State of California
Environmental Protection Agency

UNDERGROUND STORAGE TANK
LOW RISK CASE REVIEW FORM

Los Angeles Regional
Water Quality Control Board

Case Reviewer: Ahmad Lamaa AL	Unit Chief: Gregg Kwey	Section Chief: Yue Rong YR	AEO: Paula Rasmussen PR	EO: Samuel Unger SU
Date: 03/30/2012	Date: 03/30/2012	Date: 3-30-12	Date: 4-6-12	Date: 4-12-12

LUSTIS File No.: R-16222		Investigation and Cleanup Priority: B-2	
Site Name/Address: Mission Station 1137 East Mission Blvd Pomona, CA 91768	Responsible Parties: Ms. Lola Navarez	Address: 2260 India Street Los Angeles, CA 90039-3332	Phone no.: 323-662-5616

I. CASE INFORMATION (N/A = Not Applicable)

Tank No.	Size in Gallons	Contents	Closed in-place/Removed/Active?	Date
1-2	7,500	Gasoline	Removed	April 1998
3-4	7,500	Diesel	Removed	April 1998
5	250	Waste Oil	Removed	April 1998

II. SITE CHARACTERIZATION INFORMATION (GW = Groundwater)

GW Basin: San Gabriel Valley.	Beneficial uses: Mun, Ind, Agr, Proc.	Note:	
Distance to nearest municipal supply well: Nearest production well is Well No. 01S08W28M01S located 1,427 feet up-gradient from the site.			
GW highest depth: NA	GW lowest depth: NA	Well screen interval: NA	Flow Direction: Unknown
Soil types: Intermixed sand, silt and clay		Maximum soil depth sampled (ft): 120 feet bgs	

III. SITE INSPECTION

Pre-closure site inspection date: N/A	Is there sensitive receptor next to the site (school, church, hospital, kindergarten etc.)? No.

IV. MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS (Initial and Latest)
(ND = Non-Detect; NRQ = Not Required; NA = Not Analyzed)

Contaminant	Soil (mg/kg)		EPA SLs*		Soil Screening Levels (mg/kg)**	Water (µg/L)		MCLs/NL (µg/L)
	Initial (4/1998)	Latest (6/2009)	Residential (mg/kg)	Industrial (mg/kg)	Depth to GW: Type of soil:	Initial (date)	Latest (date)	
TPH (Gas)	640	1,175	NE	NE	NA	NA	NA	NE
TPH (Diesel)	2300	NRQ	NE	NE	NA	NA	NA	NE
Benzene	ND	ND	1.1	5.4	NA	NA	NA	1
Toluene	0.125	9.2	5,000	45,000	NA	NA	NA	150
Ethylbenzene	4.92	114.4	5.4	27	NA	NA	NA	300
Xylenes	92	790.7	630	2,700	NA	NA	NA	1,750
Methyl tertiary butyl ether (MTBE)	ND	ND	43	220	NA	NA	NA	13 (Primary) 5 (Secondary)
Di-isopropyl ether (DIPE)	NS	NS	2,400	10,000	NE	NA	NA	NE
Ethyl tertiary butyl ether (ETBE)	NS	NS	NE	NE	NE	NA	NA	NE
Tertiary amyl methyl ether (TAME)	NS	NS	NE	NE	NE	NA	NA	NE
Tertiary butyl alcohol (TBA)	NS	NS	NE	NE	NE	NA	NA	12 (NL)
Ethanol	NS	NS	NE	NE	NE	NA	NA	NE

NE = Not Established. NL = Notification Level.
* SLs = USEPA Risk-Based Screening Levels (May 2011). ** Please see the attached table 4 –1

Site Name/Address: Mission Station/1137 East Mission Blvd Pomona, California 91768	Staff Initial: AJL

V. FREE PRODUCT

Was free product encountered? No	Has free product been totally removed? N/A
When was free product recovery project completed? N/A	

VI. SOIL REMEDIATION

Method: Soil excavation of former gasoline and diesel USTs	Duration of remediation: 1998
Waste manifest document: Yes	Volume of soil disposal/mass removal: 185 cubic yards
Method: In Situ Soil Remediation	Duration of remediation: January 2005 through January 2008
Waste manifest document: N/A	Volume of soil disposal/mass removal: 43,423 pounds of TPH-g

VII. GROUNDWATER REMEDIATION

Method: None	Duration of remediation: N/A
	Mass removal: N/A

VIII. COMMENTS AND JUSTIFICATION FOR RECOMMENDED ACTION

SITE HISTORY:

The site is located at 1137 East Mission Blvd in Pomona, and is currently an empty lot. The site is bounded by residences to the north, businesses to the east and west, and East mission Street to the south. The surrounding land use is mixed residential and commercial. The site was a retail gasoline service station until April 1998. The former tank system, which was removed in April 1998, included two 7,500-gallon steel single-walled gasoline USTs, two 7,500-gallon steel single-walled diesel USTs, one 250-gallon waste oil tank UST, nine dispensers and associated piping.

DATA SUMMARY:

April 14, 1998, soil contamination was identified during the removal of USTs. Excavated soil was first stockpiled on site. Two major stockpiles were created, stockpile SP1 (approximately 75 cubic yards) was generated during excavation of soil from the gasoline USTs, and stockpile SP2 (approximately 110 cubic yards) was generated during excavation of soil from the diesel USTs. The stockpiled soil and clean imported soil were used to backfill the tank pits. Soil samples were collected from the bottom of the tanks, and from beneath the dispenser islands and product piping, and analyzed for TPH-g, TPH-d, BTEX, and MTBE. TPH-g ranged from ND to 640 mg/kg found beneath the former gasoline USTs. TPH-d ranged from ND to 237 mg/kg found beneath the former diesel USTs. Benzene and MTBE were not detected in any of the soil samples collected. Analytical soil results are included in Table 1 (Previous Soil Assessment Data).

October 2000, six soil borings were installed. Soil borings B-1 through B-4 were installed to a depth of 40 feet bgs, and soil borings HA-1 and HA-2 were selected for hand augur drilling to 20 feet bgs near the former dispensers D3 and D9. TPH-g was detected in soil borings B-1 and B-3 in concentrations ranging from non-detect to 330 ppm at 10 feet bgs in B-1, and non-detect to 1,290 ppm at 25 feet bgs in B-3. TPH-d was also detected in soil boring B-1 at a maximum concentration of 150 ppm at 10 feet bgs. Toluene, Ethyl benzene, and Total Xylene were also detected in soil borings B-1 and B-3 at elevated levels. MTBE and Bezene were not detected in any of the soil samples collected. Analytical soil results are included in Table 2 (Preliminary Site Assessment Results).

December 2000, four additional soil borings B-5 through B-9 were advanced to 60 feet bgs and soil boring B-9 was advanced to 130 feet bgs. In addition, soil borings HA-3 and HA-6 were selected for hand augur drilling to 3 to 5 feet bgs near the former dispensers D3 and D-9. MTBE was not detected in any of the soil samples. Benzene was detected at a maximum concentration of 16,900 ppb in soil boring B-9 at a depth of 55 feet bgs. Based on the latest investigation it is estimated that the deepest contamination occurs at about 120 feet bgs. Analytical soil results are included in Table 3 (Additional Site Assessment Results).

On January 13, 2005 to January 8, 2008, soil VES system was operated onsite. The overall amount of gasoline removed in the remediation period was estimated at 43,423 pounds (or 7,060 gallons).

August 24 and 25, 2006, two soil confirmation borings B-10 and B-11 were advanced to a depth of 120 bgs. Soil samples were collected at 5-foot intervals from surface to terminal depth. TPH-g concentrations in soil samples ranged from non-detect up to 2,430 ppm collected from soil boring B-10 at 50 feet bgs. Benzene and MTBE were not detected in any of the soil samples collected. Analytical soil results are included in Table 4 (Soil assessment Results of Interim Remediation Tests).

June 18 to 19, 2007, four soil confirmation borings B-12 through B-15 were advanced to a depth of 90 feet bgs. Soil samples were collected at 5-foot intervals from surface to terminal depth. TPH-g concentrations in soil samples ranged from non-detect up to 2,790 ppm collected from soil boring B-14 at 55 feet bgs. Benzene and MTBE were not detected in any of the soil samples collected. Analytical soil results are included in Table 5 (Soil assessment Results of Interim Remediation Tests).

June 2009, four soil confirmation borings B-12 through B-15 were advanced to a depth of 90 feet bgs. Soil samples were collected at 5-foot intervals from surface to terminal depth. TPH-g concentrations in soil samples ranged from non-detect up to 1,175 ppm collected from soil boring B-17 at 55 feet bgs. Benzene and MTBE were not detected in any of the soil samples collected. Analytical soil results

are included in Table 6 (Soil assessment Results of Interim Remediation Tests).

No groundwater monitoring wells have been installed due to the great depth to groundwater estimated at 400 to 550 feet bgs.

CONTAMINANT EXPOSURE PATHWAYS EVALUATION:

Direct Contact:
The residual hydrocarbon concentrations in the soil beneath the site should not cause direct contact concerns because recent soil samples collected in June 2009, were below their respective industrial EPA SLs except for Ethyl benzene at 55 feet bgs in soil boring B-17.

