

Rec'd 2/20/03

February 19, 2003  
1424-9C

Ms. Eva Chu  
**ALAMEDA COUNTY  
ENVIRONMENTAL HEALTH**  
1131 Harbor Bay Parkway  
Alameda, California 94501

**RE: HEALTH RISK APPRAISAL AND  
RESPONSE TO TECHNICAL  
COMMENTS  
1300 POWELL STREET  
EMERYVILLE, CALIFORNIA**

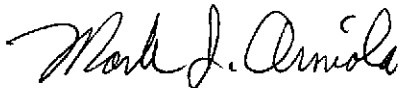
Dear Ms. Chu:

This report responds to your February 14, 2003 letter, which included technical comments for 1300 Powell Street located in Emeryville, California (Site).

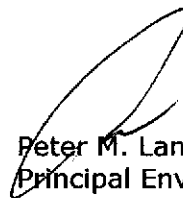
We refer you to the text of the report for details regarding this study. If you have any questions, please call and we will be glad to discuss them with you.

Very truly yours,

**LOWNEY ASSOCIATES**



Mark J. Arniola, R.G., R.E.A.  
Senior Project Geologist



Peter M. Langtry, R.G., C.H.G.  
Principal Environmental Geologist

PML:MJA:VMT

Copies: Addressee (1)

Pulte Home Corporation (2)

Attn: Mr. Mike Kim

Cambria Environmental Technology, Inc. (1)

Attn: Mr. Robert Schultz

OK, 1424-9C Technical Comments Rpt.doc

**Health Risk Appraisal and Response  
to Technical Comments**

1300 Powell Street  
Emeryville, California

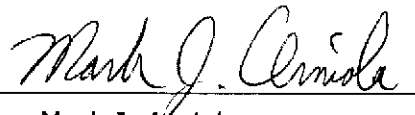
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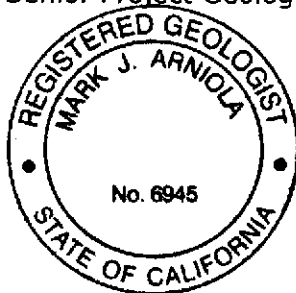
**Alameda County Environmental Health**

1131 Harbor Bay Parkway, Alameda, California 94501

February 19, 2003  
Project No. 1424-9C



Mark J. Arniola, R.G., R.E.A.  
Senior Project Geologist

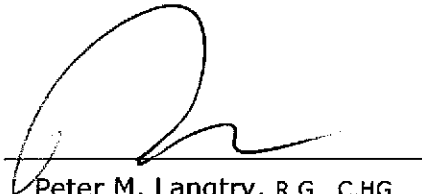


*Mountain View*

*Oakland*

*Fullerton*

*San Ramon*



Peter M. Langtry, R.G., C.H.G.  
Principal Environmental  
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**HEALTH RISK APPRAISAL AND RESPONSE  
TO TECHNICAL COMMENTS  
1300 POWELL STREET  
EMERYVILLE, CALIFORNIA**

**1.0 INTRODUCTION**

This report has been prepared to respond to a letter from Alameda County Environmental Health (ACEH) dated February 14, 2003, which requested technical comments for 1300 Powell Street located in Emeryville, California (Site). The following items were requested: 1) a risk assessment for residual contaminants detected at the site, 2) address the elements in the ACEH letter dated June 21, 2002, and 3) prepare an updated site plan to include the location of soil samples SV-45, SV-46, SV-48, SV-50, and samples with the ST- and TR- numbered samples. The elements in the June 21, 2002 letter include: 1) placement of clean imported soil in the upper 2 feet of soil in all landscaped areas, planting boxes, etc., 2) vapor barriers under all inhabited structures with no utility penetration of the vapor barriers, 3) final site development plans submitted prior to site development, 4) post-remedial ground water monitoring to confirm concentrations of residual ground water contaminants, and 5) deed notifications/restrictions. The responses to items 1 and 2 of the February 14, 2002 letter are addressed below. Item 3 (revised figure) is included as Appendix A.

