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March 1, 2016

Ms. Dilan Roe
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Former Signal Oil Marine Storage and Distribution Facility
(Former Chevron Bulk Plant 206127)
2301-2311 Blanding Avenue
Alameda, California
LOP Case RO0002466

Dear Ms. Roe:

The purpose of this letter is to verify that as a representative for Chevron Environmental Management Company (Chevron), I reviewed, and concur with, the comments in the *Vapor Intrusion Assessment Work Plan and Response* for the referenced facility, prepared on behalf of Chevron by GHD. I declare under penalty of perjury that the foregoing is true and correct.

Please feel free to contact me at (925) 790-3398 if you have any questions.

Sincerely,

Ted Moise
Project Manager

March 1, 2016 Reference No. 631916

Ms. Dilan Roe
Alameda County Environmental Health (ACEH)
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: Vapor Intrusion Assessment Work Plan and Response
Former Signal Oil Marine Storage and Distribution Facility
(Chevron Bulk Plant 206127)
2301-2311 Blanding Avenue
Alameda, California
ACEH Case RO0002466

Dear Ms. Roe:

GHD Services Inc. (GHD) is submitting this *Vapor Intrusion Assessment Work Plan and Response* for the site referenced above (Figure 1) on behalf of Chevron Environmental Management Company. This response letter has been prepared to address ACEH's Technical Comment 4 contained in their letter dated September 30, 2015 (Attachment A) requesting submittal of a work plan for additional vapor intrusion assessment.

GHD previously submitted a *Site Conceptual Model and Low-Threat Closure Request* (SCM) dated February 10, 2015, which concluded that the site meets the general and media-specific criteria in the State Water Resources Control Board Low-Threat Underground Storage Tank Case Closure Policy (the Policy) for case closure. Upon their review, ACEH did not agree that Policy general or media-specific criteria have been met and requested additional vapor intrusion assessment. In Technical Comment 4, ACEH provides their rationale for requesting additional vapor intrusion assessment.

ACEH's Technical Comment 4 and GHD's rationale supporting that previous indoor, outdoor, and sub-slab vapor evaluation supporting that risk of vapor intrusion has been adequately assessed are discussed below. Site background information and a summary of previous vapor sampling are also included below.

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SITE BACKGROUND

Site Description and Vicinity

The approximately 3.5-acre site is located on the northeast side of Blanding Avenue between Oak and Park Streets in Alameda, California (Figures 1 and 2). Land use in the site vicinity is primarily commercial and industrial. The Alameda Canal and a marina are located adjacent to the northeast side of the site. The site is currently occupied by three large commercial buildings, which are used for office, retail, and storage space, and identified as Park Street Landing at 2307-2337 Blanding Avenue.

A Sanborn map dated 1897 showed the site as occupied by several residential structures and outbuildings; the southeast portion of the site was shown as occupied by a laundry facility and a blacksmith. From at least 1930 until approximately 1961, the northwestern portion of the site was occupied by a petroleum bulk plant operated by Signal Oil & Gas Company. Former bulk plant facilities consisted of one large and seven smaller aboveground gasoline storage tanks (ASTs) within concrete secondary containment, underground piping, an office building, a loading rack, and a small structure containing gasoline pumps (Figure 2). The northeast portion of the facility was shown as occupied by a structure identified as an auto garage and also used for paint storage on Sanborn maps dated between 1932 and 1950. A rail spur was shown to service the facilities on Blanding Avenue. The central portion of the site was shown as occupied by two structures identified as wholesale tires and a can warehouse. An additional larger structure was shown in the central portion of the site that was identified as vacant on the 1948 Sanborn map and as a ladder factory on the 1950 Sanborn map. Several structures appeared to be present in the southeast portion of the site in the 1939 aerial photograph. However, only one or two small sheds were shown in this area on the 1948 and 1950 Sanborn maps. In the 1958 aerial photograph, the ladder factory structure no longer appeared present and the southeast portion of the site appeared vacant and used for parking. Between 1957 and 1963, the buildings at the site were reportedly removed; it is assumed that the ASTs and piping were also removed at this time. In the 1965 aerial photograph, all the bulk plant facilities appear to have been removed and the majority of the site appears occupied by a construction materials yard with several small structures. Several additional structures also appear present in the southeast portion of the site. From 1973 to 1983, the northwestern portion of the site reportedly was used as a construction yard and for boat repair activities; and the southeastern portion was occupied by a restaurant, paved parking area, and a possible automobile sales lot. In 1987, the site was redeveloped with the current configuration.

