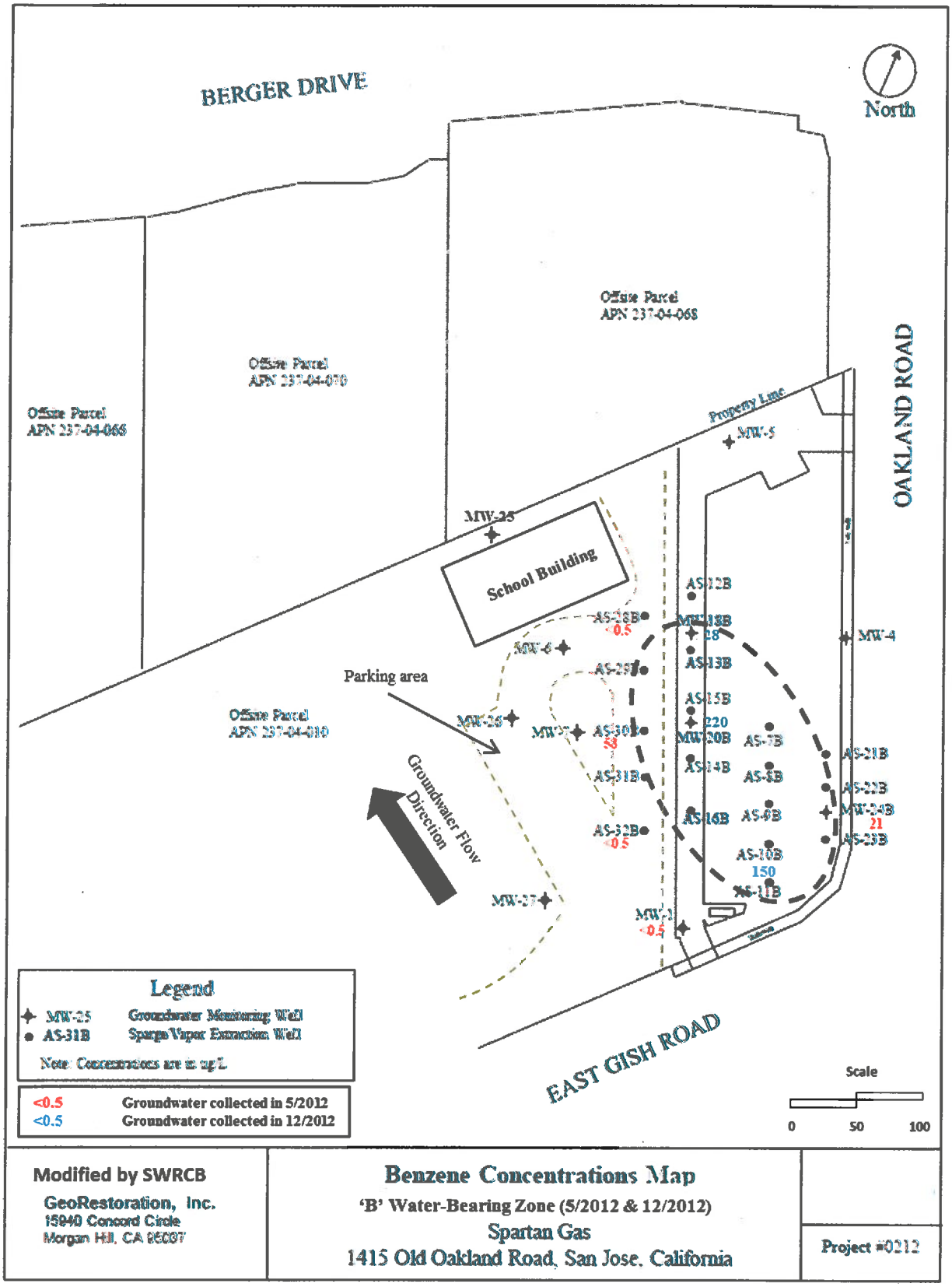


Evaluation of Risk Criteria

- Maximum Petroleum Constituent Plume Length above WQOs: Benzene plume is approximately 230 feet in length.
- 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 and over-excavation. Site conditions demonstrate that the residual petroleum constituents in soil and groundwater 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 – No significant soil contamination has been identified in the upper 10 feet. Residual Petroleum Constituents Pose Significant Direct Contact and Outdoor Air Exposure to Human Health: No – The majority of the contaminated soil on-Site was removed to depths of 14 to 16 feet. The excavation was backfilled with clean fill and covered with concrete slab or landscaping. The Site-specific HHRA states that outdoor air does not appear to pose a significant risk above that posed by the ambient air concentrations. Therefore, dermal exposure and outdoor air exposure poses low threat to human health.

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


APN: 412-32-017
North
Scale: 1-inch = 50 feet
LEGEND
"A" Zone Monitoring Well
"B" Zone Monitoring Well
"A" Zone Extraction Well
"B" Zone Sparge Well
Driveway
Sidewalk
MW-5
Three Story
Self-Storage
Building
Well Pair "Group C"
Well Pair "Group D"
Well Pair "Group B"
Well Pair "Group A"
MW-17A
AS-12A
AS-12B
AS-28A
AS-28B
MW-18B
AS-13A
AS-13B
AS-29A
AS-29B
MW-19A
AS-15A
AS-15B
AS-30A
AS-30B
MW-20B
AS-14A
AS-14B
AS-31A
AS-31B
MW-21A
AS-16A
AS-16B
AS-32A
AS-32B
Subsurface
treatment
system piping
AS-7A
AS-7B
AS-8A
AS-8B
AS-9A
AS-9B
AS-10A
AS-10B
AS-11A
AS-11B
Area of treatment
system pad
MW-4
Oakland Road
Sidewalk
AS-21A
AS-21B
AS-22A
AS-22B
MW-24A
MW-24B
AS-23A
AS-23B
Approximate area of
former excavation
MW-1
Sidewalk
East Gish Road
GeoRestoration, Inc.
15940 Concord Circle
Morgan Hill, CA 95037
Site Map
Former Spartan Gas
1415 Oakland Road, San Jose, California
Project #0212


BERGER DRIVE
North
Offsite Parcel
APN 237-04-068
Offsite Parcel
APN 237-04-070
Offsite Parcel
APN 237-04-068
Offsite Parcel
APN 237-04-010
Property Line
OAKLAND ROAD
MW-5
MW-25
School Building
AS-12B
AS-18B
<0.5
MW-18B
28
MW-4
MW-6
AS-13B
AS-25B
Parking area
AS-15B
MW-26
MW-27
AS-30B
28
220
MW-20B
AS-7B
AS-21B
AS-14B
AS-8B
AS-22B
AS-31B
AS-16B
AS-9B
MW-24B
21
AS-23B
AS-32B
<0.5
AS-10B
150
AS-11B
Groundwater Flow Direction
MW-28
MW-3
<0.5
EAST GISH ROAD
Scale
0
50
100
Legend
MW-25 Groundwater Monitoring Well
AS-31B Sparge/Vapor Extraction Well
Note: Concentrations are in ug/L
<0.5 Groundwater collected in 5/2012
<0.5 Groundwater collected in 12/2012
Modified by SWRCB
GeoRestoration, Inc.
15940 Concord Circle
Morgan Hill, CA 95037
Benzene Concentrations Map
'B' Water-Bearing Zone (5/2012 & 12/2012)
Spartan Gas
1415 Old Oakland Road, San Jose, California
Project #0212