State Water Resources Control Board

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Secretary for
Environmental Protection

Division of Water Quality
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Arnold Schwarzenegger
Governor

REVISED
~~DRAFT~~ EXHIBIT 1

UST Case Closure Summary

Marvin Shulman / Former Desert Petroleum (Gasco) Station # 758
505 30th Street, Sacramento

Summary
The underground storage tanks (USTs) were removed in May 1988. Initial visual site inspections indicated no further action was required. The release was discovered during a property transaction site assessment in December 2003. The residual contaminants impact soil and groundwater in the immediate vicinity of the site. The Sacramento County Local Oversight Program (County) denied Marvin Shulman's (Petitioner) request for closure. The County denied closure because: a post remediation trend has not been established; vertical and lateral delineation in groundwater is not adequate; a prediction of when water quality objectives (WQOs) will be met has not been made; a human health risk assessment has not been conducted; a well survey/sensitive receptor survey has not been conducted; and a mass remaining calculation has not been made.

The mass of remaining residual petroleum hydrocarbons is adsorbed to fine grain soil and dissolved petroleum constituents are degrading. Although one monitoring well (MW-3) screened in this area has consistently had elevated concentrations of residual petroleum hydrocarbons in groundwater, after over 22 years the groundwater plume does not extend more than about 30 feet from the UST excavation. Analytical data from downgradient wells indicates that WQOs have been achieved in the downgradient direction, the plume is decreasing beyond the immediate source area and not detectable above reporting limits in downgradient wells. Groundwater within the source area will likely remain above WQOs for decades to a hundred years.

The commercial, office and residential area of Sacramento rely on a public water supply. The nearest water supply well is a California Department of Transportation irrigation well located approximately 450 feet west of the site. Except for the partially concrete-lined duck pond in McKinley Park located approximately 800 feet southeast of the site, the nearest surface water is American River which is located approximately 3,500 feet north of the site. The affected shallow groundwater is not used as a source of water supply nor is it likely to be used as a source of water supply in the foreseeable future. Based on facts in the record and hydrologic and geologic conditions at the site, the limited residual petroleum hydrocarbons that remain in soil and groundwater pose a low risk to human health, safety and the environment. For these reasons, case closure is appropriate.

Background

This UST Case Closure Summary has been prepared in response to a petition to the State Water Resources Control Board (State Water Board) for closure of the Former Gasco Station # 758 case located at 505 30th Street, Sacramento. All record owners of fee title for this site as well as adjacent property owners and other interested parties have been notified of the recommendation for closure and were given an opportunity to provide comments.

The site operated as a gasoline service station for approximately fifteen months prior to the removal of the USTs by the Petitioner in May 1988. The site is currently operated as a light automotive repair and smog inspection station and store with a paved parking lot. The surrounding areas are developed and consist of commercial, office and residential properties.

The County disagreed with the petitioner because: Post remediation trend has not been established; vertical and lateral delineation in groundwater is not adequate; a prediction of when water quality objectives will be met has not been made; a human health risk assessment has not been conducted; a well survey/sensitive receptor has not been conducted; and a mass remaining calculation has not been made.

Petitioner Information

Mr. Marvin Schulman, Sayre and Shulman Family Trusts / Former Gasco Station #758	505 30th Street, Sacramento, CA 95814
Global ID No: T0606791262	Petition Date: 8/31/2009
USTCF Claim No.: 18045	USTCF Expenditures to Date: $82,238

Agency Information

Agency Name: County of Sacramento Environmental Management Department, Site Assessment and Mitigation Section	Address: 10590 Armstrong Ave., Suite A Mather, CA 95655
County Case No. G051	Regional Water Board Case No. 341431
Years case open: ~~22~~**6**	

Release Information:

USTs:

Tank No.	Size in Gallons	Contents	Status	Date
1	8,000	Gasoline	Removed	May 1988
2	7,500	Gasoline	Removed	May 1988
3	5,000	Gasoline	Removed	May 1988
4	250	Waste oil	Removed	May 1988

- Discovery Date: ~~May 1988~~**December 2003**
- Affected Media: Shallow soil and groundwater
- Free Product: None Reported
- Corrective Actions:
  - May 1988 - UST removal.
  - December 2003 - Soil investigation.
  - October 2004 - Soil and groundwater investigation.
  - July 2005 - Soil and groundwater investigation.
  - September 2006 - Soil and groundwater investigation
  - February 2007 - Began operation of Waterloo Oxygen Emitter in well MW-3.
  - March 2009 - Discontinued Waterloo Oxygen Emitter in well MW-3.