Regional Setting

The site is located along the northeastern edge of Alameda adjacent to the Alameda Harbor Canal. The City of Alameda is an island surrounded by the San Francisco Bay to the south and the Alameda Harbor Canal to the north. The City of Oakland sits directly across from the Alameda Canal. The site is at an elevation of approximately 12 feet above mean sea level and is relatively flat.

Regional and Site Geology and Hydrology

The area was originally marshlands which were filled in with a mixture of man-made refuse, sand dredged from San Francisco Bay, bay mud, and imported fill that ranges in thickness from 2 to 25 feet,

underlain by fat clay (bay mud) that ranges in thicknesses from a few inches to 95 feet.[1] According to the East Bay Municipal Utility District (EBMUD), Alameda's drinking water begins at the Mokelumne River watershed in the Sierra Nevada and extends 90 miles to the East Bay.

Previous investigation indicates that subsurface soil beneath the site generally consists of silty sand and clayey sand from just beneath grade to approximately 5 to 9 feet below grade (fbg). Fill consisting of black sand and debris, including concrete fragments, has been reported in several borings at shallow depths. A 4- to 5-foot thick layer of clay with some sand underlies the silty sand and clayey sand. Below the clay is silty sand and sandy silt to the maximum depth explored of approximately 20.5 fbg. Groundwater is typically encountered in site borings at approximately 14.5 to 15 fbg within the silty sand and sandy silt, and subsequently rises in the borings/wells to approximately 7 to 10 fbg suggesting the groundwater beneath the site is semi-confined. Cross-sections depicting soil encountered beneath the site are presented as Figures 3 and 4.

Depth to groundwater on site typically ranges from approximately 3 to 10 fbg with flow predominately toward the northeast at a gradient ranging from 0.01 to 0.02. A rose diagram depicting groundwater flow direction is presented on Figure 2.

Release history

No records of historical releases have been located for the site. Based on results of previous soil and groundwater investigation, the likely sources appear to be the former ASTs, fuel pumps, and/or loading rack area. All facilities were removed between 1957 and 1965.

SUMMARY OF PREVIOUS VAPOR INTRUSION ASSESSMENT

In December 2013, the San Francisco Regional Water Quality Control Board (SFRWQCB) revised the Environmental Screening Levels (ESLs) for shallow soil gas associated with potential vapor intrusion and with ambient and indoor air. The data tables submitted in previous reports have been updated to reflect the new ESLs and are included as Tables 1 and 2.

Near-slab soil vapor sampling was initiated at the site in August 2008. The highest soil vapor concentrations exceeding ESLs were from near-slab vapor wells VP-4 and VP-5 collected from 5 fbg in August and October 2008 at concentrations of 220,000,000 µg/m^3 TPHg, 1,100,000 µg/m^3 benzene, and 650,000 µg/m^3 ethylbenzene in VP-4. Three subsequent near-slab soil vapor sampling events were performed in October 2009, June 2010, and November 2010 (Table 1).

Sub-slab vapor sampling was initiated in July 2009. Two subsequent sub-slab vapor sampling events were performed in June 2010 and November 2010, concurrent with indoor air sampling. In October 2009, CRA re-installed sub-slab vapor points VP-9 through VP-13 due to ambient air leaks detected during the initial sampling. The sub-slab vapor points were sampled in October 2009, June

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[1] United States Geological Survey publication, 1959, *Areal and Engineering Geology of the Oakland West Quadrangle, California*.

2010, and November 2010. During these sub-slab sampling events, all COCs were below ESLs (Table 2).

Indoor and outdoor air sampling was conducted in June 2010 and November 2010 concurrently with sub-slab sampling. With the exception of ethylbenzene detected above the ESL in IA-3 during one of two sampling events, only benzene exceeded the ESL in the indoor air samples (Table 2). It should be noted that benzene also exceeded the ESL in one of two outdoor samples, and that each of the suites where indoor air samples were collected had numerous sources of VOCs present/stored inside. These likely sources of VOCs within the suites included paint, paint hardeners and thinners, gasoline containers, car wash cleaners, wood sealant, epoxy, acetone, isopropyl alcohol, WD-40, and others. A survey of the potential sources to indoor air is included as Attachment B.

Sub-slab results are below ESLs for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air (Table E, SFRWQCB, 2013). This further supports that there are other indoor sources contributing to the indoor air results. While there are highly elevated concentrations observed in near-slab vapor well samples collected at 5 fbg away from the building foundation, sub-slab samples collected from beneath the building foundation indicate low level vapor impact suggesting there is no potential vapor intrusion risk either from the sub-slab area or the deeper soil vapor impact found at 5 fbg. This is likely due to the more permeable fill material beneath the building slab providing an enriched oxygen environment in the sub-slab area. Near-slab soil vapor, sub-slab vapor, and indoor and outdoor air analytical results are presented in Tables 1 and 2.