**2.0 HEALTH RISK APPRAISAL**

**2.1 Background**

The approximately 1.9-acre Site, is located at 1300 Powell Street and is bounded by commercial/light industrial areas to the north, Powell Street to the south, Doyle Street to the east, and a former commercial property also to be developed by Pulte Homes to the west. The Site is owned by Mr. Richard Becker. By 1911, the site was occupied by a stable and related buildings. By the 1930's the Site was a bulk oil storage and distribution facility for Pennzoil Company. Several buildings and up to 21 above-ground storage tanks (ASTs) were on-Site from the 1930's to 1967, when the buildings were demolished. The ASTs primarily appeared to store lubrication oils. By 1983, the Site was developed with a two-story commercial/light industrial building used by Construction Services as office spaces and a warehouse for construction equipment storage and light welding (Lowney, 2002a).

Based on the previous soil and ground water quality evaluations (Lowney, 2002a, b), petroleum hydrocarbon impacted soil was present beneath the Site. Water perched within the fill also was impacted with petroleum hydrocarbons. Based on the concentrations detected, ACEH granted case closure for commercial/light industrial land use for the Site in a letter dated November 29, 1999. No further action was required by the ACEH provided there was no change in the land use. Because of the planned residential development of the Site, a Work Plan for Site Cleanup Actions (WPSCA) was prepared to address petroleum hydrocarbons in soil and water perched within fill (Lowney, 2002c). The WPSCA was approved by the California Regional Water Quality Control Board (CRWQCB) and ACEH. The site-specific cleanup goals in the WPSCA were approved by the CRWQCB on March 21, 2002. ACEH also approved

the proposed cleanup goals in their June 21, 2002 letter to Richard Becker. Based on the goals approved by the CRWCB and ACEH, if total hydrocarbon concentrations (gasoline, diesel, and motor oil) in the upper 10 feet of soil at the site are below 1,000 parts per million (ppm) and total hydrocarbon concentrations in the ground water are less than 20,000 parts per billion (ppb), the Site will be approved for residential development.

Over-excavation of soil exceeding site cleanup goals was performed between July 17 and October 18, 2002. Approximately 2,500 tons of Class II material and approximately 5,100 tons of material of Class III material were removed from over-excavation areas during the on-site soil cleanup activities. Based on our field observations and analytical data, the cleanup activities were performed in accordance with the approved WPSA (Lowney, 2002c) and the requirements of ACEH. The soil exceeding cleanup goals was removed from the site for appropriate disposal. Confirmation ground water analyses detected hydrocarbon concentrations below the cleanup goals. Previous investigations encountered impacted perched water in the on-site fill. The impacted perched water was limited in extent and was removed with the impacted on-site soil. No significant impact to the ground water beneath the site was detected in the well verification samples. The site cleanup actions are summarized in Lowney Associates' Cleanup Action Completion Report dated December 12, 2002 (Lowney Associates, 2002d).

## **2.2 Proposed Site Use**

The Site is currently being prepared for construction of high-density residences. Pulte Home Corporation plans to construct town homes (44 units) on-Site. The plans include a garage on the first level with a walk-up entrance to second and third-floor living areas. The Site also will include paved driveways and landscaped areas.

## **2.3 Chemicals of Concern**

The primary chemicals of concern (COCs) at the Site are total petroleum hydrocarbons (TPH). During previous subsurface investigations (Cambria 1997, Lowney 2002a), TPH as diesel (TPHd) and motor oil (TPHmo) were detected in soil exceeding the CRWQB's risk-based screening levels (RBSLs) for residential sites. In ground water, TPHd and TPHmo were detected above residential RBSLs. Therefore, TPHd and TPHmo are included as COCs for soil and ground water. The analytical laboratories also reported TPH as gasoline (TPHg) concentrations in several soil samples collected from the Site. However, because no benzene, toluene, ethylbenzene, and xylenes (BTEX) was detected at the Site, and because TPHg was detected only in locations where higher TPHd or TPHmo concentrations were detected, the analytical laboratories (Legend Analytical Services, STL San Francisco) reported that the TPHg concentrations detected were not likely indicative of the presence of TPHg in the soil and ground water. Instead, the TPHg results appeared to be the result of quantification of the lighter range of petroleum hydrocarbons present in TPHd. In addition, in May 1997, Cambria requested analysis of a soil sample collected from the Site to Global Geochemistry Corporation of Canoga Park, California (Global Geochem) for hydrocarbon fingerprinting. Global Geochem concluded that hydrocarbon contamination in the sample primarily consisted of degraded diesel fuel (Cambria, 1997). The ACDEH staff approved eliminating TPHg as a COC for 1300 Powell Street.