Site Information/ Description/ Conditions:

- Groundwater Basin: South American sub-basin of the Sacramento Valley Groundwater Basin
- Suitable Beneficial Uses: Municipal (MUN), Industrial (IND), Industrial Process Supply (PRO), Agricultural Supply (AGR)
- Land Use: Commercial building, paved parking lot
- Distance to Nearest Supply Well: Irrigation well ~450 feet west of the site
- Minimum Groundwater Depth: ~20 feet
- Distance to Nearest Surface Water: Except for the partially concrete lined duck pond in McKinley Park located approximately 800 feet southeast of the site, the nearest surface water is American River which is located approximately 3,500 feet north of the site.
- Groundwater Flow Direction: Southwest
- Geology: Boring logs show that the site is underlain by silty sandy and clayey alluvial fan deposits with low permeability.
- Hydrology: Depth to groundwater beneath the site has ranged between 12 and 21 feet below grade surface (bgs). The area surrounding the site is completely paved so groundwater recharge is derived from subsurface inflow.
- Estimate of Remaining Mass: A conservative mass estimate indicates that approximately 333 pounds of total petroleum hydrocarbons remain in soil.
- Time to Meet WQOs: Decades to a hundred years.

Case History

In May 1988, USTs and associated piping were excavated. Initial visual site inspection by the County indicated no further action was required. The County became aware of the petroleum hydrocarbons in soil following a property transaction which included a subsurface site assessment in December 2003. The County opened a UST case in January 2004 when elevated concentrations of gasoline constituents were reported in soil samples to 25 feet bgs beneath UST excavations. In May 1988, the UST system including one 8,000-gallon, one 7,500-gallon, one 5,000-gallon and one 550-gallon UST were removed.

Between December 2003, and May 2009, corrective actions undertaken by the petitioner ~~include~~**included**: advancing over 15 borings to multiple depths down to 25 feet bgs; collecting and analyzing over 25 soil samples; installing 6 monitoring wells; and a remedial action that emitted oxygen in well MW-3.

In November 2006, the County issued a letter indicating that site characterization was complete.

In April 2007, the County, Petitioner and Petitioner's consultant all agreed that excavation would require shoring and be too expensive and disruptive to the existing business to be justifiable.

In June 2007, a site closure request was denied by the County.

In August 2009, the Petitioner petitioned the State Water Board for case closure. The petition includes responses to each of the County's reasons for determining that the site does not meet closure criteria and is not eligible for closure.

Contaminants in Soil
The highest concentrations petroleum hydrocarbons were reported between 15 and 24 feet bgs beneath the 5,000-gallon gasoline UST excavation located about 20 feet from the onsite commercial building. Prior to active remediation activities, the maximum concentrations of TPH-g and benzene in soil were reported at 3,100 parts per million (ppm) and 0.11 ppm, respectively. Cumulative soil data ~~indicates~~**indicated** that petroleum hydrocarbons in vadose zone soils between 0 and 15 feet bgs were below or slightly above laboratory reporting limits at seven locations.

Soil borings SB-4 and SB-5 were advanced to 20 feet bgs between the commercial building and UST excavations. The maximum concentration of TPH-g in soil was reported at 360 ppm. Benzene was not detected above laboratory reporting limits in these two samples.