ACEH TECHNICAL COMMENT 4

"Vapor Intrusion. We do not concur that the site meets the vapor specific-criteria in the Policy which requires that a site-specific risk assessment demonstrates that human health is protected to the satisfaction of the regulatory agency. The concentrations of petroleum hydrocarbons detected in indoor air samples and soil vapor samples collected at 5 feet exceed applicable screening criteria. Sub-slab sampling results do not exceed screening criteria. Based on the sub-slab sampling results, the SCM concludes that the indoor air samples are affected by indoor sources within the building and that elevated soil vapor results do not represent a risk. Recent evaluations of sub-slab sampling suggest a higher level of uncertainty regarding the representativeness of sub-slab data than previously recognized (Estimation of Generic Subslab Attenuation Factors for Vapor Intrusion Investigations, R. Brewer, el al., Groundwater Monitoring and Remediation 34, No. 4, 2014). Potential sources of error include temporal variability, uncertainty in the duration, entry rate, and volumes of vapors intruded to indoor air, potential discrepancies between vapor entry points and sample locations, and spatial variability. We do not believe that sub-slab data provide a sufficient basis to discount the indoor air data and soil vapor data. Therefore, we request that you conduct additional assessment of vapor intrusion to the existing buildings that includes additional indoor and outdoor air sampling, soil vapor sampling, and potentially additional sub-slab sampling. Plans for indoor and ambient air sampling must include consideration of building ventilation and seasonal effects. Plans for additional sub-slab sampling must consider the potential sources of error identified above. Please include plans for additional vapor intrusion assessment in a Vapor Intrusion Assessment Work Plan no later than November 30, 2015."

In correspondence from ACEH on November 4, 2015, ACEH extended the due date of the Vapor Intrusion Assessment Work Plan to March 1, 2016.

Response to Technical Comment 4

In consideration of ACEH's conclusion and supporting technical comments outlined above in Section 3, GHD requested further evaluation of and comment on existing soil vapor, sub-slab vapor, and indoor and outdoor air analytical results by subject matter experts at Chevron Energy Technology Company, including Ms. Emma (Hong) Luo, Ph.D. Although existing sub-slab sampling results do not exceed screening criteria, ACEH does not believe this data demonstrates an adequate assessment of risk to human health based on: 1) indoor air samples and near-slab soil vapor samples collected at 5 fbg away from the building foundation exceed applicable screening criteria; and 2) a recent evaluation (*Estimation of Generic Subslab Attenuation Factors for Vapor Intrusion Investigations*, R. Brewer, et al., Groundwater Monitoring and Remediation 34, No. 4, 2014) suggests a higher level of uncertainty regarding the representativeness of sub-slab data than previously recognized due to potential sources of error including temporal variability, uncertainty in the duration, entry rate, and volumes of vapors intruded to indoor air, potential discrepancies between vapor entry points and sample locations, and spatial variability. Based on further data and risk evaluation, we offer the comments below. It should be noted that Ms. Luo's work is referenced in the paper by Roger Brewer, et al (Brewer).

<u>Near-slab soil vapor samples collected away from the building foundation at 5 fbg exceed applicable screening criteria.</u>

Given that no known releases were reported at the site, near-slab soil vapor sampling locations and sub-slab vapor point locations were selected to represent the worst case scenario where historic releases would have most likely occurred. These areas included locations of former ASTs, fuel pumps and loading rack. Elevated vapor concentrations reported in near-slab vapor wells suggest that these locations reasonably do represent the worst case scenario. As mentioned above, near-slab soil vapor samples collected at 5 fbg represent concentrations in the underlying clay soil (bay mud) and more permeable fill material directly beneath the slab. Given these conditions, it is not uncommon that high vapor concentrations are detected in near-slab vapor locations, but not in sub-slab soil vapor samples, and supports that intrusion of vapor to indoor air is not a risk.

<u>Indoor air samples exceed applicable screening criteria</u>.

Previously, indoor air ESL exceedences were reported for TPHg, benzene and ethylbenzene using 2008 ESLs. Based on the most recent toxicological data (2013), the TPHg ESL has been changed significantly from 14 µg/m^3 to 2,500 µg/m^3, resulting in only benzene and ethylbenzene exceeding current indoor air ESLs. The benzene and ethylbenzene concentrations are within normal background and given the other possible VOC sources identified in the suites, benzene and ethylbenzene are likely ubiquitous; supported by U.S. Environmental Protection Agency's (USEPA), *Background Indoor Air Concentrations of Volatile Organic Compounds in North American Residences (1990-2005): A compilation of Statistics Assessing Vapor Intrusion, June 2011*.