Protection of Drinking Water Aquifer and Plume Migration:
Soil contamination predominantly was detected between 20 and 70 feet bgs. Groundwater depth is estimated at 400 to 550 feet bgs. There is little or no risk of contamination to the drinking water aquifer or plume migration.

Vapor Intrusion:
Vapor intrusion concern is minimal because the residual benzene concentrations from "Human Health Risk Assessment Report report, dated February 1, 2010, prepared by Morgan and Associates, Inc.," were below the interim screening level 180 ug/kg at five feet bgs for the current commercial land use.

FACTORS SUPPORTING LOW RISK CLOSURE:

- All UST's have been removed.
- Soil contaminations have been delineated.
- The residual soil contamination would not cause any human health and environmental risks via major pathways, such as direct contact, drinking water ingestion, and vapor intrusion.
- Recent soil samples reported concentrations below their EPA SLs except for Ethyl benzene at 55 feet bgs in soil boring B-17.

IX. MTBE FATE & TRANSPORT PLUME LENGTH MODELING ANALYSIS

MTBE fate transport is not applicable. Groundwater depth is estimated at 400 to 550 feet bgs. There is little or no risk of contamination to the drinking water aquifer or plume migration

X. ELECTRONIC DELIVERABLE FORMAT (EDF) SUBMISSION

Has electronic data reporting requirement been met? Yes

XI. AB 681 REQUIREMENT (Land Owner Notification)

Verify property ownership http://assessor.lacounty.gov/extranet/DataMaps/Pais.aspx (date): February 1, 2012.
Has landowner or impacted site notification requirements been met? Yes.

Owner: Ms. Lola Navarez
Mission Station
1137 East Mission Blvd
Pomona, CA 91768

Responsible party:
Ms. Lola Navarez
2260 India Street
Los Angeles, CA 90039-3332

Pre-closure letter sent date: N/A

(June 2011)

Site Name/Address: Mission Station/1137 East Mission Blvd Pomona, California 91768	Staff Initial: AJL

Table 4-1: Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE above Drinking Water Aquifers

	Distance Above Groundwater	Carbon Range		
		C4-C12	C13-C22	C23-C32
TPH	>150 feet	1,000	10,000	50,000
	20-150 feet	500	1,000	10,000
	<20 feet	100	100	1,000

	Distance Above Groundwater	Lithology			
		Gravel	Sand	Silt	Clay
BTEX & MTBE	150 feet	B=0.044 T=2 E=8 X=23 MTBE = 0.039	B=0.077 T=4 E=17 X=48 MTBE = 0.078	B=0.165 T=9 E=34 X=93 MTBE = 0.156	B=0.8 T=43 E=170 X=465 MTBE = 0.78
	120 feet	B=0.035 T=1.57 E=6.3 X=17.9 MTBE = 0.028	B=0.058 T=3.1 E=12.7 X=36 MTBE = 0.061	B=0.123 T=7 E=25.9 X=70.3 MTBE = 0.117	B=0.603 T=32 E=128 X=351 MTBE = 0.591
	100 feet	B=0.028 T=1.3 E=5.1 X=14.4 MTBE = 0.020	B=0.046 T=2.57 E=9.86 X=28 MTBE = 0.05	B=0.094 T=5.4 E=20.4 X=55.1 MTBE = 0.091	B=0.471 T=25 E=101 X=276 MTBE = 0.464
	80 feet	B=0.022 T=1 E=4 X=11 MTBE = 0.013	B=0.033 T=2 E=7 X=20 MTBE = 0.039	B=0.066 T=4 E=15 X=40 MTBE = 0.065	B=0.34 T=18 E=73 X=200 MTBE = 0.338
	60 feet	B=0.018 T=0.72 E=2.9 X=7.9 MTBE = 0.013	B=0.026 T=1.4 E=4.9 X=13.9 MTBE = 0.03	B=0.048 T=2.8 E=10.7 X=28.4 MTBE = 0.048	B=0.241 T=13 E=52 X=141.5 MTBE = 0.247
	40 feet	B=0.015 T=0.43 E=1.8 X=4.8 MTBE = 0.013	B=0.018 T=0.87 E=2.8 X=7.8 MTBE = 0.022	B=0.029 T=1.6 E=6.3 X=16.9 MTBE = 0.03	B=0.143 T=7.5 E=30 X=83 MTBE = 0.156
	20 feet	B=0.011 T=0.15 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.3 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.45 E=2 X=5.3 MTBE = 0.013	B=0.044 T=2.3 E=9 X=24.5 MTBE = 0.065

- TPH = Total petroleum hydrocarbons.
- BTEX = benzene, toluene, ethylbenzene, and xylenes, respectively. MTBE = methyl tertiary butyl ether.
- Respective MCLs (ppm): B = 0.001, T = 0.15, E = 0.7, X = 1.75, MTBE = 0.013.
- BTEX screening concentrations determined per the attenuation factor method as described in RWQCB Guidance for VOC Impacted Sites (March 1996), with a natural degradation factor of 11 for BTEX and of 3 for MTBE. Table values can be linearly interpolated between distances above groundwater and are proportional to fraction of each lithological thickness.
- Values in Table 4-1 are for soils above drinking water aquifers. All groundwaters are considered as drinking water resources unless exempted by one of the criteria as defined under SWRCB Resolution 88-63 (TDS>3000 mg/L, or deliverability <200 gal/day, or existing contamination that cannot be reasonably treated). Regional Board staff will make a determination of potential water use at a particular site considering water quality objectives and beneficial uses. For non-drinking water aquifers, regardless of depth, TPH for ">150 feet" category in the table should be used;
- Distance above groundwater must be measured from the highest anticipated water level. Lithology is based on the USCS scale.
- In areas of naturally-occurring hydrocarbons, Regional Board staff will make determinations on TPH levels.

(Revised 1/7/05)

2.0 SITE INFORMATION

2.1 Facility Map

A site vicinity map and a site layout map are presented in Figures 1 and 2, as shown above. The site is located in a commercial area. The site is bounded by East Mission Blvd. to the south, residential areas to the north, and commercial areas (car repair shops, fence manufacturing plant, etc.) to the west and east. San Jose Creek is located approximately one mile east of the site and flows in a southwesterly direction.

2.2 Previous Work Detail

The UST removal activity was conducted on April 14, 1998 by Fletcher Environmental. A Tank Closure Report was prepared on May 15, 1998. During the UST removal activity all USTs were recycled at American Metal Recycling in Ontario, California. The remaining fuel products and rinsates in USTs were transported to Demmeno Kerdoon in Compton, California for treatment and recycling. Excavated soils were first stockpiled on site. Two major stockpiles were created, Stockpile SP1 (approximately 75 cubic yards) was generated during excavation of soil from the gasoline USTs, and Stockpile SP2 (approximately 110 cubic yards) was generated during excavation of soil from the diesel USTs. The stockpiled soil and clean imported soil were used to backfill the tank pits. Soil samples were taken from tank bottom, beneath the dispenser islands and product piping and analyzed for TPH-G, TPH-D, BTEX, MTBE and TRPH accordingly. Results are summarized in the following **Table 1**:

Table 1. Previous Soil Assessment Data

Sample Source	Depth (ft. bgs)	Sample ID	TPH-G (mg/kg)	TPH-D (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TRPH (mg/kg)
USTs	14	T1A	0.13	—	ND	ND	ND	ND	ND	—
	14	T1B	ND	—	ND	ND	ND	ND	ND	—
	14	T2A	640	—	ND	ND	4.58	75.9	ND	—
	14	T2B	ND	—	ND	ND	ND	ND	ND	—
	14	T3A	—	ND	ND	ND	ND	ND	ND	—
	14	T3B	—	21	ND	ND	ND	ND	ND	—
	14	T4A	—	237	ND	ND	ND	0.026	ND	—
	14	T4B	—	ND	ND	ND	ND	ND	ND	—
	8	W/O 1 SA	—	—	ND	ND	ND	ND	—	ND
Dis-penser Islands	2	D1	ND	—	ND	ND	ND	ND	ND	—
	2	D2	0.17	—	ND	ND	ND	0.014	ND	—
	2	D3	—	360	ND	ND	ND	0.009	ND	—
	2	D4	ND	—	ND	ND	ND	ND	ND	—
	2	D5	ND	—	ND	ND	ND	ND	ND	—
	2	D6	—	140	ND	ND	ND	ND	ND	—
	2	D7	ND	—	ND	ND	ND	ND	ND	—
	2	D8	ND	—	ND	ND	ND	ND	ND	—
	2	D9	—	384	ND	ND	ND	ND	ND	—

Sample Source	Depth (ft. bgs)	Sample ID	TPH-G (mg/kg)	TPH-D (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	TRPH (mg/kg)
Pro-duct Line	3	PT1	ND	ND	ND	ND	ND	ND	ND	—
Soil Stock-piles	1	SP1A	0.51	—	ND	ND	ND	0.025	ND	—
	1	SP1B	55	—	ND	0.125	0.288	3.4	ND	—
	1	SP2A	—	21	ND	ND	0.006	0.201	ND	—
	1	SP2B	—	2,300	ND	ND	4.92	92.0	ND	—

Note: —NA: Not Analyzed; ND: Not Detected; bgs: Below Grade Surface.

