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By Alameda County Environmental Health at 4:12 pm, Jun 12, 2014



**Timothy L. Bishop**  
Project Manager  
Marketing Business Unit

**Chevron Environmental  
Management Company**  
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Tel (925) 790-6463  
TimBishop@chevron.com

June 11, 2014

Alameda County Health Care Services Agency  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Re: Unocal No. 4625 (351641)  
3070 Fruitvale Avenue, Oakland, California  
ACEH Fuel Leak Case No. RO0000298  
GeoTracker Global ID T0600101467**

I have reviewed the attached report dated April 9, 2014.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by AECOM, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13257(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tim Bishop".

Tim Bishop  
Project Manager

Attachment: Focused Site Conceptual Model by AECOM

June 9, 2014

Keith Nowell  
Alameda County Health Care Services Agency  
Environmental Health Services  
Environmental Protection  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

**Subject: Focused Site Conceptual Model  
Unocal No. 4625 (351641)  
3070 Fruitvale Avenue, Oakland, California  
Fuel Leak Case No. RO00000298  
Geotracker Global ID # T0600102156**

Dear Mr. Nowell,

On behalf of Chevron Environmental Management Company's (EMC's) affiliate Union Oil Company of California ("Union Oil"), AECOM has prepared a Focused Site Conceptual Model for the Unocal No. 4625 site located at 3070 Fruitvale Avenue in Oakland, California. The Focused Site Conceptual Model was prepared in response to the April 10, 2014 email from Alameda County Environmental Health (ACEH) following meetings between EMC, ACEH, and AECOM on January 30, 2014 and April 8, with the goal of cooperatively moving the site towards closure.

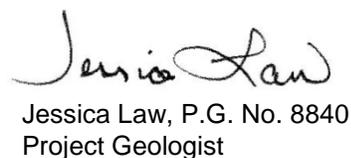
### Remarks/Signatures

The interpretations in the attached documents represent AECOM's professional opinions which are based on currently available information and are arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended.

If you have any questions regarding this project, please contact James Harms at (916) 414-5800.

Sincerely,

  
James Harms  
Project Manager

  
Jessica Law, P.G. No. 8840  
Project Geologist



cc: Mr. Tim Bishop, EMC (via electronic copy)

### Attachments

Attachment A Focused Site Conceptual Model

Focused Site Conceptual Model #2  
 RO298, Unocal No. 4625 (351641)  
 3070 Fruitvale Avenue, Oakland, California

SCM Element	SCM Sub-Element	Description	Reference	Data Tables/Graphics	Data Gaps	Work to Address Data Gap
Potential Receptors	Vapor Intrusion to Indoor Air	<p>AECOM conducted a survey of the foundations downgradient of the site in the potential projected plume extent on May 31, 2014. The results of the survey are included in Attachment A. The only significantly sub-grade (deeper than one foot) is Eden Manor with a sub-grade parking garage that is open to the atmosphere. Most of the homes along Nicol Avenue and 2607 and 2649 School Street have a first level slab foundation. 2615 School Street has a sub-grade slab foundation, approximately 1 foot below grade. Dimond Care LLC and Elderly/Assisted Living Facility has a slab-on-grade foundation. The other homes within the survey area have 2 to 4 foot high crawl spaces.</p> <p>In addition to the survey, AECOM generated <b>Charts 8 to 10</b> for benzene which show decreasing trends in MW-5 for all scenarios with 95% confidence. <b>Figure 7</b> shows the benzene plume and projected extents based on the LTC Technical Justification Paper. The potential plume extent is also limited by the fact that groundwater flow to the southwest is only a minor component of the predominantly western flow direction. Benzene has not exceeded the residential vapor intrusion screening level of 270 µg/L since December 2010.</p> <p>Based on the declining trend for benzene in groundwater, combined with the lack of basements in the worst case projected plume extent, there is a very low risk of exposure to benzene in groundwater from the site.</p>		<p>Attachment A - Downgradient Foundation Construction</p> <p>Figure 7: Site Receptors - Benzene Plume</p> <p>Charts 8 to 10: Benzene Trends</p>	<p>April 10, 2014 email technical comment: vapor intrusion to indoor air: Shallowest reported depths to groundwater (DTW) have ranged from 4.40 feet below the ground surface (bgs) to 8.03 feet bgs for the well network. Based on the on the shallow groundwater in the site vicinity, Scenario 3a of the LTCP Media Specific Vapor Intrusion to Indoor Air criteria may be met if the buildings to the west and southwest maintain at least a five-foot separation between the base of the foundation and the groundwater surface. Please perform a foundation evaluation in the down gradient direction of the neighborhood to determine the foundation types and if basements are present.</p>	<p>Site visit to confirm foundation types, benzene trend analysis, and benzene extent figure.</p>