In cases where vapor intrusion is likely, all three of the following criteria are typically met at the same time:

- Indoor Air > 10X Background
- Indoor Air > 10X Outdoor Air
- Sub-slab > 100 X Indoor Air

Several rounds of indoor/outdoor air and sub-slab data collected indicate that none of the criteria is met at this site. Building surveys documented many potential sources of petroleum in indoor air present inside the buildings when these data were collected. In addition, benzene and ethylbenzene concentrations detected in indoor air samples are within the normal background as published by EPA. Using a default attenuation factor of 0.01, the calculated indoor air concentrations from sub-slab soil gas concentrations are at the low end of the published indoor air background concentration ranges. Taken collectively, it is unlikely there is any potential vapor intrusion risk to indoor air at this site.

A recent evaluation by Brewer suggests a higher level of uncertainty regarding the representativeness of sub-slab data than previously recognized due to potential sources of error.

The methods of evaluating vapor intrusion and air flow described in Mr. Brewer's paper, including vapor entry rate measurements, are currently not accepted standard methods for evaluating vapor intrusion. Although uncertainty in evaluation of vapor intrusion to indoor air is inherent given the many variables involved including those mentioned in Brewer's paper, concurrent sampling of sub-slab/indoor air/outdoor air methodology during cold and/or hot seasons, which is what was performed at this site, is the preferred standard methodology to evaluate vapor intrusion and is endorsed by the EPA and many states (USEPA's *Technical Guide for Addressing Petroleum Vapor Intrusion at Leaking Underground Storage Tank Sites, June 2015 and* CA EPA Department of Toxic Substances Control's *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance, October 2011*).

The installation of near-slab soil vapor wells and sub-slab vapor points at the site also followed standard practice from EPA and CA guidance. The methodology used to perform the subject vapor assessment was based on U.S. Environmental Protection Agency (EPA) *Draft Standard Operating Procedure (SOP) for Installation of Sub-Slab Vapor Probes and Sampling Using EPA Method TO-15 to Support Vapor Intrusion Investigations*, which utilizes a large empirical dataset to derive attenuation factors for conservative screening purposes and is more robust and accepted at this time than the alternative proposed in the paper.

To assess temporal variability, the current standard practice is to collect sub-slab and indoor air samples during the summer and winter seasons. Sub-slab data from summer and winter months indicate vapor concentrations consistently below applicable screening levels, suggesting that temporal variation is not significant. It is important to note that high sub-slab soil gas concentrations don't always correlate to high soil gas entry rates; however, low sub-slab soil gas concentrations typically do correlate to a very low or no soil gas entry rate as is the case at this site. Results of concurrent sub-slab and indoor sampling during the winter months, which represents the worst-case vapor – inducing scenario associated with expected high soil vapor entry rates, indicated no elevated sub-slab soil vapor concentrations or indoor air concentrations. Further, sub-slab soil gas concentrations are very low during two different seasons, suggesting that temporal variability in soil gas entry rate is not significant. Given air exchange rates are typically quite high in these types of commercial buildings,

sub-slab soil concentrations are consistently low, additional sub-slab and indoor air sampling does not appear warranted.

As mentioned above, soil vapor well and sub-slab sampling point locations were based on proximity to likely source areas. Elevated vapor concentrations were consistently observed in near-slab vapor well locations at 5 fbg located within the likely source areas. Similarly, low vapor concentrations were consistently noted in all sub-slab locations suggesting insignificant spatial variability in near-slab vapor well and sub-slab locations. Additional sub-slab sampling will probably not generate new or more meaningful information about the soil vapor impact under the buildings.

In summary, multiple events of concurrent sampling of sub-slab soil vapor, indoor air, and ambient air conducted in 2009 and 2010 appears representative of vapor conditions at the site. Given the possible sources of VOCs identified within the suites, benzene and ethylbenzene concentrations in indoor air are likely due to these background sources. Sub-slab and indoor air data indicate vapor intrusion to indoor air is not occurring; therefore, additional indoor air/soil vapor sampling is not warranted at this site. Spatial and temporal variability do not appear significant.

Please contact Brian Silva at (916) 889-8908 if you have any questions or require additional information.