Metals concentrations detected in on-Site fill and native soil during Lowney's March 2002 investigation appeared to be consistent with typical background concentrations and/or below RBSLs for a residential Site. Therefore, the 17 California Assessment Manual (CAM) metals were eliminated as COCs.

No PCBs, PAHs, or organochlorine pesticides were detected in the soil samples analyzed during Lowney's March 2002 investigation. Therefore, PAHs, PCBs, and pesticides were eliminated as COCs.

Laboratory analyses of soil and ground water samples collected during Lowney's March 2002 investigation did not detect halogenated volatile organic compounds (VOCs) exceeding RBSLs or drinking water standards. Therefore, halogenated VOCs were eliminated as COCs.

## 2.4 Cleanup Goals

In March 21, 2002, the CRWQCB adopted residential soil and ground water cleanup goals for COCs for 1300 Powell Street. The ACEH concurred with the cleanup goals in their letter dated June 21, 2002. Based on the goals approved by the CRWQCB and ACEH, if total hydrocarbon concentrations in the upper 10 feet of soil at the site are below 1,000 ppm and total hydrocarbon concentrations in the ground water are less than 20,000 ppb, the site will be approved for residential development. The COCs and corresponding cleanup goals are summarized in Table 1.

**Table 1. Selected Contaminates of Concern**

Compound	Soil Cleanup Goal (ppm)	Ground Water Cleanup Goal (ppb)
TPHd	1,000*	20,000*
TPHmo	1,000*	20,000*

\* Total TPH (TPHd + TPHmo) target cleanup goal approved for 1300 Powell Street

## 2.5 Soil and Ground Water Categorization

Based on data from site geotechnical and environmental investigations, native soils in the upper 10 feet at the site are lean clay to fat clays. Silty clay to gravelly clay fill soil was present above the native soil at various locations on-Site to depths of up to 9 feet. After excavation of the impacted soil, the excavated areas were backfilled with imported soils and on-site soils approved for re-use. The lower approximately 3 to 5 feet of fill soil consisted of fat clays. The soils placed above the fat clays included on-site fat and lean clays, imported sandy silt and silty sand soils.

Based on the post-remediation ground water sampling, the shallow water-bearing zone was encountered at depths of approximately 8 to 11 feet below the final site grade; ground water beneath the site likely flows to the southwest. Based on the CRWQCB's East Bay Basin Plan (CRWQCB, 2001) the ground water in Emeryville is not considered a drinking water source.

## 2.6 Exposure Pathways

Based on the placement of clean (ACEH-approved) imported soil in the upper 3 feet of the Site, there should be no dermal or ingestion exposure for the site. Since no significant volume of soil above residential RBSLs remains on the site (see below), there should be no indoor air inhalation risk above RBSL concentrations.

## 2.7 Risk-Based Screening Levels

The RBSLs are risk-based concentrations developed by the CRWQCB for use as screening levels in determining if further evaluation is warranted, in prioritizing areas of concern, in establishing initial cleanup goals, and in estimation of potential health risks. In addition, the RBSLs additionally evaluate risks to surface water and ground water quality, and nuisance concerns (odors).

### 2.7.1 Soil

According to the CRWQCB's East Bay Basin Plan the ground water in Emeryville is not considered a drinking water source. Therefore, the applicable RBSLs for TPHd and TPHmo are 500ppm and 1000 ppm, respectively (Table B, RBSL Document). Only one location (TR-17, 820 ppm) exceeded the non-drinking water resource RBSLs. Further after completion of remedial excavation activities, approximately 40 cubic yards of additional soil were removed from the area of TR-17 for geotechnical purposes and disposed off-site. The additional soil was removed to within approximately 10 feet of sample TR-1. As discussed above, none of the final verification soil samples exceeded the approved cleanup goals.