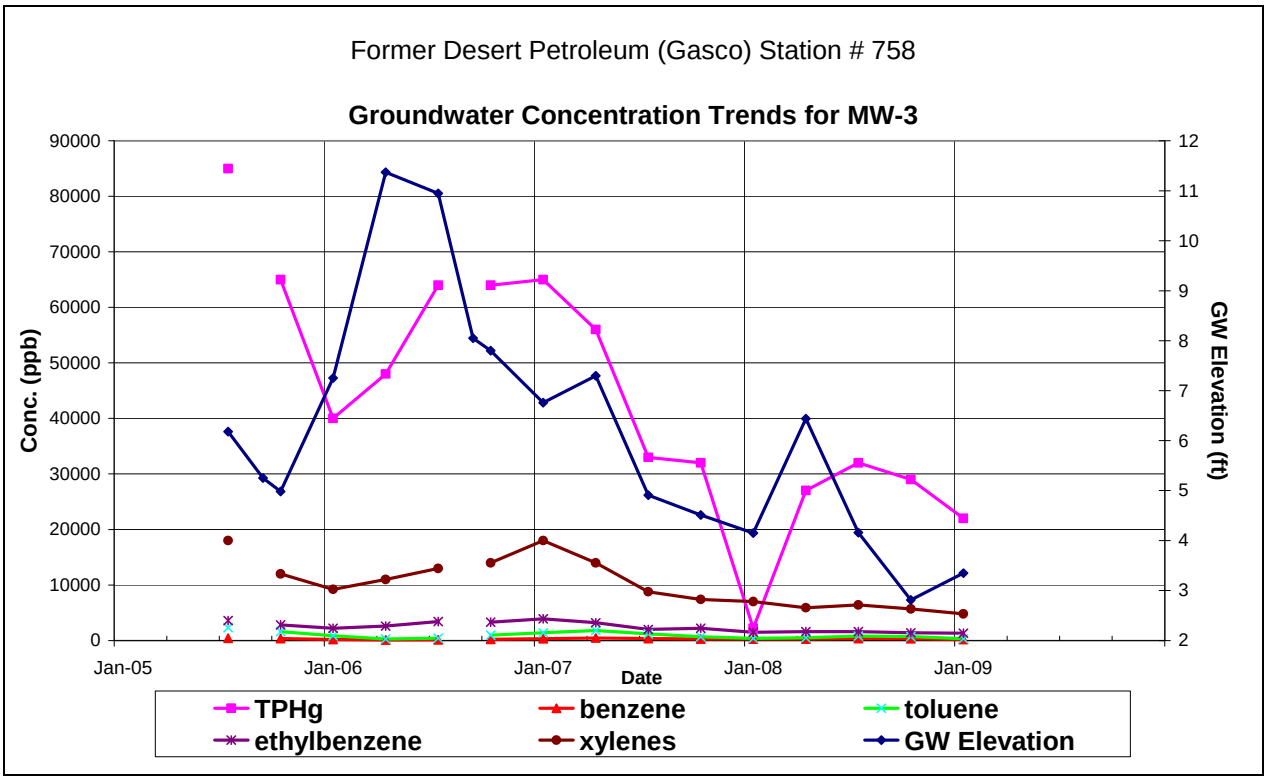
Contaminant Concentrations in Groundwater
Groundwater data ~~indicates~~**indicate** that petroleum hydrocarbon constituents are present in groundwater within a limited area. The plume is limited to the source area in the immediate vicinity of well MW-3 and is delineated in the downgradient direction by wells MW-4 through MW-6 which have reported concentrations of petroleum hydrocarbon constituents below reporting limits since September 2006. Analytical data for well MW-3 ~~indicates~~**indicate** that the overall plume is decreasing.

This downgradient concentration decrease is consistent with a zone of robust biodegradation. Because the movement of source area contamination is limited by hydrogeologic conditions and adsorbed to fine grain soils, the rate of biodegradation of the remaining mass is dissolution limited and the natural attenuation of petroleum hydrocarbons in groundwater has effectively limited the length of the dissolved plume downgradient of the source area for the past 22 years. Because remaining petroleum

hydrocarbons ~~exists~~**exist** in soil and groundwater, it is likely to be decades to a hundred years before WQOs are met in the source area.

January 2009 Monitoring and Sampling Event for Site Wells						
Well	TPH-g[1]	benzene	Toluene	ethylbenzene	total xylenes	MTBE
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
MW-1	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW-2	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW-3	22,000	170	330	1,300	4,800	<7.0
MW-4	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW-5	<50	<0.50	<0.50	<0.50	<0.50	<0.50
MW-6	<50	<0.50	<0.50	<0.50	<0.50	<0.50
WQOs	**5**	**0.15**	**42**	**29**	**17**	**5**

1. TPH-g = total petroleum hydrocarbons, reported as gasoline



Objections to closure and response:
The County staff did not concur with the Petitioner's request for case closure because of the following six concerns;

1. A post remediation trend has not been established.

This statement is accurate because no sampling data has been reported since active remediation was discontinued in March 2009. With the exception of benzene which indicates an overall stable trend, concentrations of the remaining petroleum hydrocarbon constituents indicate overall decreasing trends.