Sincerely,

GHD

Brian Silva

Greg Barclay, PG 6260

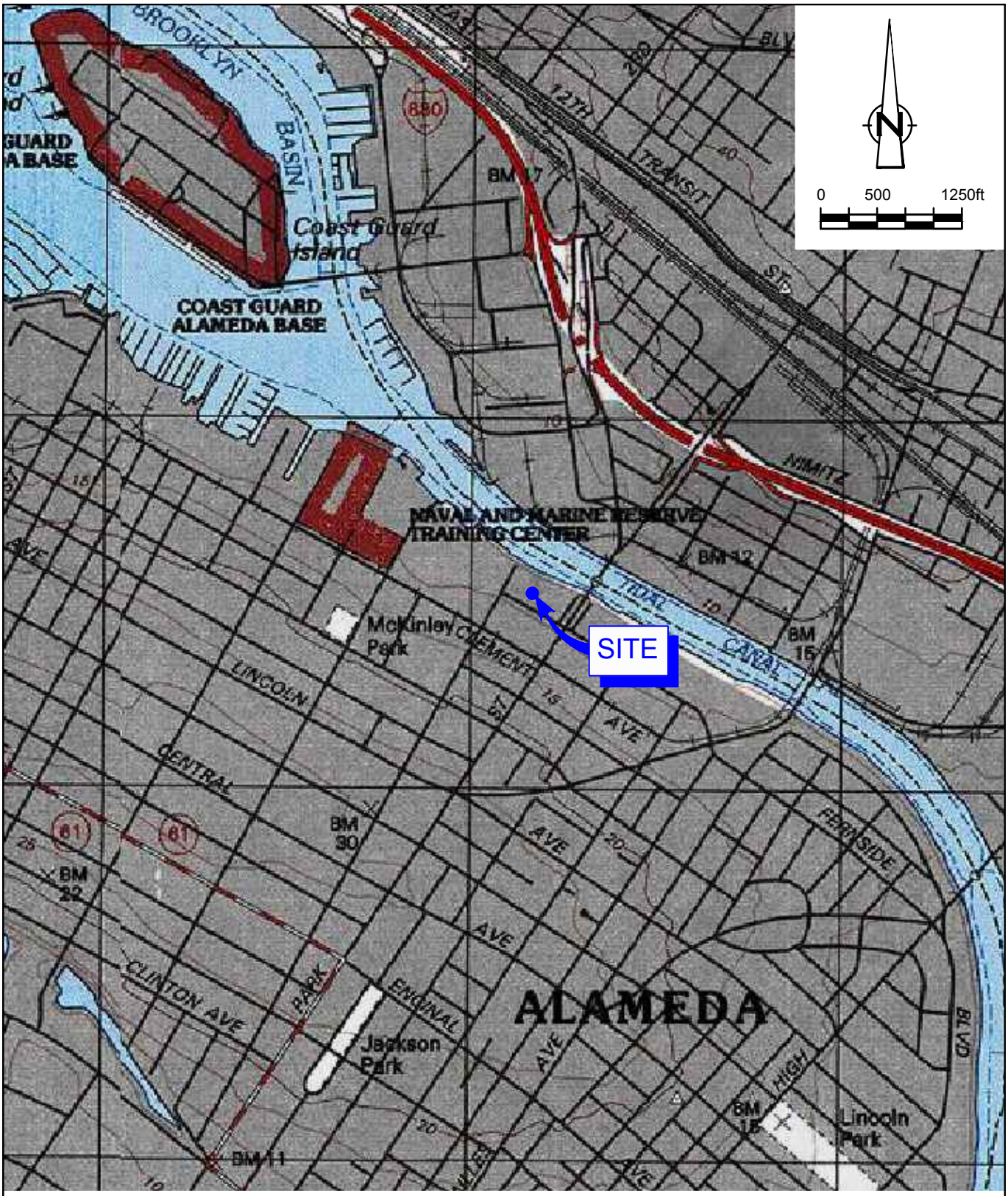
BS/de/37

Encl.

Figure 1	Vicinity Map
Figure 2	Site Plan
Figure 3	Geologic Cross-Section A-A’
Figure 4	Geologic Cross-Section B-B’
Table 1	Soil Vapor Analytical Results
Table 2	Sub-slab Soil Gas Indoor-outdoor Air Analytical Results
Attachment A	ACEH Letter dated 9/30/15 and email correspondence 11/24/15
Attachment B	Building Surveys

cc: Mr. Ted Moise, Chevron (electronic only)
Ms. Julie Beck Ball
Mr. Peter Reinhold Beck
Mr. Monroe Wingate
Ms. Amanda Monroe

Figures

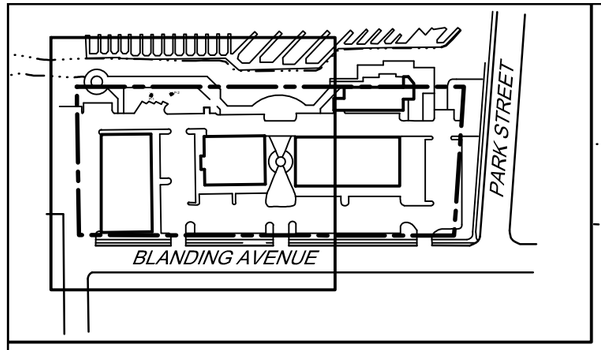


SOURCE: TOPO! MAPS.