Based on the above results, it was concluded that soil in the subject site was contaminated with petroleum hydrocarbons by the former UST system. TPH-G ranged from ND to 640 mg/kg was found beneath the former gasoline USTs. TPH-D ranged from ND to 237 mg/kg was found beneath the former diesel USTs. Ethyl benzene (E) and total xylenes (X) were also found beneath the former gasoline USTs, and total xylenes were found beneath former diesel USTs. Low level of TPH-G (to 0.17 mg/kg), 140 to 384 mg/kg of TPH-D, and ND to 0.014 mg/kg of total xylenes were detected beneath the dispenser islands. No petroleum of concerns was found beneath the product line. Based on the above results, Fletcher Environmental suggested no action and site closure for the site. The UST lead agency, Los Angeles County, Department of Public Works, however, required a further site assessment.

MAI conducted a Preliminary Site Assessment (PSA) in October 2000. It consisted of drilling four exploratory soil borings (B1 through B-4) to 40 feet bgs (Figure2). Additionally, at two locations (HA-1 and HA-2) near former dispensers D3 and D9 were selected for hand augur drilling to 20 feet bgs (Figure 2). Due to the fact that no other site assessment was conducted on site for the extent of contamination study in the past, the above boring arrangement represented a preliminary site assessment plan. Soil samples were collected for analysis in accordance with EPA SW-846 procedures.

The analytical results of the soil samples collected from B-1 through B-4 and HA-1 and HA-2 are summarized in **Table 2,** as shown below:

Table 2. Preliminary Site Assessment Results

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	TPH-D (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B1-05'	5	ND	ND	ND	ND	ND	ND	ND
B1-10'	10	330	150	ND	ND	495	6,880	ND
B1-15'	15	ND	ND	ND	ND	ND	176	ND
B1-20'	20	ND	ND	ND	ND	ND	77.1	ND
B1-25'	25	ND	ND	ND	ND	ND	40.5	ND
B1-30'	30	ND	ND	ND	ND	ND	97	ND
B1-35'	35	ND	ND	ND	ND	ND	ND	ND
B1-40'	40	ND	ND	ND	ND	ND	ND	ND

B2-05'	5	ND	ND	ND	ND	ND	ND	ND
B2-10'	10	ND	ND	ND	ND	ND	ND	ND
B2-15'	15	ND	ND	ND	ND	ND	ND	ND
B2-20'	20	ND	ND	ND	ND	ND	ND	ND
B2-25'	25	ND	ND	ND	ND	ND	ND	ND
B2-30'	30	ND	ND	ND	ND	ND	ND	ND
B3-05'	5	ND	ND	ND	ND	ND	ND	ND
B3-10'	10	ND	ND	ND	ND	ND	ND	ND
B3-15'	15	ND	ND	ND	ND	406	44	ND
B3-20'	20	ND	ND	ND	ND	ND	ND	ND
B3-25'	25	1,290	ND	ND	1,990	11,300	53,500	ND
B3-30'	30	606	ND	ND	1,240	6,880	26,400	ND
B3-35'	35	412	ND	ND	424	4,240	20,600	ND
B3-40'	40	344	ND	ND	554	4,180	16,700	ND
B4-05'	5	ND	ND	ND	ND	ND	ND	ND
B4-10'	10	ND	ND	ND	ND	ND	ND	ND
B4-15'	15	ND	ND	ND	ND	ND	ND	ND
B4-20'	20	ND	ND	ND	ND	ND	ND	ND
B4-25'	25	ND	ND	ND	ND	ND	ND	ND
B4-30'	30	ND	ND	ND	ND	ND	ND	ND
B4-35'	35	ND	ND	ND	ND	ND	ND	ND
B4-40'	40	ND	ND	ND	ND	ND	ND	ND
HA1-5'	5	ND	ND	ND	ND	ND	ND	ND
HA1-10'	10	ND	ND	ND	ND	ND	ND	ND
HA2-5'	5	ND	ND	ND	ND	ND	ND	ND
HA2-10'	10	ND	ND	ND	ND	ND	ND	ND

Gasoline was detected in B-1 and B-3, in concentrations from 330 ppm at 10 feet depth in B-1 and 1,290 to 344 ppm from depths 25 to 40 feet in B-3. These data were consistent with the former TPH-G data during UST removal (see Table 1), and former gasoline tank (T2) location data.

Diesel was also detected in B-1, which was closed to a former diesel tank (T3) location (see Figure 2), and consistent with data near previous tank removal location. Although other locations (B-2 to B-4) did not show any TPH-D, it is suggested that diesel might be leaked from both T3 and T4 tanks (based on previous data as shown in Table 1). B-3 and B-4 were too far from T3 and T4 (diesel tanks) locations and therefore, no diesel could be detected.
T (Toluene), E (Ethyl benzene), and X (Total Xylene) were found in B-3 with very high levels. E and X were also found in B1, at 10 feet depth. These data, again, were consistent with gasoline results.

No TPH-G, TPH-D, BTEX, and MTBE were found in both HA-1 and HA-2 at 5 and 10 feet bgs. Due to the fact that TPH-D was found at 2 feet depth of D3, D6, and D9 dispensers (see Figure 2 and Table 1), HA-1 (about 1 foot east of D3) and HA-2 (about 1 foot east of D9) were selected for investigation. Since no TPH-D was found at 5 and 10-foot samples in both HA-1 and HA-2, it is suggested that the diesel release in these locations might be limited to very shallow depths (i.e., <5'). If further investigation of extent of contamination in the dispenser areas is needed in the future, it is suggested to focus in shallower depths. These results also show that, although depths of HA-1 and HA-2 were not extended to 20 feet, no negative impacts would be resulted in this investigation.

The preliminary site assessment results indicated that the gasoline contamination in the soil strata had extended deeper than 40 feet and horizontal extent of contamination had extended beyond the boring locations. A second site assessment was therefore authorized by the Los Angeles County to further assess the vertical and horizontal extents of contamination at this site by conducting additional soil borings. This second site assessment consisted of drilling four soil borings (B-5 through B-8) to 60 feet bgs (Figure 2). Additionally, four locations (HA-3 and HA-6) near former dispensers D3 and D9 were drilled by hand augur to 3 to 5 feet bgs (Figure 2). Results of this study are shown in Table 3. Results showed that the vertical extent of contamination is beyond 60 feet bgs. Based on analytical results and previous data, the locations of the four selected borings are all right outside or near the contamination boundaries. The horizontal extents of contamination caused by the gasoline leaks can, therefore, be identified. The vertical extent of contamination at B-6 is about 55 feet bgs. The vertical extent of contamination around B-8 and B-1 areas is estimated at 75 to 80 feet and 55 feet, respectively. Vertical extents of contamination of other areas are unknown. As a result, the third site assessment (B9) was conducted for the identification of the vertical extent of contamination. Data are shown in **Table 3.** . It is estimated that the deepest contamination occurs at about 120 feet bgs.

Table 3. Additional Site Assessment Results

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	TPH-D (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B5-5'	5	ND	ND	ND	ND	ND	ND	ND
B5-10'	10	ND	ND	ND	ND	ND	ND	ND
B5-15'	15	ND	ND	ND	ND	ND	ND	ND
B5-20'	20	ND	ND	ND	ND	ND	ND	ND
B5-25'	25	ND	ND	ND	ND	ND	ND	ND
B5-30'	30	ND	ND	ND	ND	ND	ND	ND
B5-35'	35	ND	ND	ND	ND	ND	ND	ND
B5-40'	40	ND	ND	ND	ND	ND	ND	ND
B5-45'	45	ND	ND	ND	ND	ND	ND	ND
B5-50'	50	ND	ND	ND	ND	ND	ND	ND
B5-55'	55	ND	ND	38.5	ND	11.2	79.5	ND
B5-60'	60	ND	ND	5.2	ND	ND	38.7	ND
B6-5'	5	ND	ND	ND	ND	ND	ND	ND