## **Attachment A**

**Downgradient Foundation Construction**  
**RO298, Unocal No. 4625 (351641)**  
**3070 Fruitvale Boulevard, Oakland, CA**

No.	Address	Parcel No. <sup>1</sup>	Year Built	Estimated Home Square Footage <sup>2</sup>	Foundation Type (Observed From Street View) <sup>1,3</sup>	Notes	
<b>Fruitvale Avenue</b>							
1	3039 Fruitvale Avenue	Oakland CA 94602	26-828-10-1	1912	1,802	Crawl Space	Single Family Home
2	3035 Fruitvale Avenue	Oakland CA 94602	26-828-11-1	1908	1,630	Crawl Space	Single Family Home
3	3027 Fruitvale Avenue	Oakland CA 94602	26-828-12	1925	1,374	Crawl Space	Single Family Home
4	3021 Fruitvale Avenue	Oakland CA 94602	26-828-13	1926	1,420	Crawl Space	Single Family Home
5	3015 Fruitvale Avenue	Oakland CA 94602	26-828-14	1924	1,093	Crawl Space	Single Family Home
6	3003 Fruitvale Avenue	Oakland CA 94602	26-828-15	?	>2,000	Slab on Grade	Elderly/Assisted Living Facility (Dimond Care LLC)
<b>Nicol Avenue</b>							
1	2662 Nicol Avenue	Oakland CA 94602	26-828-16-1	1949	1,116	Ground floor garage with Slab on grade	Single Family Home
2	2656 Nicol Avenue	Oakland CA 94602	26-828-17-1	1925	1,228	Ground floor garage with Slab on grade	Single Family Home
3	2650 Nicol Avenue	Oakland CA 94602	26-828-19	1925	1,218	Ground floor garage with Slab on grade	Single Family Home
4	2646 Nicol Avenue	Oakland CA 94602	26-828-20	1951	1,416	Ground floor garage with Slab on grade	Single Family Home
5	2638 Nicol Avenue	Oakland CA 94602	26-828-21	1925	1,330	Ground floor garage with Slab on grade	Single Family Home
6	2632 Nicol Avenue	Oakland CA 94602	26-828-22	1937	1,019	Crawl Space	Single Family Home
7	2626 Nicol Avenue	Oakland CA 94602	26-828-23-2	1937	1,110	Crawl Space	Single Family Home
<b>School Street</b>							
1	2601 School Street	Oakland CA 94602	26-828-1-2	1928	1,074	Crawl Space	Single Family Home
2	2607 School Street	Oakland CA 94602	26-828-2-3	1913	1,171	Ground floor garage with Slab on grade	Single Family Home
3	2615 School Street	Oakland CA 94602	26-828-3	1910	1,072	Ground floor garage with slab 1' below grade	Single Family Home
4	2619 School Street	Oakland CA 94602	26-828-4	1913	996	Crawl Space	Single Family Home
5	2625 School Street	Oakland CA 94602	26-828-5	1914	1,239	Crawl Space	Single Family Home
6	2631 School Street	Oakland CA 94602	26-828-6	1910	1,570	Crawl Space	Single Family Home
7	2635 School Street	Oakland CA 94602	26-828-7	1906	1,308	Crawl Space	Single Family Home
8	2641 School Street	Oakland CA 94602	26-828-8	1928	1,952	Crawl Space	Single Family Home
9	2649 School Street	Oakland CA 94602	26-828-9	1910	1,583	Ground floor garage with Slab on grade	Single Family Home

**Research Notes:**

- 1.) Alameda County Assessor: Contacted on 4-15-2014; Does not have records of foundation information on residential structures before the 1960's.
- 2.) Address, Year Built, Square Footage Data Compiled from Zillow.com; April 15, 2014.
- 3.) Foundation Type by site walk on 5/31/2014 by AECOM.