Source area and plume concentrations are decreasing and were not detectable above reporting limits in downgradient wells before and during active remediation. As is typical during remediation involving a pressure inducing device such as the waterloo emitter within a source area, petroleum hydrocarbon constituents are mobilized and dissolved concentrations temporarily increase and then decrease similar to increases and decreases reported in MW-3 during remediation. Confirmation of the limited source area and decreasing trend at this site is demonstrated by the lack of petroleum hydrocarbon constituents in downgradient wells following an increase in dissolved concentrations in the source area. A post remediation trend is not needed.

2. Vertical and lateral delineation in groundwater is not adequate.

Residual petroleum hydrocarbon constituents in groundwater are limited to dissolved light-end petroleum hydrocarbons with specific gravities less than 1.0. The highest concentrations in soil were reported between 15 and 24 feet bgs in the source area near soil boring SB-1 and well MW-3. Further vertical delineation is not needed. Data from the six wells in the monitoring well network and five groundwater grab samples collected upgradient, crossgradient, and downgradient of the source area provide lateral delineation of the plume.

3. A prediction of when water quality objectives will be met has not been made.

Water quality objectives have been met in three downgradient wells and two upgradient wells since 2005. The mass of remaining residual petroleum hydrocarbons in the source area near well MW-3 is adsorbed to fine grain soil and dissolved petroleum constituents are degrading. Groundwater data ~~demonstrates~~**demonstrate** that after over 22 years the groundwater plume does not extend more than about 30 feet from the UST excavation.

Dissolved benzene is the only compound that indicated a stable to increasing concentration trend in well MW-3 during the past three years. This temporary increase occurred during active remediation activities which also caused temporary increases in dissolved concentrations of TPH-g, toluene, ethylbenzene and total xylenes. Residual petroleum hydrocarbons within about 30 feet of the source area will continue to decrease but remain above WQOs for decades to a hundred years.

4. A human health risk assessment has not been conducted.

All structures on the site are slab on grade and there are not subterranean spaces for vapors to accumulate. The remaining petroleum hydrocarbon mass is limited to soils between 15 and 24 feet bgs that underlie a paved parking lot and structural concrete slabs. At this site, over ten feet of unsaturated clean soil exists over the remaining mass. The building at the site is an auto repair facility adjacent to a major freeway and ambient air concentrations of petroleum are likely to greatly exceed any amount that could emanate from the subsurface. Therefore, the vapor intrusion risk from remaining petroleum at the site is insignificant.

5. A well survey/sensitive receptor has not been conducted.

A well survey/ sensitive receptor survey indicates that this commercial, office and residential area of Sacramento relies on a public water supply. The nearest water supply well is a California Department of Transportation irrigation well located approximately 450 feet west of the site. Except for the partially concrete-lined duck pond in McKinley Park located approximately 800 feet southeast of the site, the nearest surface water is American River which is located approximately 3,500 feet north of the site.

6. A mass remaining calculation has not been made.

A conservative mass estimate completed by the Petitioner's consultant indicates that approximately 333 pounds of total petroleum hydrocarbons remain in soil. The calculations are ~~based~~**based on** analytical data and field data collected prior to remediation efforts and include no consideration for volatilization, sorption or dilution.

Closure:
Does corrective action performed to date ensure the protection of human health, safety, and the environment? Yes.

Is corrective action and UST case closure consistent with State Water Board Resolution 92-49? Yes.
Is achieving background water quality feasible? No.

To remove all traces of residual petroleum constituents at the site would require significant effort and cost. If complete removal of detectable traces of petroleum constituents becomes the standard for UST corrective actions, however, the statewide technical and economic implications will be enormous. For example, disposal of soils from comparable areas of excavation throughout the state would greatly impact already limited landfill space. In light of the precedent that would be set by requiring additional excavation at this site and the fact that beneficial uses are not threatened, attaining background water quality at this site is not feasible.

If achieving background water quality is not feasible,
Is the alternative cleanup level consistent with the maximum benefit to the people of the state? Yes.

It is impossible to determine the precise level of water quality that will be attained given the limited residual petroleum hydrocarbons that remain at the site, but in light of all the factors discussed above, and the fact that the residual petroleum constituents will not unreasonably affect present and anticipated beneficial uses of groundwater beyond the immediate vicinity of the site of the UST excavation, a level of water quality will be attained that is consistent with the maximum benefit to the people of the state.

Will the alternative cleanup level unreasonably affect present and anticipated beneficial uses of water? No.