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	TPH-D (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B6-10'	10	ND	ND	ND	ND	ND	ND	ND
B6-15'	15	ND	ND	ND	ND	ND	ND	ND
B6-20'	20	ND	ND	ND	ND	ND	ND	ND
B6-25'	25	ND	ND	ND	ND	ND	ND	ND
B6-30'	30	ND	ND	ND	ND	ND	ND	ND
B6-35'	35	ND	ND	ND	ND	ND	ND	ND
B6-40'	40	No	sample	obtained	—	—	—	—
B6-45'	45	ND	ND	ND	ND	ND	ND	ND
B6-50'	50	5.1	ND	30.5	96.1	47.4	530	ND
B6-55'	55	3.5	ND	33.4	18.7	5.0	411	ND
B6-60'	60	ND	ND	ND	ND	ND	ND	ND
B-7-5'	5	ND	ND	ND	ND	ND	ND	ND
B7-10'	10	ND	ND	ND	ND	ND	ND	ND
B7-15'	15	ND	ND	ND	ND	ND	ND	ND
B7-20'	20	ND	ND	ND	ND	ND	ND	ND
B7-25'	25	ND	ND	ND	ND	ND	ND	ND
B7-30'	30	ND	65.0	ND	ND	15.0	89.7	ND
B7-35'	35	ND	73.0	ND	12.0	5.0	350	ND
B7-40'	40	ND	95.0	ND	ND	48.0	2510	ND
B7-45'	45	ND	ND	ND	ND	ND	ND	ND
B7-50'	50	ND	ND	ND	ND	ND	ND	ND
B7-55'	55	ND	ND	ND	ND	ND	ND	ND
B7-60'	60	ND	ND	ND	ND	ND	ND	ND
B8-5'	5	ND	ND	ND	ND	ND	ND	ND
B8-10'	10	ND	ND	ND	ND	ND	ND	ND
B8-15'	15	ND	ND	ND	ND	ND	ND	ND
B8-20'	20	ND	ND	ND	ND	ND	ND	ND
B8-25'	25	ND	ND	ND	ND	ND	ND	ND
B8-30'	30	ND	ND	ND	ND	ND	ND	ND
B8-35'	35	ND	ND	ND	ND	ND	ND	ND
B8-40'	40	ND	ND	ND	ND	ND	ND	ND
B8-45'	45	ND	ND	ND	ND	ND	ND	ND
B8-50'	50	3.0	ND	3.3	13.6	6.6	82.1	ND
B8-55'	55	3.5	ND	18.1	32.5	16.4	325	ND
B8-60'	60	8.0	ND	22.5	43.1	32.5	401	ND
HA3-5	5	ND	ND	ND	ND	ND	ND	ND
HA3-8	8	ND	ND	ND	ND	ND	ND	ND
HA4-5	5	ND	ND	ND	ND	ND	ND	ND
HA4-8	8	ND	ND	ND	ND	ND	ND	ND
HA5-5	5	ND	ND	ND	ND	ND	ND	ND
HA5-9	9	ND	ND	ND	ND	ND	ND	ND
HA6-5	5	ND	ND	ND	ND	ND	ND	ND
HA6-8	8	ND	ND	ND	ND	ND	ND	ND
B9-5'	5	ND	ND	ND	ND	ND	ND	ND
B9-10'	10	ND	ND	ND	10	8	68	ND
B9-15'	15	ND	ND	ND	ND	ND	ND	ND
B9-20'	20	ND	ND	ND	ND	ND	ND	ND
B9-25'	25	2,470	ND	30	840	225	33,800	ND
B9-30'	30	667	ND	5	450	1,480	6,550	ND
B9-35'	35	795	ND	7	33	3,900	7,200	ND
B9-40'	40	1,950	ND	180	90	8,850	24,000	ND
B9-45'	45	2,220	ND	450	4,800	11,400	60,000	ND
B9-50	50	3,990	ND	5,250	39,600	16,500	57,300	ND
B9-55	55	4,920	ND	16,900	41,400	15,400	51,000	ND

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	TPH-D (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B9-60"	60	6,760	ND	14,100	51,100	25,800	69,000	ND
B9-65'	65	1,760	ND	4,740	7,800	12,500	48,000	ND
B9-70'	70	150	ND	110	880	1,520	3,700	ND
B9-75'	75	ND	ND	9	67	16	112	ND
B9-80'	80	ND	ND	6	52	6	38	ND
B9-85'	85	ND	ND	5	30	7	56	ND
B9-90'	90	6.7	ND	6	66	39	336	ND
B9-95'	95	5.0	ND	ND	109	37	215	ND
B9-100'	100	5.8	ND	52	468	90	570	ND
B9-105'	105	8.0	ND	9	274	126	810	ND
B9-110'	110	5.0	ND	8	85	32	176	ND
B9-115'	115	3.0	ND	5	76	21	167	ND
B9-120'	120	15.0	ND	64	730	216	950	ND
B9-125'	125	ND	ND	ND	ND	ND	ND	ND
B9-130'	130	ND	ND	ND	ND	ND	ND	ND

All the above soil data obtained are findings before remediation was initiated. After remediation activities, On August 24 and 25, 2006 Two (2) confirmation borings (B10 and B11) were drilled in order to measure the effectiveness of soil remediation was conducted on. Results are shown in **Table 4.**

Table 4. Soil Assessment Results of Interim Remediation Tests

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	TPH-D (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B10-5'	5	ND	ND	ND	ND	ND	ND	ND
B10-10'	10	ND	ND	ND	ND	ND	ND	ND
B10-15'	15	ND	ND	ND	ND	ND	ND	ND
B10-20'	20	ND	ND	ND	ND	ND	ND	ND
B10-25'	25	ND	ND	ND	ND	ND	ND	ND
B10-30'	30	ND	ND	ND	ND	ND	ND	ND
B10-35'	35	ND	ND	ND	ND	ND	ND	ND
B10-40'	40	ND	ND	ND	ND	ND	ND	ND
B10-45'	45	ND	ND	ND	ND	ND	ND	ND
B10-50	50	2,430	5.8	ND	4,170	35,910	410,435	ND
B10-55	55	101	ND	ND	2,181	1,810	7,255	ND
B10-60"	60	120	1.0	ND	8,608	9,085	60,800	ND
B10-65'	65	10	ND	ND	313	1,128	10,750	ND
B10-70'	70	ND	ND	ND	ND	ND	ND	ND
B10-75'	75	ND	ND	ND	ND	ND	ND	ND
B10-80'	80	ND	ND	ND	ND	ND	ND	ND
B10-85'	85	ND	ND	ND	ND	ND	ND	ND
B10-90'	90	ND	ND	ND	ND	ND	ND	ND
B10-95'	95	ND	ND	ND	ND	ND	ND	ND
B10-100'	100	ND	ND	ND	ND	ND	ND	ND
B10-105'	105	ND	ND	ND	ND	ND	ND	ND
B10-110'	110	ND	ND	ND	ND	ND	ND	ND
B10-115'	115	ND	ND	ND	ND	ND	ND	ND
B10-120'	120	ND	ND	ND	ND	ND	ND	ND

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	TPH-D (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B11-5'	5	ND	ND	ND	ND	ND	ND	ND
B11-10'	10	ND	ND	ND	ND	ND	ND	ND
B11-15'	15	ND	ND	ND	ND	ND	ND	ND
B11-20'	20	ND	ND	ND	ND	ND	ND	ND
B11-25'	25	ND	ND	ND	ND	ND	59	ND
B11-30'	30	20	ND	ND	ND	ND	46	ND
B11-35'	35	5	ND	ND	ND	ND	ND	ND
B11-40'	40	ND	ND	ND	ND	ND	ND	ND
B11-45'	45	ND	ND	ND	ND	ND	ND	ND
B11-50	50	57	1	ND	ND	ND	17,909	ND
B11-55	55	25	ND	ND	ND	ND	3,514	ND
B11-60"	60	77	2	ND	7,215	6,459	27,182	ND
B11-65'	65	15	ND	ND	ND	ND	37	ND
B11-70'	70	1.5	ND	ND	ND	ND	ND	ND
B11-75'	75	ND	ND	ND	ND	ND	ND	ND
B11-80'	80	ND	ND	ND	ND	ND	ND	ND
B11-85'	85	ND	ND	ND	ND	ND	ND	ND
B11-90'	90	ND	ND	ND	ND	ND	ND	ND
B11-95'	95	ND	ND	ND	ND	ND	ND	ND
B11-100'	100	ND	ND	ND	ND	ND	ND	ND
B11-105'	105	ND	ND	ND	ND	ND	ND	ND
B11-110'	110	ND	ND	ND	ND	ND	ND	ND
B11-115'	115	ND	ND	ND	ND	ND	ND	ND
B11-120'	120	ND	ND	ND	ND	ND	ND	ND

A preliminary Confirmation Test (or Verification Test) was conducted on June 18 to 19, 2007 which comprise of drilling four exploratory soil borings (B-12, B-13, B-14 and B-15) to 90 feet bgs depth based on information obtained in previous studies. These boring locations are shown in **Figure 2.**

The B-12 location was selected to be near extraction well E-2, for the evaluation of the soil remediation status in the eastern area of the contaminated site. This boring location is near the previous boring tests of B-10, V2, E-2 and B-3.

The B-13 location was selected to be near Extraction Well I-1, for the evaluation of the status of soil remediation near the heaviest contaminated area previously detected. This boring (B-13) is also near previous borings V1 and B-11 for comparisons.

The B-14 location was selected near extraction well E-1, for the evaluation of the status of soil remediation in the northwestern area of the contaminated site. The boring (B-14) is near previous borings E-1, B11, and I-1 for comparisons.

B-15 was selected near extraction well E-3, for the evaluation of the southwestern area of the site. This boring is near V4, and E-3 for comparisons.