The results for TPHd and TPHmo were statistically evaluated to establish the sample mean and 95 percent upper confidence level (UCL) of the sample mean. The data in Tables 2 and 3 is separated into shallow (<3 feet) and deeper (>3 feet) sets based on the depth of remedial excavation performed. For samples with non-detectable results, one-half the detection limit was used in the statistical calculations. The statistical evaluation results are summarized in Tables 2 and 3 in Appendix B. Because the soil at TR-4 is no longer present at the site, the data for sample TR-4 was not included in the UCL calculation. Based on the calculations, the 95 percent UCL for TPHd is well below the RBSL in the shallow (43.9 ppm) and deeper (77 ppm) soil. Similarly, the UCL for TPHmo also was well below the RBSL for both the shallow (264 ppm) and deeper (84.2 ppm) soil. In addition, as requested by ACEH, two excavation verification samples (SV-39 and SV-43) were analyzed for polyaromatic hydrocarbons (PAHs). No PAHs were detected above laboratory reporting limits in the soil samples.

### 2.7.2 Ground Water

No TPHd or TPHmo were detected in four post-remediation ground water samples collected, other than 120 ppb TPHd at one location (MW-2). Because ground water at the site is not considered a drinking source, the low concentration of TPHd detected at MW-2 is well below the TPHd RBSL of 640 ppb. In addition, two (MW-1 and MW-2) of the four post-remediation ground water samples were additionally analyzed for PAHs. No PAHs were detected in the ground water samples. Ground water at the site will not be used as a drinking water source.

## **2.8 Conclusions**

Based on the low residual concentrations in the soil and ground water, and comparison of these results to residential RBSLs, the low concentrations of contaminants do not present a significant risk to human health. A more site-specific risk assessment does not appear required. In addition, the low concentrations detected will decrease over time as a result of natural degradation processes. Also, since the significantly impacted soil has been removed from the site and ground water does not appear to be impacted above RBSLs, additional controls (gas barriers, deed restrictions) are not needed for the site.

## **3.0 JUNE 21, 2002 ADEH LETTER**

### **3.1 Imported Soil**

Clean imported soil (approved by the ADEH on January 27, 2003) was used to backfill the upper 3 feet of the property.

### **3.2 Gas Barriers**

If required for this project, gas barriers will be installed beneath the inhabited structures. However, based on the low concentrations and limited extent of residual TPHd and TPHmo in the soil and ground water, gas barriers should not be necessary.

### **3.3 Site Development Plans**

Site development plans have been provided to ACEH by Pulte Home Corporation. Additional copies can be provided, if requested.

### **3.4 Post-Remedial Ground Water Sampling**

Post-remedial ground water sampling was performed as required by ACEH. As discussed above, no COCs were detected in the ground water at the site in post remedial samples other than 120 ppb TPHd at one location (MW-2) near the western property boundary. No further ground water sampling appears required.

### **3.5 Deed Restrictions/Notifications**

If required for this project, deed restrictions/notifications will be prepared for the site. However, since the significantly impacted soil has been removed from the site and ground water impact is below RBSLs, deed restrictions should not be required.

## **4.0 LIMITATIONS**

This report was prepared for the use of Pulte Home Corporation and ACEH in evaluating soil and ground water quality at the referenced site at the time of this study. The accuracy and reliability of geo- or hydrochemical studies are a reflection of the number and type of samples taken and extent of the analyses conducted, and are thus inherently limited and dependent upon the resources expended. We make no warranty, expressed or implied, except that our services have been performed in accordance with environmental principles generally accepted at this time and location.



The chemical and other data presented in this report can change over time and are applicable only to the time this study was performed.