Impacted groundwater is not used as a source of drinking water or for any other beneficial use currently and it is highly unlikely that the impacted groundwater will be used as a source of drinking water or for any other beneficial use in the foreseeable future.

Will the alternative level of water quality exceed water quality prescribed in applicable Basin Plans? No.

The final step in determining whether cleanup to a level of water quality less stringent than background is appropriate for this site requires a determination that the alternative level of water quality will not result in water quality less than that prescribed in the relevant basin plan. Pursuant to State Water Board Resolution 92-49, a site may be closed if the basin plan requirements will be met within a reasonable time frame.

Have factors contained in Title 23 of the California Code of Regulations, Section 2550.4 been considered? Yes.

In approving an alternative level of water quality less stringent than background, the State Water Board has also considered the factors contained in California Code of Regulations, title 23, section 2550.4, subdivision (d). As discussed earlier, the adverse effect on shallow groundwater will be minimal and localized, and there will be no adverse effect on the groundwater contained in deeper aquifers, given the physical and chemical characteristics of petroleum constituents, the hydrogeological characteristics of the site and surrounding land, and the quantity of the groundwater and direction of the groundwater flow. In addition, the potential for adverse effects on beneficial uses of groundwater is low, in light of the proximity of the groundwater supply wells, the current and potential future uses of groundwater in the area, the existing quality of groundwater, the potential for health risks caused by human exposure, the potential damage to wildlife, crops, vegetation, and physical structures, and the persistence and permanence of potential effects. Finally, a level of water quality less stringent than background is unlikely to have any impact on surface water quality, in light of the volume and physical and chemical characteristics of

petroleum constituents; the hydrogeological characteristics of the site and surrounding land; the quantity and quality of groundwater and direction of groundwater flow, the patterns of precipitation in the region, and the proximity of residual petroleum to surface waters.

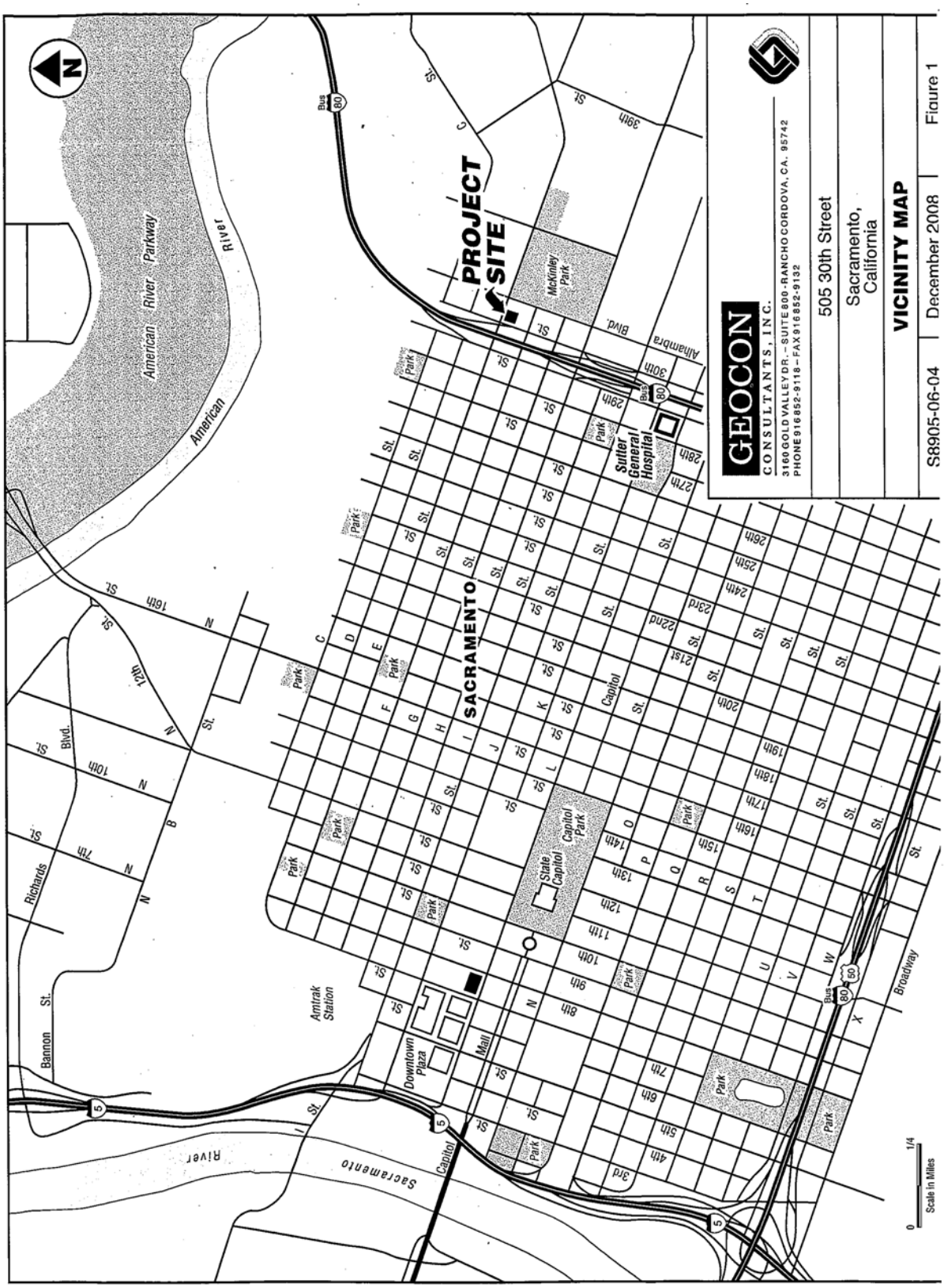
Has the requisite level of water quality been met? No
If no, the approximate time period in which the requisite level of water quality will be met:

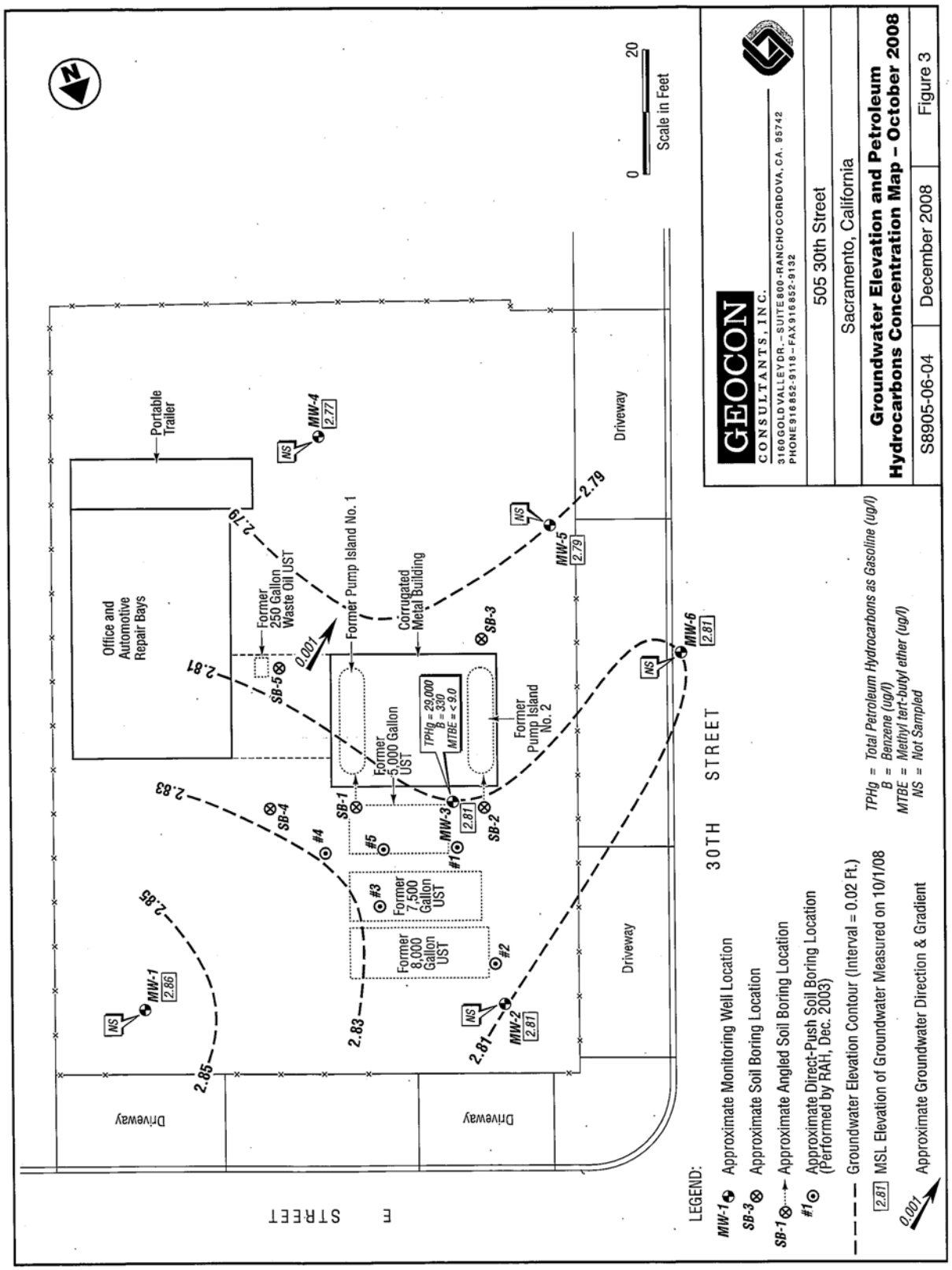
The approximate time period in which the requisite level of water quality for dissolved petroleum hydrocarbons will be met is estimated to be decades to a hundred years. Though the requisite level of water quality has not been met, water quality objectives will be achieved via natural attenuation in approximately a decade to a hundred years. This is a reasonable period in which to meet the requisite level of water quality because the affected groundwater is not currently being used as a source of drinking water and it is highly unlikely that the affected groundwater will be used as a source of drinking water in the future. Other designated beneficial uses of water are not adversely impacted and it is highly unlikely that they will be.