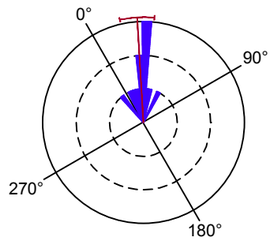
figure 1

VICINITY MAP
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

631916D-2014.3(034)GN-WA001 NOV 10/2014



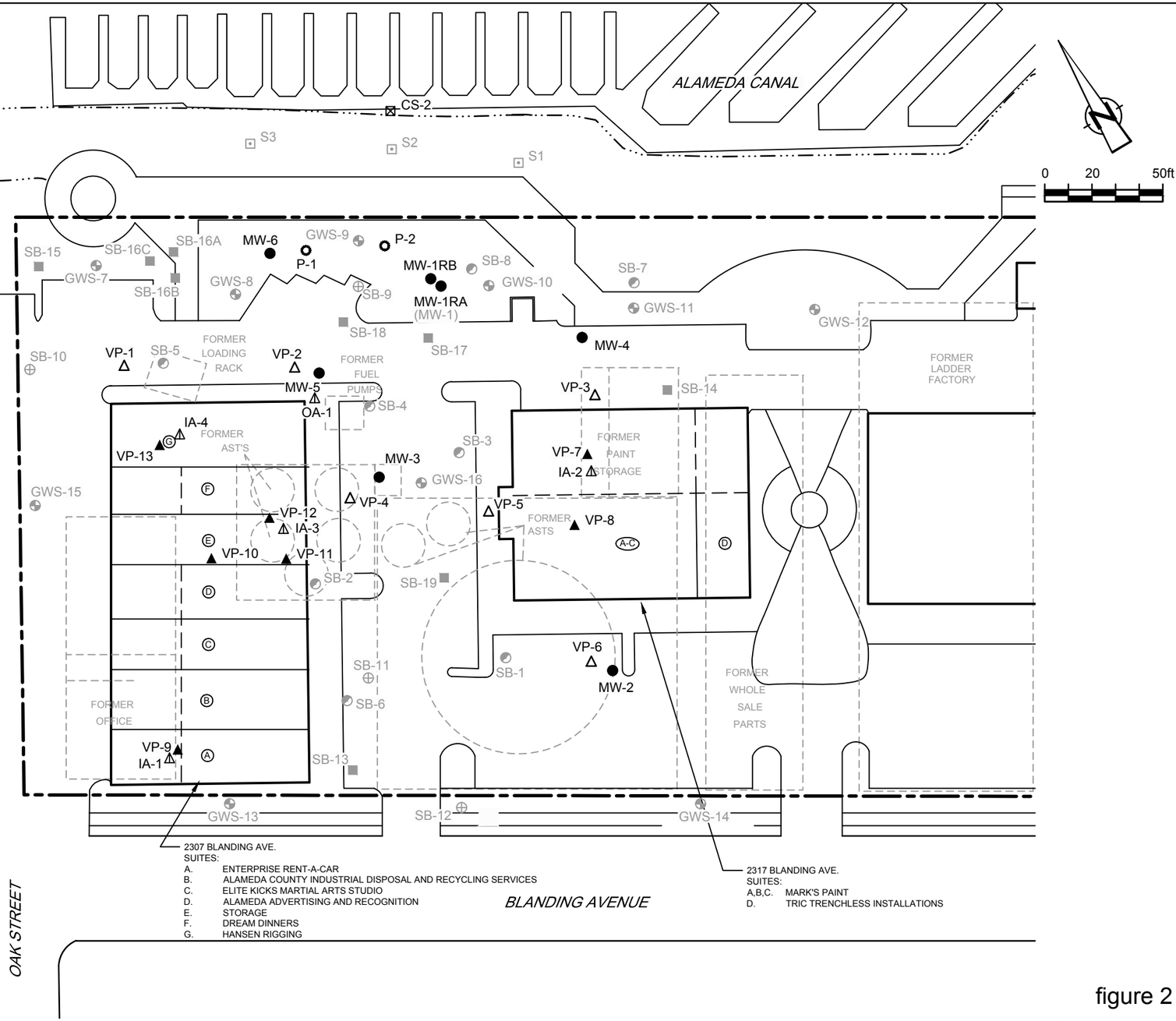
KEY PLAN
SCALE: 1"=250'