**5.0 REFERENCES**

Cambria Environmental Technology, Inc. 1997. *Subsurface Investigation, 1300 Powell Street, Emeryville, California.*

Lowney Associates, February 11, 2002a. *Phase I Environmental Site Assessment, 1300 and 1350 Powell Street, Emeryville, California.*

Lowney Associates, May 22, 2002b. *Soil and Ground Water Quality Evaluation, 1300 Powell Street, Emeryville, California.*

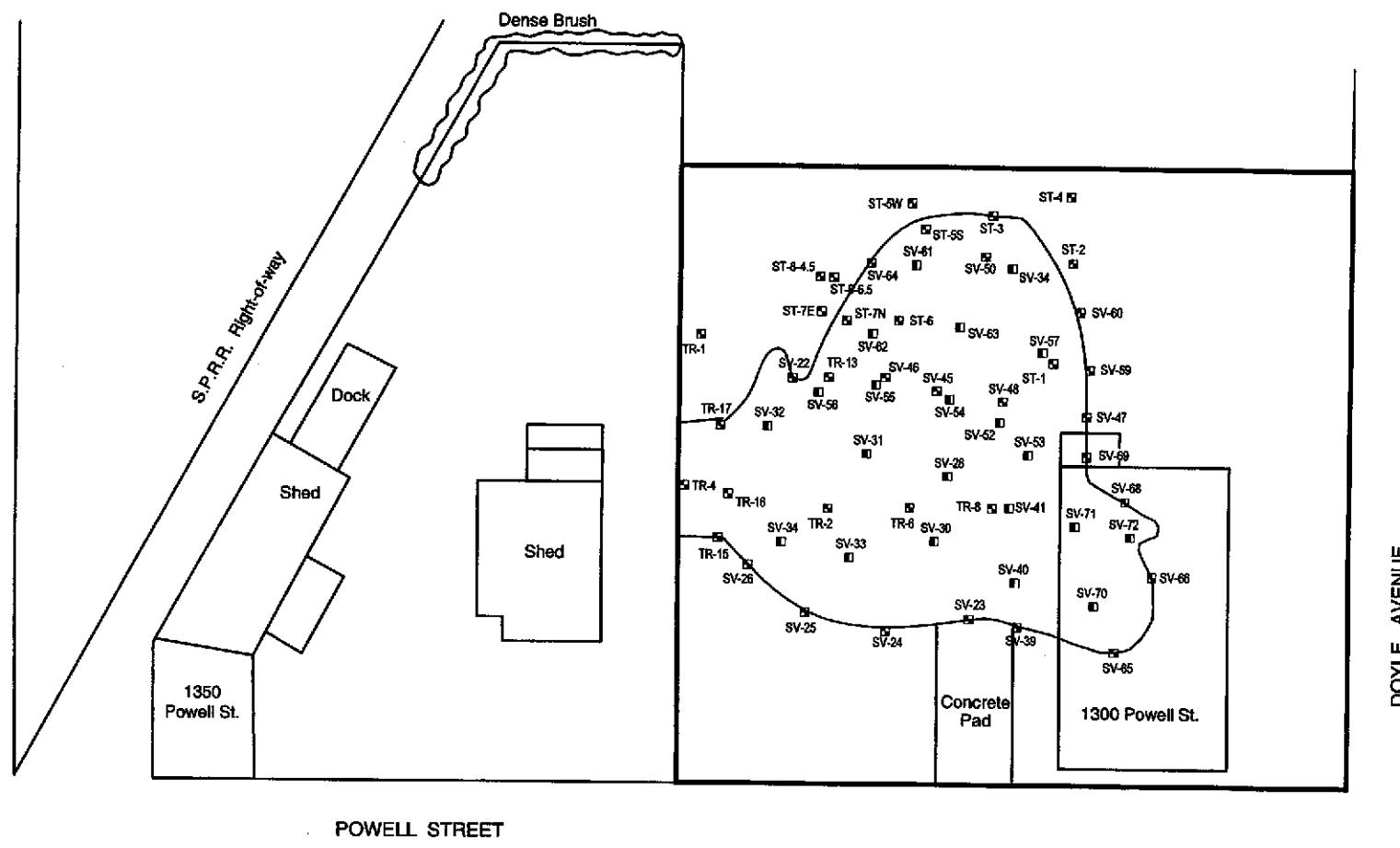
Lowney Associates, July 3, 2002c. *Work plan for Site Cleanup Actions, 1300 Powell Street, Emeryville, California.*

Lowney Associates, December 12, 2002d. *Cleanup Action Completion Report, 1300 Powell Street, Emeryville, California.*

RWQCB, 2001. *East Bay Plain Ground Water Basin Beneficial Use Evaluation Report: California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Area Region.*