Plat of the part of the Rancho San Antonio finally confirmed to Antonio Maria Peralta, et al. (Pat. A Pg. 669)  
Map of the Shoemaker Tract (Bk. 24 - Pg. 68)

Code Area Nos.  
17-001

828

Scale: 1" = 50'

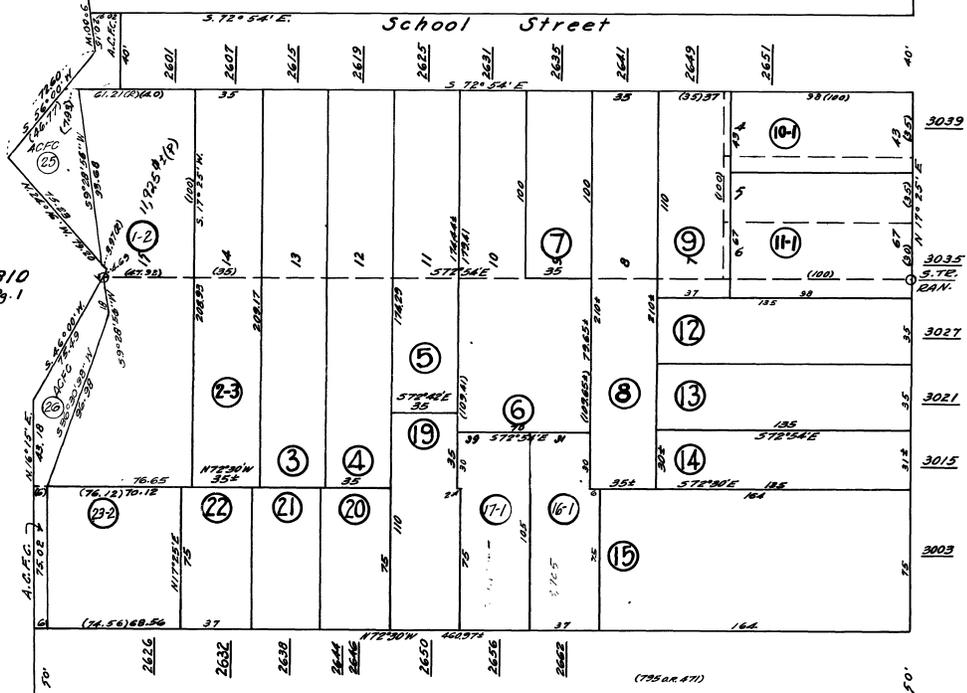
ASSESSOR'S MAP 26

Corrected: 10-2-88RAM

829

School Street

810  
Pg. 1



Block 28

School St.

66'

Fruitvale Avenue

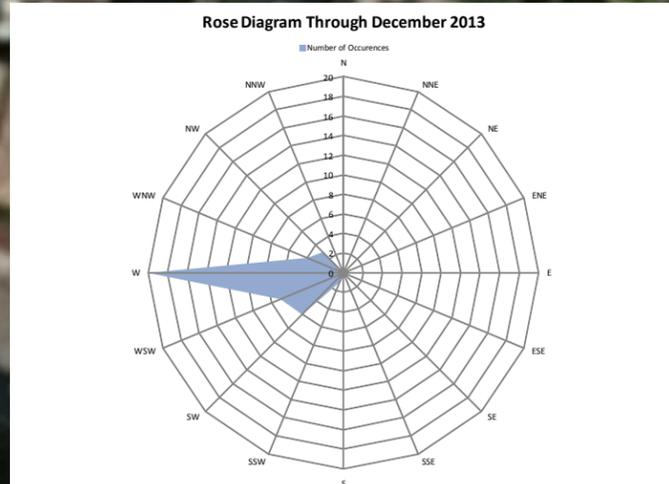
Block 27

60' Nicol Ave.

66'

Block 27

## Figures



Maximum Benzene Plume Length from LTC Justification Paper

90th Percentile Benzene Plume Length from LTC Justification Paper

Average Benzene Plume Length from LTC Justification Paper

Area of Potential Benzene Plume Migration from LTC Justification Paper and Historic Flow Direction

Sausal Creek - 600 feet  
EBMUD Reservoir 1,250 feet

Upper Peralta Creek - 2,500 feet  
Irrigation well - 1,700 feet

**Legend**

● 2006 CPT Locations	- - - Electric Line	- - - Excavation	▭ Estimated Plume
▲ Confirmation Samples	▬ Water Line	- - - Product Lines	▭ Source Area
⊕ Monitoring Wells	- - - Sanitary Sewer Line	▬ Underground Storage Tanks (USTs)	
○ Soil Borings	▬ Stormwater System	▬ Current Waste Oil Tank	
⊕ UST Well	- - - Sanitary Sewer System	▬ Former Waste Oil UST	

Map Source: ESRI Data Resource Center 2013.