Results of the Verification (Preliminary Confirmation) tests are shown in **Table 5** below:

Table 5. Soil Assessment Results of the Verification (Preliminary Confirmation) Tests

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B12-5'	5	ND **	ND	ND	ND	ND	ND
B12-10'	10	ND	ND	ND	ND	ND	ND
B12-15'	15	ND	ND	ND	ND	ND	ND
B12-20'	20	ND	ND	ND	ND	ND	ND
B12-25'	25	ND	ND	ND	ND	ND	ND
B12-30'	30	ND	ND	ND	ND	ND	ND
B12-35'	35	ND	ND	ND	ND	ND	ND
B12-40'	40	ND	ND	ND	ND	ND	ND
B12-45'	45	ND	ND	ND	ND	ND	ND
B12-50'	50	25.4	ND	ND	275	5,190	ND
B12-55'	55	286.8	ND	ND	5,020	67,970*	ND
B12-60'	60	17.1	ND	ND	ND	913	ND
B12-65'	65	22.4	ND	ND	ND	1,255	ND
B12-70'	70	ND	ND	ND	ND	ND	ND
B12-75'	75	ND	ND	ND	ND	ND	ND
B12-80'	80	ND	ND	ND	ND	ND	ND
B12-85'	85	ND	ND	ND	ND	ND	ND
B12-90'	90	ND	ND	ND	ND	ND	ND
B13-5'	5	ND	ND	ND	ND	ND	ND
B13-10'	10	ND	ND	ND	ND	ND	ND
B13-15'	15	ND	ND	ND	ND	ND	ND
B13-20'	20	ND	ND	ND	ND	ND	ND
B13-25'	25	ND	ND	ND	ND	59	ND
B13-30'	30	ND	ND	ND	ND	46	ND
B13-35'	35	ND	ND	ND	ND	ND	ND
B13-40'	40	ND	ND	ND	ND	ND	ND
B13-45'	45	ND	ND	ND	ND	ND	ND
B13-50'	50	185.9	ND	ND	ND	44,230	ND
B13-55'	55	2,158	ND	5,363	14,931	1,283,125	ND
B13-60'	60	124.1	ND	ND	2,563	27,770	ND
B13-65'	65	ND	ND	ND	ND	ND	ND
B13-70'	70	ND	ND	ND	ND	ND	ND
B13-75'	75	ND	ND	ND	ND	ND	ND
B13-80'	80	ND	ND	ND	ND	ND	ND
B13-85'	85	ND	ND	ND	ND	ND	ND
B13-90'	90	ND	ND	ND	ND	ND	ND

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B14-5'	5	ND	ND	ND	ND	ND	ND
B14-10'	10	ND	ND	ND	ND	ND	ND
B14-15'	15	ND	ND	ND	ND	ND	ND
B14-20'	20	ND	ND	ND	ND	ND	ND
B14-25'	25	ND	ND	ND	ND	59	ND
B14-30'	30	ND	ND	ND	ND	46	ND
B14-35'	35	ND	ND	ND	ND	ND	ND
B14-40'	40	ND	ND	ND	ND	ND	ND
B14-45'	45	104.3	ND	ND	563	10,375	ND
B14-50'	50	125.6	ND	ND	710	12,715	ND
B14-55'	55	2,790	ND	1,150	59,155	250,430	ND
B14-60'	60	590.1	ND	ND	2,380	34,202	ND
B14-65'	65	1.1	ND	ND	ND	56	ND
B14-70'	70	1.8	ND	ND	ND	338	ND
B14-75'	75	0.9	ND	ND	ND	ND	ND
B14-80'	80	3.5	ND	ND	43	636	ND
B14-85'	85	ND	ND	ND	ND	ND	ND
B14-90'	90	4.2	ND	ND	34	463	ND
B15-5'	5	1.4	ND	ND	ND	151	ND
B15-10'	10	ND	ND	ND	ND	ND	ND
B15-15'	15	ND	ND	ND	ND	ND	ND
B15-20'	20	ND	ND	ND	ND	ND	ND
B15-25'	25	ND	ND	ND	ND	ND	ND
B15-30'	30	ND	ND	ND	ND	ND	ND
B15-35'	35	ND	ND	ND	ND	ND	ND
B15-40'	40	ND	ND	ND	ND	ND	ND
B15-45'	45	ND	ND	ND	ND	ND	ND
B15-50'	50	ND	ND	ND	ND	ND	ND
B15-55'	55	1.2	ND	ND	ND	ND	ND
B15-60'	60	0.2	ND	ND	ND	ND	ND
B15-65'	65	ND	ND	ND	ND	ND	ND
B15-70'	70	ND	ND	ND	ND	ND	ND
B15-75'	75	ND	ND	ND	ND	ND	ND
B15-80'	80	ND	ND	ND	ND	ND	ND
B15-85'	85	ND	ND	ND	ND	ND	ND
B15-90'	90	ND	ND	ND	ND	ND	ND

* Figure in red means that the cleanup goal is not achieved.

** ND: Below Detection Limits. The Detection Limits for all of the above table results are: TPH-G 0.2 ppm, B: 1 ppb, T: 1 ppb, E: 1 ppb, X: 2 ppb, MTBE: 1 ppb, ETBE: 1 ppb, DIPE: 1 ppb, TAME: 1 ppb, TBA: 20 ppb.

Table 6. Soil Assessment Results of the Confirmation Tests

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B16-5'	5	ND	ND	ND	ND	ND	ND
B16-10'	10	ND	ND	ND	ND	ND	ND
B16-15'	15	ND	ND	ND	ND	ND	ND
B16-20'	20	ND	ND	ND	ND	ND	ND
B16-25'	25	ND	ND	ND	ND	ND	ND
B16-30'	30	ND	ND	ND	ND	ND	ND
B16-35'	35	ND	ND	ND	ND	ND	ND
B16-40'	40	ND	ND	ND	ND	ND	ND
B16-45'	45	ND	ND	ND	ND	ND	ND
B16-50'	50	12.9	ND	ND	98	1893	ND
B16-60'	60	ND	ND	ND	ND	36	ND
B16-65'	65	1.2	ND	ND	15	135	ND
B16-70'	70	ND	ND	ND	ND	ND	ND
B16-75'	75	ND	ND	ND	ND	ND	ND
B16-80'	80	ND	ND	ND	ND	ND	ND
B16-85'	85	ND	ND	ND	ND	ND	ND
B16-90'	90	ND	ND	ND	ND	ND	ND
B17-5'	5	ND	ND	ND	ND	ND	ND
B17-10'	10	ND	ND	ND	ND	ND	ND
B17-15'	15	ND	ND	ND	ND	ND	ND
B17-20'	20	ND	ND	ND	ND	ND	ND
B17-25'	25	18.0	ND	ND	ND	334	ND
B17-30'	30	5.7	ND	ND	ND	91	ND
B17-35'	35	5.5	ND	ND	ND	ND	ND
B17-40'	40	ND	ND	ND	ND	ND	ND
B17-45'	45	ND	ND	ND	ND	20	ND
B17-50'	50	1175	ND	ND	26684	565946	ND
B17-55'	55	1100	ND	9118	114451	790777	ND
B17-60'	60	857.1	ND	961	26282	225670	ND
B17-65'	65	1.2	ND	ND	22	213	ND
B17-70'	70	ND	ND	ND	11	116	ND
B17-75'	75	ND	ND	ND	ND	33	ND
B17-80'	80	10.7	ND	44	260	2516	ND
B17-85'	85	1.5	ND	9	50	480	ND
B17-90'	90	ND	ND	ND	ND	50	ND

Sample ID	Depth (ft. bgs)	TPH-G (ppm)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
B18-5'	5	ND	ND	ND	ND	ND	ND
B18-10'	10	ND	ND	ND	ND	ND	ND
B18-15'	15	ND	ND	ND	ND	ND	ND
B18-20'	20	ND	ND	ND	ND	ND	ND
B18-25'	25	ND	ND	ND	ND	ND	ND
B18-30'	30	ND	ND	ND	ND	ND	ND
B18-35'	35	ND	ND	ND	ND	ND	ND
B18-40'	40	ND	ND	ND	ND	ND	ND
B18-45'	45	ND	ND	ND	ND	ND	ND
B18-50'	50	42.5	ND	8	165	4235	ND
B18-55'	55	87.6	ND	ND	530	9400	ND
B18-60'	60	19.8	ND	ND	64	1242	ND
B18-65'	65	18.5	ND	ND	32	764	ND
B18-70'	70	ND	ND	ND	ND	ND	ND
B18-75'	75	ND	ND	ND	ND	71	ND
B18-80'	80	ND	ND	ND	ND	20	ND
B18-85'	85	ND	ND	ND	ND	ND	ND
B18-90'	90	ND	ND	ND	ND	ND	ND
B19-5'	5	ND	ND	ND	ND	ND	ND
B19-10'	10	ND	ND	ND	ND	ND	ND
B19-15'	15	ND	ND	ND	ND	ND	ND
B19-20'	20	ND	ND	ND	ND	ND	ND
B19-25'	25	ND	ND	ND	ND	ND	ND
B19-30'	30	ND	ND	ND	ND	ND	ND
B19-40'	40	ND	ND	ND	ND	ND	ND
B19-45'	45	ND	ND	ND	27	ND	ND
B19-50'	50	3.7	ND	54	707	427	ND
B19-55'	55	75.8	ND	ND	6	10400	ND
B19-60'	60	2.1	ND	ND	ND	86	ND
B19-65'	65	ND	ND	ND	ND	16	ND
B19-70'	70	ND	ND	ND	ND	ND	ND
B19-75'	75	ND	ND	ND	ND	ND	ND
B19-80'	80	ND	ND	ND	ND	84	ND
B19-85'	85	ND	ND	7	13	310	ND
B19-90'	90	ND	ND	ND	15	192	ND