HISTORICAL GROUNDWATER FLOW DIRECTION
FROM 2Q 2009 TO 3Q 2014

LEGEND

- ▲ SUB-SLAB VAPOR POINT
- ● MONITORING WELL LOCATION
- △ VAPOR WELL
- ■ SOIL BORING (CRA, AUGUST, 2008)
- ◪ SOIL BORING (GEOMATRIX, FEBRUARY 1995)
- ⊕ SOIL BORING (RRM, OCTOBER 1998)
- ◍ SHALLOW GROUNDWATER SAMPLE (GEOMATRIX, APRIL 1995)
- ⊠ CANAL GRAB SURFACE WATER SAMPLE (RRM, OCTOBER 1998)
- ⊡ GRAB SOIL SAMPLE (CAMBRIA, JANUARY 2004)
- ⬚ SITE FEATURES NOTED ON SANBORN FIRE INSURANCE MAP, DATED 1932
- ⧋ INDOOR AND OUTDOOR AIR SAMPLING LOCATION
- P-1 ⭘ PIEZOMETER LOCATION



NOTE:
WELL LOCATIONS ARE BASED ON MAP PROVIDED BY MORROW SURVEYING (DWG NO.0857-149 ct, DATED 7-30-09).
ALL OTHER LOCATIONS ARE APPROXIMATE.

figure 2

SITE PLAN
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

A
NORTH

A'
SOUTHWEST

FORMER FUEL PUMP

FORMER TANK

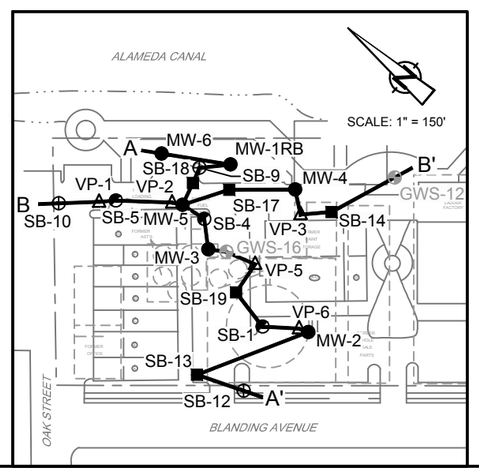
PROPERTY BOUNDARY

MW-6 | MW-1RB* | SB-9 | SB-18 | MW-5 (INTERSECTION WITH B-B') | SB-4 | MW-3 | GWS-16 | VP-5 | SB-19 | SB-1 | VP-6 | MW-2 | SB-13 | SB-12

ELEVATION (feet AMSL)

APPROXIMATE DEPTH (feet below grade)

SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



LEGEND

- MW-2 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE SOIL SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- TPHd / TPHg / BENZENE / MTBE / DATE — APPROXIMATE GROUNDWATER SAMPLE LOCATION; HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- DATE ▼ — GROUNDWATER DEPTH

- *AS* - ASPHALT
- *FILL*
- *CL/ML* - CLAY, SANDY CLAY, CLAYEY SILT, SANDY SILT WITH CLAY
- *SP/SM/SC/SW* - SAND, SAND WITH CLAY, CLAYEY SAND, CLAYEY SAND WITH GRAVEL, SILTY SAND, SILTY SAND WITH CLAY AND GRAVEL

- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)
- 180 — TPHg ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)

- ND — NOT DETECTED
- NA — NOT ANALYZED
- * — HYDROCARBON CONCENTRATIONS ARE FROM MW-1RA

figure 3

GEOLOGIC CROSS-SECTION A-A'
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