AECOM  
2020 L Street  
Sacramento, CA 95811  
916.361.6400



RO298, Unocal No.4625 (351641)  
3070 Fruitvale Boulevard  
Oakland, California

DATE: 6/9/14 | DRWN: JH | Revision: 0

**Site Receptors and Benzene Plume**

**Figure 7**

Path: \\usscrlfs001\prod\Projects\ENV\01231-Chevron\76Products transfer\_sites\351641\_4625\_Oakland\7\_0.Deliverables\7.2\_CADD\GIS\351641\_plume-receptors.mxd

## Charts

**Chart 8: Mann-Kendall Statistical Method Worksheet**

Site-- RO 298, Unocal #4625  
 Compound-- Benzene  
 Well-- MW-5, All Results

Input data from four to ten sampling events in Row 10.

Date:	6/25/2009	12/17/2009	6/29/2010	12/30/2010	6/10/2011	12/13/2011	6/4/2012	12/7/2012	6/26/2013	12/20/2013	Events
Concentration (ug/L):	40	540	77	330	180	53	32	92	2.5	7	10
	--	--	--	--	--	--	--	--	--	--	Sum
Compared to Event 1	****	1	1	1	1	1	-1	1	-1	-1	3
Compared to Event 2	****	****	-1	-1	-1	-1	-1	-1	-1	-1	-8
Compared to Event 3	****	****	****	1	1	-1	-1	1	-1	-1	-1
Compared to Event 4	****	****	****	****	-1	-1	-1	-1	-1	-1	-6
Compared to Event 5	****	****	****	****	****	-1	-1	-1	-1	-1	-5
Compared to Event 6	****	****	****	****	****	****	-1	1	-1	-1	-2
Compared to Event 7	****	****	****	****	****	****	****	1	-1	-1	0
Compared to Event 8	****	****	****	****	****	****	****	****	-1	-1	-2
Compared to Event 9	****	****	****	****	****	****	****	****	****	1	1

Mann-Kendall Statistic 'S' = -20

**Statistical Confidence Level**

>90% Confidence

>95% Confidence

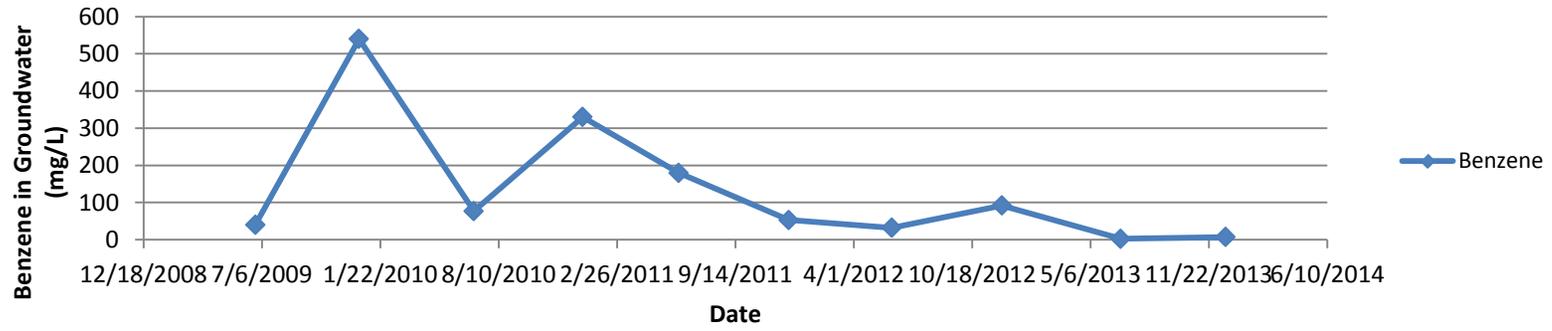
|S| ≥ 15

|S| ≥ 20

Result: Decreasing Trend

Result: Decreasing Trend

### MW-5 Benzene, All Results



**Chart 9: Mann-Kendall Statistical Method Worksheet**

Site-- RO 298, Unocal #4625  
 Compound-- Benzene  
 Well-- MW-5, DTW shallower than 8 feet.

Input data from four to ten sampling events in Row 10.