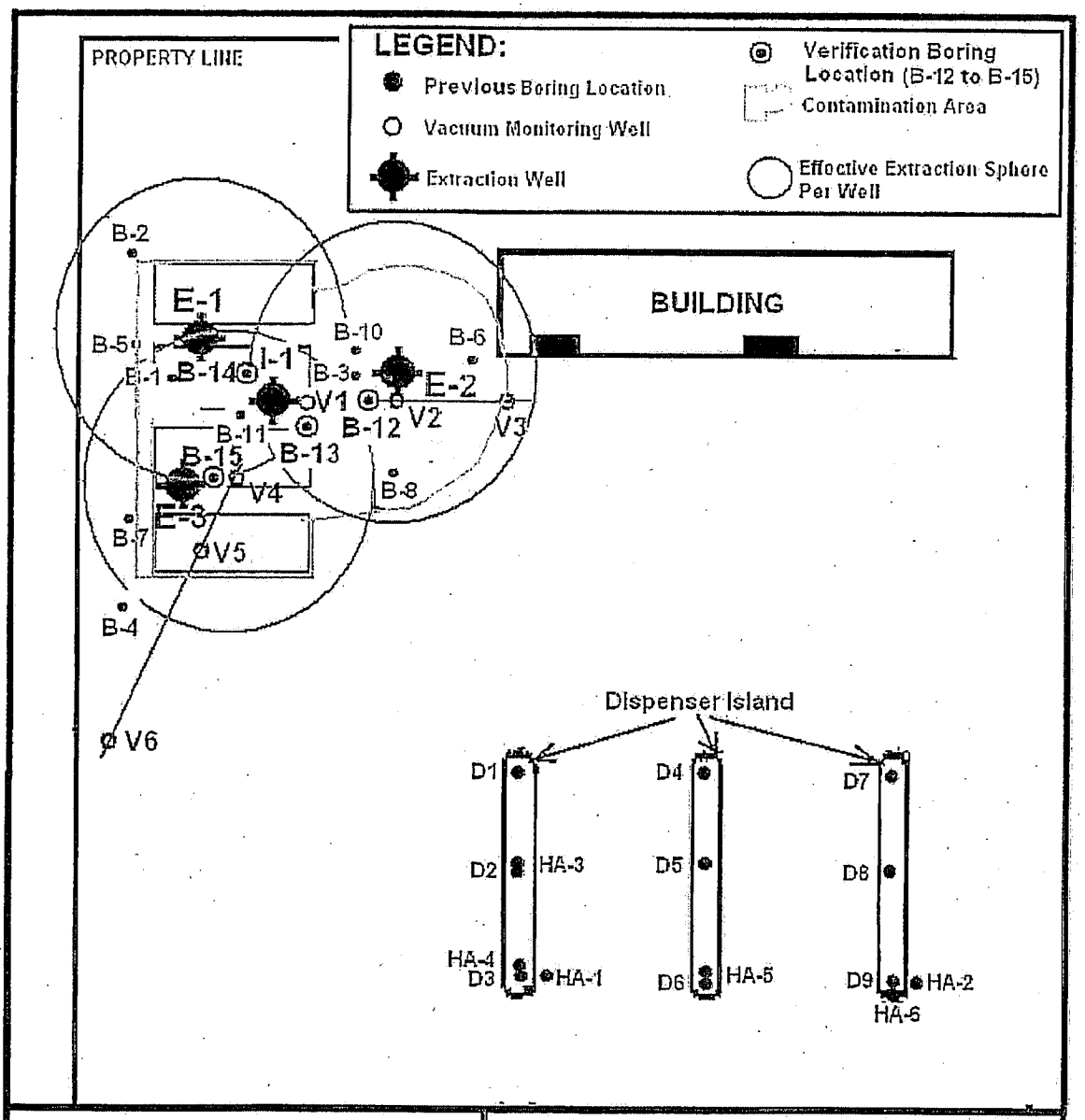
** ND: Below Detection Limits. The Detection Limits for all of the above table results are: TPH-G 0.2 ppm, B: 1 ppb, T: 1 ppb, E: 1 ppb, X: 2 ppb, MTBE: 1 ppb, ETBE: 1 ppb, DIPE: 1 ppb, TAME: 1 ppb, TBA: 20 ppb.



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Figure 1.

Site Location Map



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Figure 2. Site Layout Map and Previous Boring Locations

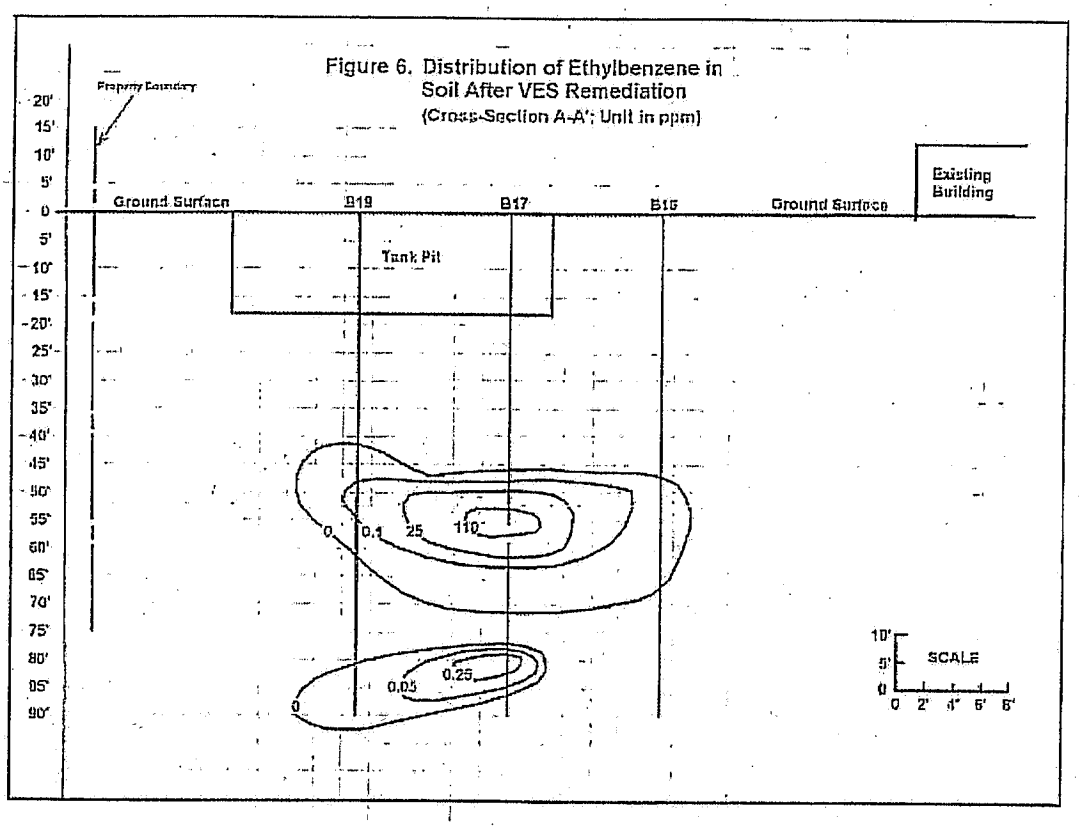


Figure 6. Distribution of Ethylbenzene in Soil After VES Remediation (Cross-Section A-A'; Unit in ppm)