Summary and Conclusions:
Based on the hydrology, geology, and other factors at and in the vicinity of the site, the residual petroleum hydrocarbons that remain in soil and groundwater pose a low risk to public health, safety and the environment. The remaining mass of residual petroleum hydrocarbons is limited to the immediate vicinity of the former USTs, the dissolved petroleum constituents in the source area are biodegrading and the plume in groundwater is decreasing. Affected groundwater is not currently used as a source for beneficial uses and it is highly unlikely that it will be used for beneficial uses in the foreseeable future. Case closure is appropriate.

Benjamin Heningburg
Engineering Geologist
Professional Geologist No. 8130

~~August 19, 2010~~ **September 9, 2010**
Date


PROJECT SITE
SACRAMENTO
American River Parkway
American River
Sacramento River
Amtrak Station
Downtown Plaza
Mall
State Capitol
Capitol Park
Capitol
McKinley Park
Sutter General Hospital
Alhambra Blvd.
Richards Blvd.
Bannon St.
Broadway
Scale in Miles
0
1/4
GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR. – SUITE 800 – RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132
505 30th Street
Sacramento, California
VICINITY MAP
S8905-06-04
December 2008
Figure 1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505 30th Street
Sacramento, California
Groundwater Elevation and Petroleum Hydrocarbons Concentration Map – October 2008
S8905-06-04
December 2008
Figure 3
Scale in Feet
0
20
N
Office and Automotive Repair Bays
Portable Trailer
Former 250 Gallon Waste Oil UST
Former Pump Island No. 1
Corrugated Metal Building
Former 5,000 Gallon UST
Former Pump Island No. 2
Former 7,500 Gallon UST
Former 8,000 Gallon UST
TPHg = 29,000
B = 330
MTBE = < 9.0
MW-1 2.86
MW-2 2.81
MW-3 2.81
MW-4 2.77
MW-5 2.79
MW-6 2.81
SB-1
SB-2
SB-3
SB-4
SB-5
#1
#2
#3
#4
#5
NS
0.001
2.79
2.81
2.83
2.85
Driveway
30TH STREET
E STREET
LEGEND:
MW-1 Approximate Monitoring Well Location
SB-3 Approximate Soil Boring Location
SB-1 Approximate Angled Soil Boring Location
#1 Approximate Direct-Push Soil Boring Location (Performed by RAH, Dec. 2003)
Groundwater Elevation Contour (Interval = 0.02 Ft.)
2.81 MSL Elevation of Groundwater Measured on 10/1/08
0.001 Approximate Groundwater Direction & Gradient
TPHg = Total Petroleum Hydrocarbons as Gasoline (ug/l)
B = Benzene (ug/l)
MTBE = Methyl tert-butyl ether (ug/l)
NS = Not Sampled