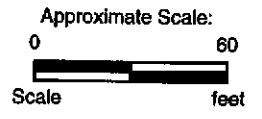
RWQCB, 2001. *Application of Risk-Based Screening Levels and Decision making to Sites With Impacted Soil and Groundwater: California Environmental Protection Agency, Regional Water Quality Control Board, San Francisco Bay Area Region.*

\* \* \* \* \*



**LEGEND**

- - Approximate extent of remedial excavation
- - Approximate location of sidewall confirmation sample
- - Approximate location of floor confirmation sample



**EXTENT OF DEEPER (>3 FEET)  
 REMEDIAL EXCAVATION  
 1300 POWELL STREET  
 Emeryville, California**

**LOVNEY ASSOCIATES**  
 Environmental/Geotechnical/Engineering Services

**FIGURE 1**  
 1424-9C

Base by Lush Geosciences, dated 4/95.

**Table 2. Analytical Results of Verification Soil Samples – Shallow Soil**

(concentrations in parts per million)

Sample ID	Depth (feet)	TPHd	TPHmo
SV-1	2	42	260
SV-2	1½	<1.0	<50
SV-3	2	72	230
SV-4	2	1.3	<50
SV-5	2½	100	740
SV-6	2	1.1	<50
SV-7	1½	61	270
SV-8	2	9.7	6.7
SV-9	1½	<1.0	<50
SV-10	2½	25	220
SV-11	1½	81	360
SV-12	2	42	380
SV-13	2	41	250
SV-14	2	<1.0	<50
SV-15	2½	13	140
SV-16	3	17	93
SV-18	1	8.8	<50
Cleanup Goals		1,000*	1,000*
95 % UCL		43.9	263.8

< Indicates that the compound was not detected at or above the stated laboratory reporting limit

NA Not Analyzed

\* Total TPH cleanup goal approved by ACDEH

**Table 3. Analytical Results of Final Verification Soil Samples –  
Deeper Soil**  
(concentrations in parts per million)

Sample ID	Depth (feet)	TPHd	TPHmo
TR-4**	6 ½	700	<500
TR-15	7 ½	18	<50
TR-17	7 ½	820	<500
ST-2	5 ½	<1.0	<50
ST-3	7 ½	470	380
ST-4	7 ½	<1.0	<50
ST-5W	7 ½	<1.0	<50
ST-7N	7 ½	15	100
ST-8	4½	1.2	<50
ST-8	6 ½	<1.0	<50
SV-22	8½	7.8	<50
SV-23	8½	<1.0	<50
SV-24	8½	<1.0	<50
SV-25	8½	<1.0	<50
SV-26	8	<1.0	<50
SV-28	9½	<1.0	<50
SV-30	9½	<1.0	<50
SV-31	9½	<1.0	<50
SV-32	9½	<1.0	<50
SV-33	9½	<1.0	<50
SV-34	9½	<1.0	<50
SV-39	8½	3.8	<50***
SV-40	9½	36	120
SV-41	9½	56	450
SV-47	7	24	<50
SV-49	6½	<1.0	<50
SV-52	10	<1.0	<50
SV-53	9 ½	<1.0	<50
SV-54	9 ½	12	<50
SV-55	9 ½	13	100
SV-56	9 ½	2.6	<50
SV-57	9 ½	23	190
SV-58	9 ½	35	140
SV-59	8	6.6	<50
SV-60	7 ½	<1.0	<50
SV-61	9	<1.0	<50
SV-62	9 ½	6.1	54
SV-63	9 ½	4.5	<50
SV-64	7 ½	4.8	66
SV-65	9 ½	1.0	<50
SV-66	9 ½	13	<50
SV-68	9 ½	210	<50
SV-69	9 ½	<1.0	<50
SV-70	11	79	64
SV-71	10	<1.0	<50
SV-72	11	<1.0	<50
Cleanup Goals		1,000*	1,000*
95% UCL		77.0	84.2

< Indicates that the compound was not detected at or above the stated laboratory reporting limit  
 ND Not Detected  
 \* Total TPH cleanup goal approved by ACDEH  
 \*\* Not Included in 95% UCL due to subsequent excavation  
 \*\*\* No PAHs were detected