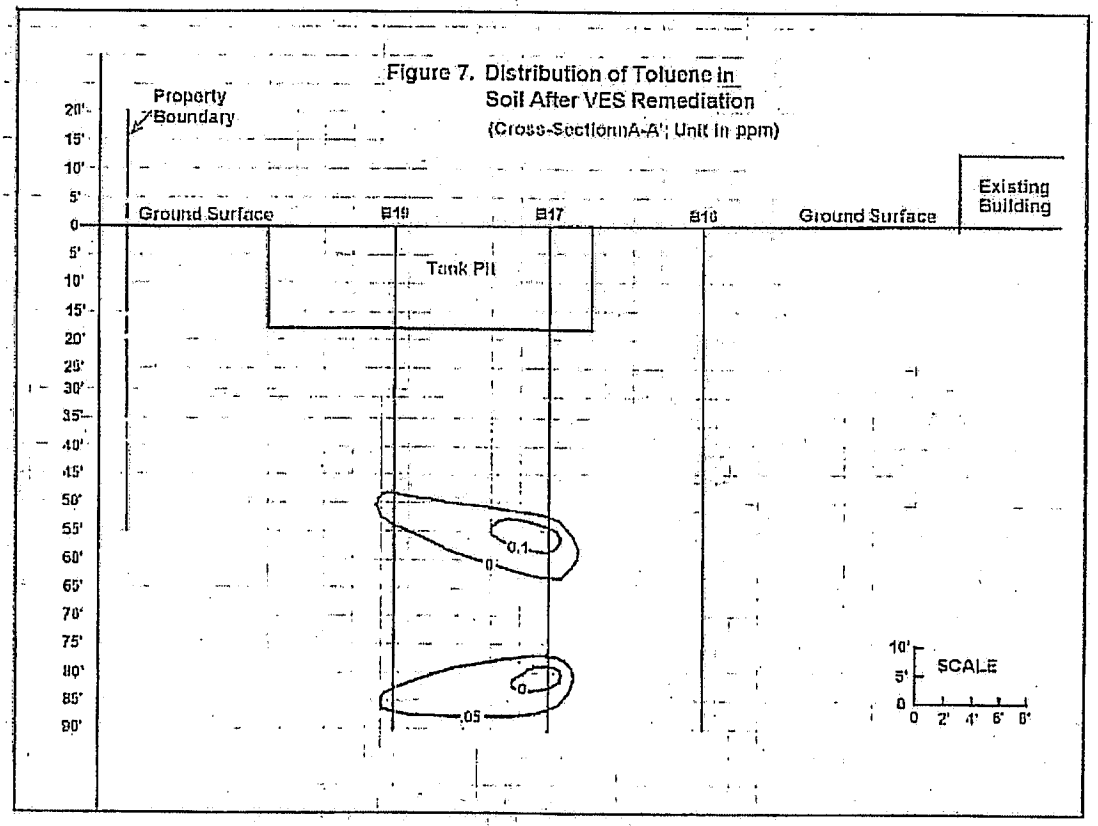
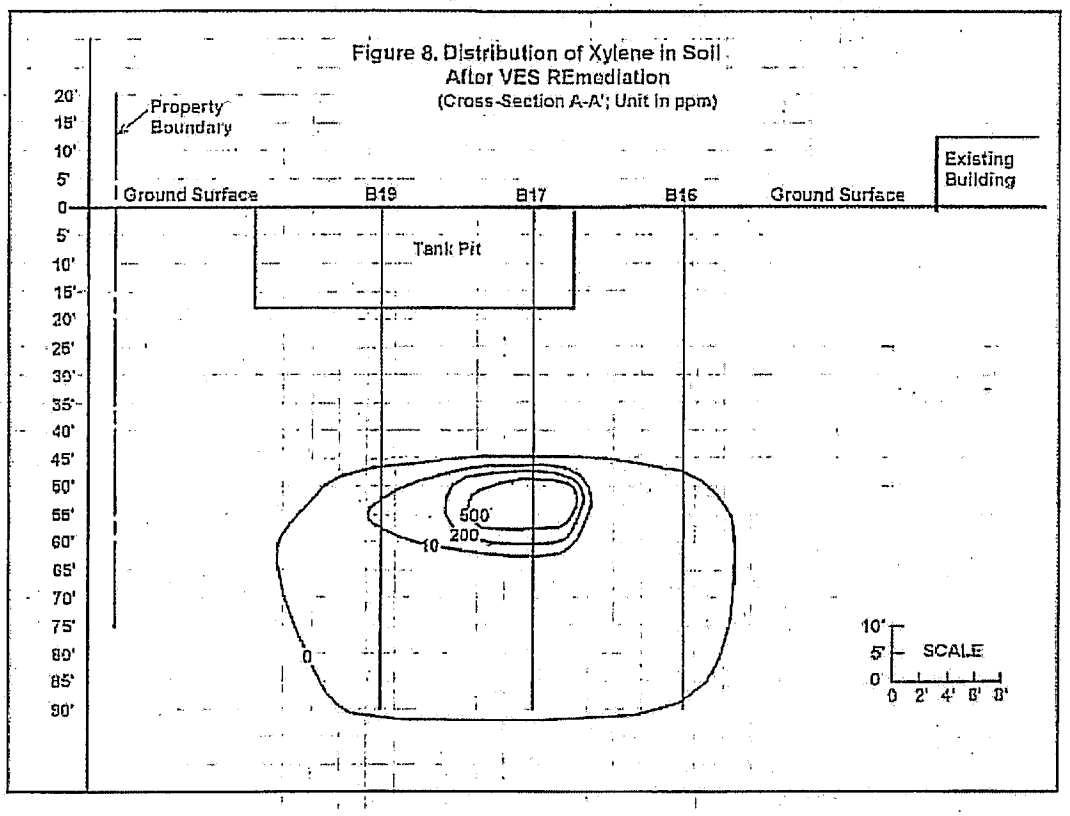


Figure 7. Distribution of Toluene in Soil After VES Remediation (Cross-SectionA-A'; Unit in ppm)



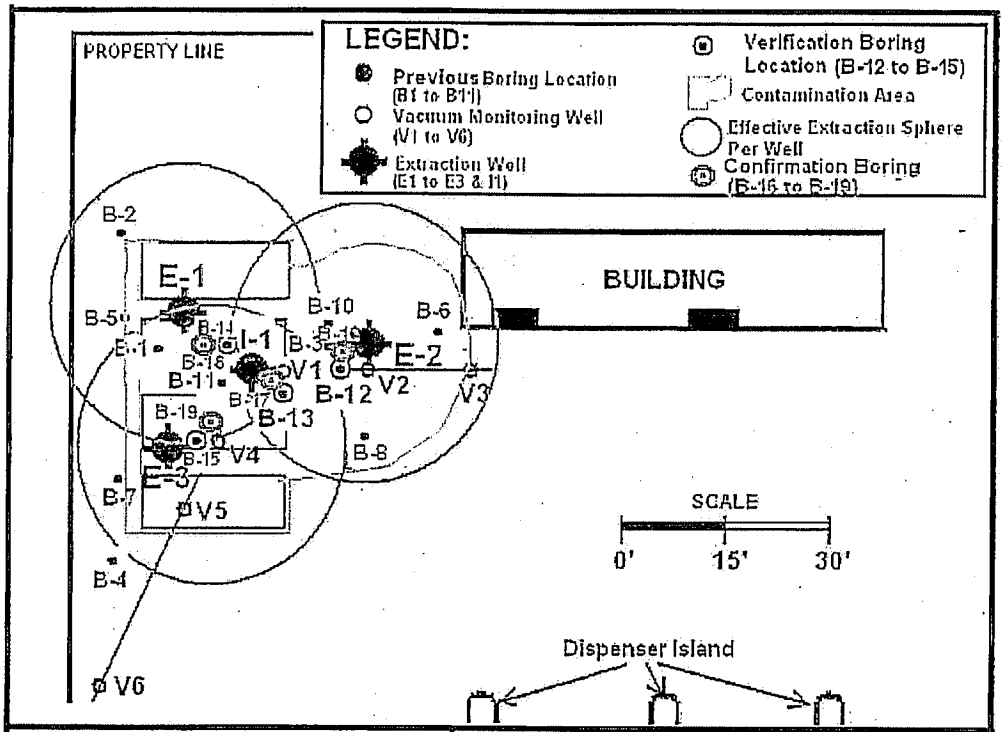
Transport Mechanisms and Exposure Pathways

As discussed above and documented in the evaluation results shown in Figure 4, the only potential source is the contaminated soil located between approximately 50' and 90' bgs of the USTs pit with horizontal diameter about 30' (refer to Figures 6 to 8). There are two potential transport mechanisms:

(1) volatilization of toluene, ethyl benzene, and total xylene from the deep source contaminated soil. Then migration of these vapors through the subsurface soil environment, and eventually reaching to the parking lot surface and, through atmospheric dispersion, to receptors; and

(2) volatilization of toluene, ethyl benzene, and total xylene from deep source contaminated soil, then migration of these vapors through the subsurface soil environment, and eventually reaching to the enclosed-space (existing building) environment to be inhaled by receptors.

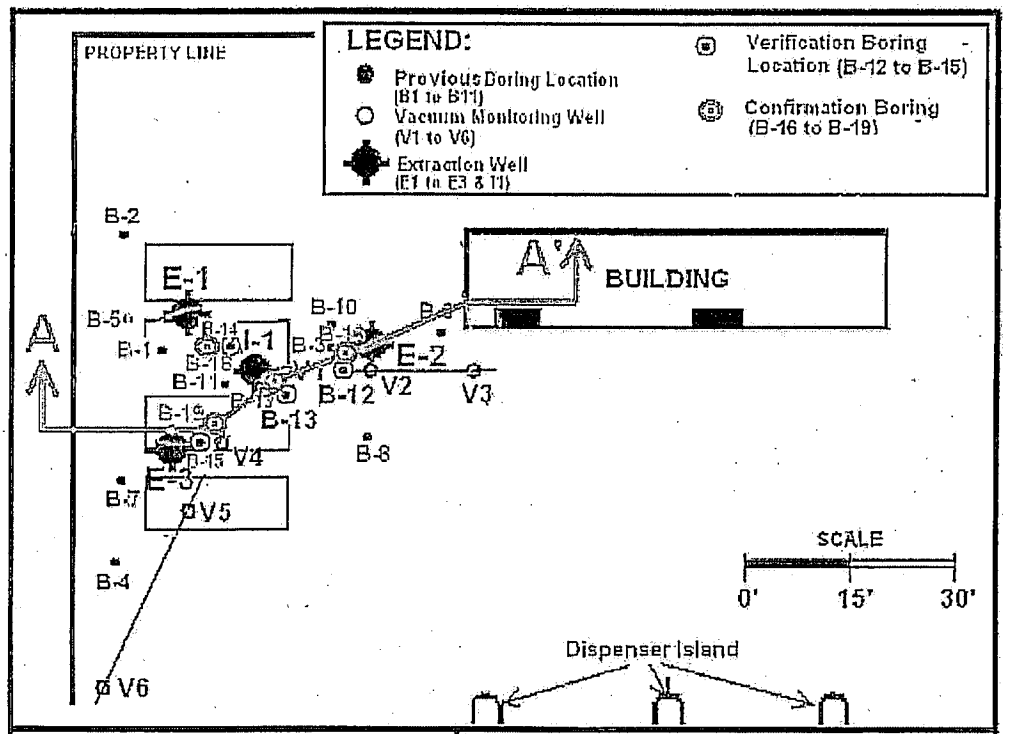
The subsurface lithology at the site found through the numerous previous site assessments are: shallow soils (< 15 feet) in the subject site including uniform silty sands with small amount of pea gravel (< 1/4"), dry and no odor (with USCS symbol SM). The deeper soils are primarily silty sands also usually dry to slightly