Date:	3/25/2005	3/29/2006	12/27/2006	12/17/2009	12/30/2010	6/10/2011	12/7/2012				Events
Concentration (ug/L):	1400	520	560	540	330	180	92				7
	--	--	--	--	--	--	--	--	--	--	Sum
Compared to Event 1	*****	-1	-1	-1	-1	-1	-1				-6
Compared to Event 2	*****	*****	1	1	-1	-1	-1				-1
Compared to Event 3	*****	*****	*****	-1	-1	-1	-1				-4
Compared to Event 4	*****	*****	*****	*****	-1	-1	-1				-3
Compared to Event 5	*****	*****	*****	*****	*****	-1	-1				-2
Compared to Event 6	*****	*****	*****	*****	*****	*****	-1				-1
Compared to Event 7	*****	*****	*****	*****	*****	*****	*****				0
Compared to Event 8	*****	*****	*****	*****	*****	*****	*****	*****			
Compared to Event 9	*****	*****	*****	*****	*****	*****	*****	*****	*****		

Mann-Kendall Statistic 'S' = -17

**Statistical Confidence Level**

>90% Confidence

>95% Confidence

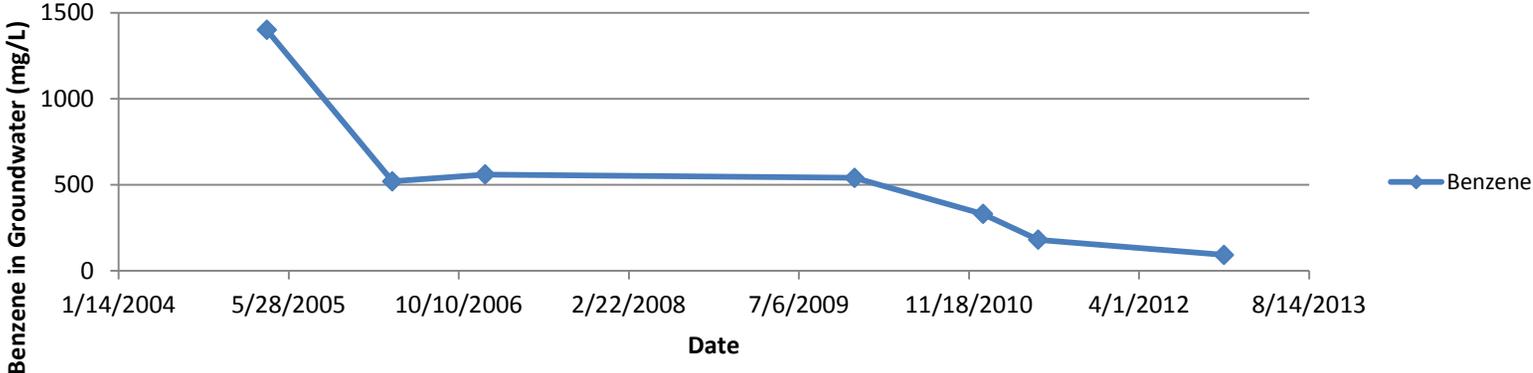
|S| ≥ 9

|S| ≥ 13

Result: Decreasing Trend

Result: Decreasing Trend

### MW-5 Benzene, DTW < 8' BGS



**Chart 10: Mann-Kendall Statistical Method Worksheet**

Site-- RO 298, Unocal #4625  
 Compound-- Benzene  
 Well-- MW-5, December results only

Input data from four to ten sampling events in Row 10.

Date:	12/20/2005	12/27/2006	12/26/2007	12/30/2008	12/17/2009	12/30/2010	12/13/2011	12/7/2012	12/20/2013		Events
Concentration (ug/L):	220	560	410	230	540	330	53	92	7.4		9
	--	--	--	--	--	--	--	--	--	--	Sum
Compared to Event 1	*****	1	1	1	1	1	-1	-1	-1		2
Compared to Event 2	*****	*****	-1	-1	-1	-1	-1	-1	-1		-7
Compared to Event 3	*****	*****	*****	-1	1	-1	-1	-1	-1		-4
Compared to Event 4	*****	*****	*****	*****	1	1	-1	-1	-1		-1
Compared to Event 5	*****	*****	*****	*****	*****	-1	-1	-1	-1		-4
Compared to Event 6	*****	*****	*****	*****	*****	*****	-1	-1	-1		-3
Compared to Event 7	*****	*****	*****	*****	*****	*****	*****	1	-1		0
Compared to Event 8	*****	*****	*****	*****	*****	*****	*****	*****	-1		-1
Compared to Event 9	*****	*****	*****	*****	*****	*****	*****	*****	*****		

Mann-Kendall Statistic 'S' = -18

**Statistical Confidence Level**

>90% Confidence

|S| ≥ 13

Result: Decreasing Trend

>95% Confidence

|S| ≥ 17

Result: Decreasing Trend

### MW-5 Benzene, December Results