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Figure 3. Proposed Confirmation Boring Locations



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Figure 5. Cross-Section A-A' Location

Boring Location: E-1 (1137 E. Mission Bl., Pomona, CA)	Elevation and Datum: 865' msl
Drilling Company: ABC Liovin Drilling	Date Started: 5/13/04 / Date Finished: 5/13/04
Drilling Equipment: CME 85	Date Developed/Sampled: 5/13/04
Type/Diameter of Casing: 21/2" Ø PVC	Completion Depth: 100'
Type of Perforation: 0.01" Screen, 50' -100'	Number of Samples: 20
Type of Perforation Backfill: Sand	Water Depth: N/A
Type of Seal: Bentonite	Logged By: J. Lu / Checked By:

Depth (Ft.)	Description	Graphic Log: Lithology	Well Const.	USCS	ova-ppm	Blow Count	Samples	Remarks
0	Dirt ground, Dark brown, poorly graded silty sands to sand-silty mixtures, with small amount of pea gravels (< 1/4"), dry, no odor.			SM				* 2 1/2" Ø well casing, anual space filled w/bentonite to 48' bgs.
5	Same as above				0	20,25,24	1	Sample ID E1-5'
				SM				
10	Same as above, but tight soil.			SM	0	3,3,4	1	Sample ID E1-10'
15					0	5,29,50 for 3"	1	Sample ID E1-15'
	Dark brown, poorly graded sands, with small amount of gravels (1/4" to 1/2"), dry, no odor.			SP				
20	Same as above , but less gravels.				0	21, 50 for 3"	1	Sample ID E1-20'
				SP				
25	Same as above, with small amount of gravels (as above) again.			SP	0	9,14,22	1	Sample ID E1-25'
30					0	24, 50 for 6"	1	Sample ID E1-30'

Morgan & Associates, Inc.

Log of E1 Extraction Well
Pomona - Mission Station

Project No.: Pomona/Navarez
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PM: J. Lu
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Boring Location: E-1 (1137 E. Mission Bl., Pomona, CA)	Elevation and Datum: 865' msl
Drilling Company: ABC Liovin Drilling	Date Started: 5/13/04 / Date Finished: 5/13/04
Drilling Equipment: CME 85	Date Developed/Sampled: 5/13/04
Type/Diameter of Casing: 2 1/2 " Ø PVC	Completion Depth: 100'
Type of Perforation: 0.01" Screen, 50' -100'	Number of Samples: 20
Type of Perforation Backfill: Sand	Water Depth: N/A
Type of Seal: Bentonite	Logged By: J. Lu / Checked By:

Depth (Ft.)	Description	Graphic Log: Lithology	Well Const.	USCS	ova-ppm	Blow Count	Samples	Remarks
30	Dark brown, poorly graded sands with small amount of gravels (1/4" to 1/2"), tight soil, dry, no odor.			SP				
35	Same as above.				0	42,43,50	1	Sample ID E1-35'
				SP				
40	Same as above, but slight odor.			SP	0	50 for 3"	1	Sample ID E1-40'
45					50	49,50 for 6"	1	Sample ID E1-45'
	Same as above, but slight odor.			SP				
50	~~Same as above, no odor.~~				50	15,23,27	1	Sample ID E1-50'
				SP				
55	Same as above.			SP	0	16,21,26	1	Sample ID E1-55'
60					0	32,50 for 6"	1	Sample ID E1-60'

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Log of E1 Extraction Well
Pomona - Mission Station

Project No.: Pomona/Navarez
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Boring Location: E-1 (1137 E. Mission Bl., Pomona, CA)	Elevation and Datum: 865' msl
Drilling Company: ABC Liovin Drilling	Date Started: 5/13/04 / Date Finished: 5/13/04
Drilling Equipment: CME 85	Date Developed/Sampled: 5/13/04
Type/Diameter of Casing: 2 1/2" Ø PVC	Completion Depth: 100'
Type of Perforation: 0.01" Screen, 50' -100'	Number of Samples: 20
Type of Perforation Backfill: Sand	Water Depth: N/A
Type of Seal: Bentonite	Logged By: J. Lu / Checked By:

Depth (Ft.)	Description	Graphic Log: Lithology	Graphic Log: Well Const.	Graphic Log: USCS	ova-ppm	Blow Count	Samples	Remarks
60	Dark brown, poorly graded sands, with small amount of gravels (1/4" to 1/2 '), no odor.			SP				
65	Same as above.				0	19,27,30	1	Sample ID E1-65'
				SP				
70	Same as above.			SP	0	8,19,50 for 2"	1	Sample ID E1-70'
75	Same as above.			SP	0	50 for 5"	1	Sample ID E1-75'
80					0	7,14,17	1	Sample ID E1-80'
85	Brown, poorly graded sands to sandy silts, with minor amount of gravels (≈1/4"), dry, no odor.			SM	0	12,16,30	1	Sample ID E1-85'
	Same as above.			SM				
90					0	7,12,15	1	Sample ID E1-90'

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Log of E1 Extraction Well

Pomona - Mission Station

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Figure 7. Vacuum Pressure/Air Monitoring Well Details

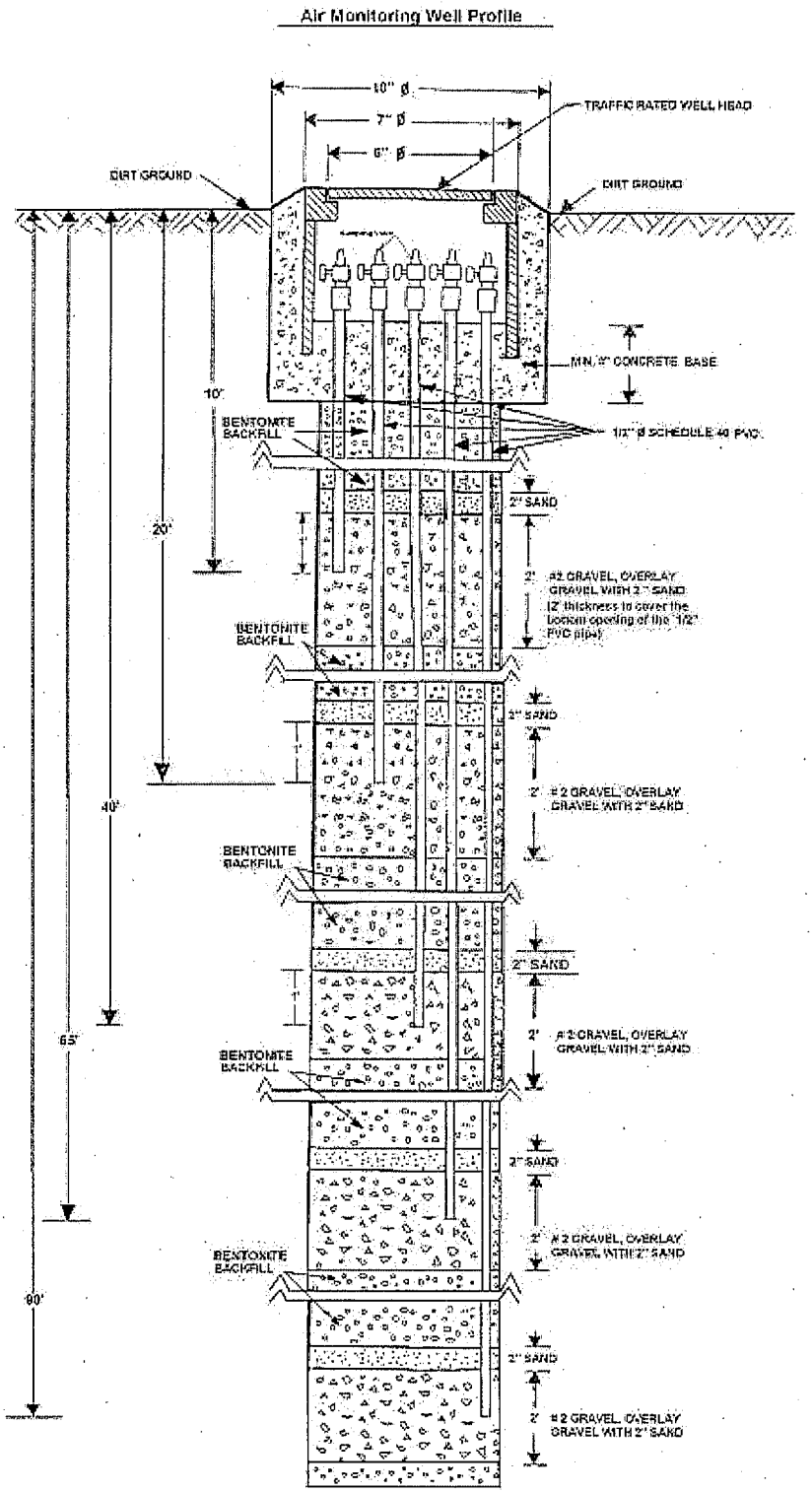


Figure 6. Extraction Well Details