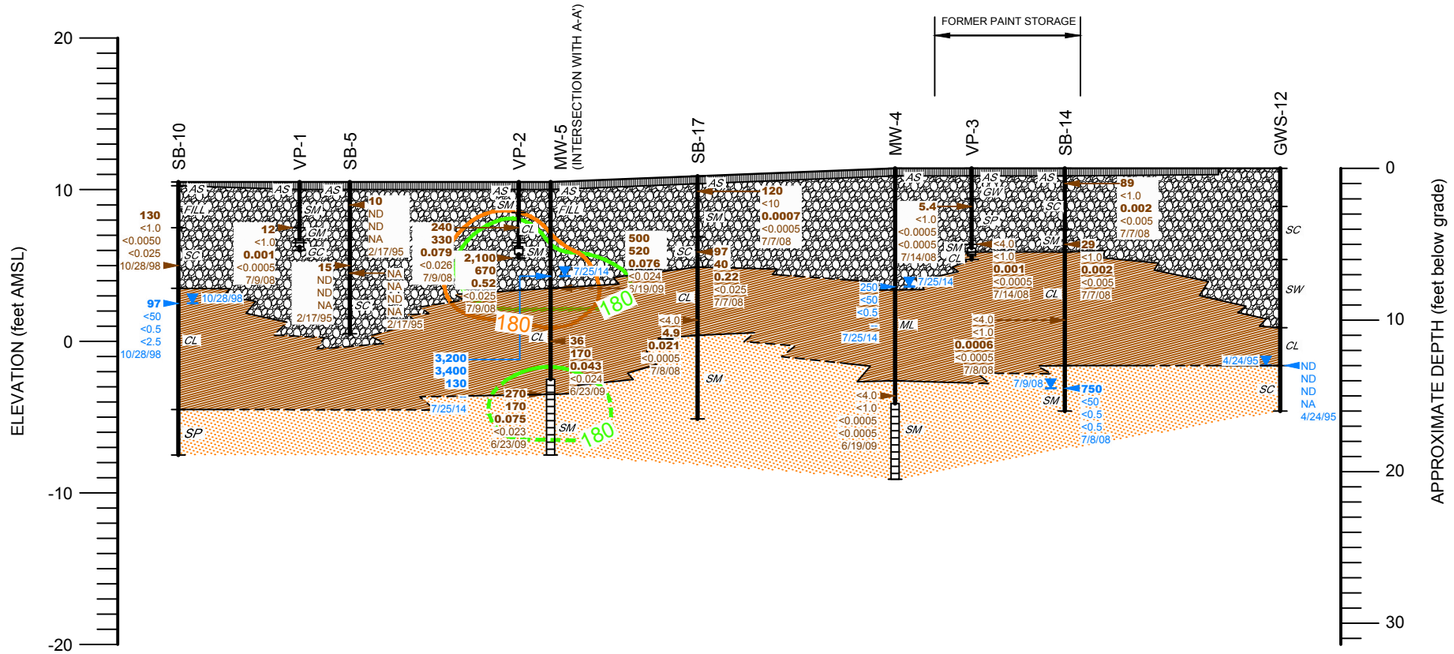
631916D-2014.3(034)GN-WA003 DEC 17/2014

B

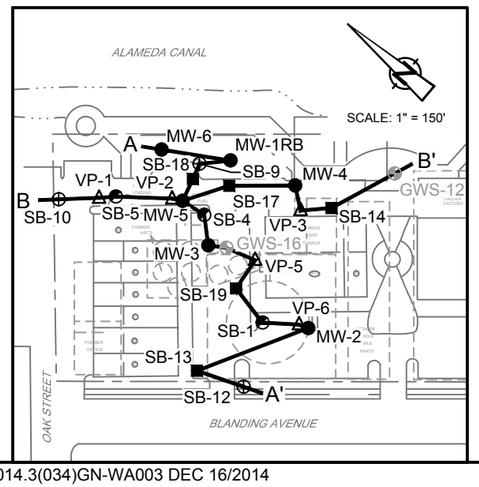
NORTHWEST

B'

EAST



SCALE: HORZ. 1" = 50'
VERT. 1" = 10'



LEGEND

- MW-5 — WELL DESIGNATION
- GROUND SURFACE
- OBSERVATION WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- APPROXIMATE SOIL SAMPLE LOCATION
- TPHd, TPHg, BENZENE, MTBE, DATE — HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- APPROXIMATE GROUNDWATER SAMPLE LOCATION
- TPHd, TPHg, BENZENE, MTBE, DATE — HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- DATE — GROUNDWATER DEPTH

- *AS* - ASPHALT
- *FILL*
- *CL/ML* - CLAY, SANDY CLAY, CLAYEY SILT, SANDY SILT WITH CLAY
- *SP/SM/SC/SW* - SAND, SAND WITH CLAY, CLAYEY SAND, CLAYEY SAND WITH GRAVEL, SILTY SAND, SILTY SAND WITH CLAY AND GRAVEL

- ND — NOT DETECTED
- NA — NOT ANALYZED

- 180 — TPHd ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)
- 180 — TPHg ESL ISOCONTOUR FOR SHALLOW COMMERCIAL/INDUSTRIAL SOILS WHERE GROUNDWATER IS NOT A POTENTIAL DRINKING WATER SOURCE (DASHED WHERE INFERRED)

figure 4

GEOLOGIC CROSS-SECTION B-B'
FORMER SIGNAL OIL BULK PLANT (CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
Alameda, California

631916D-2014.3(034)GN-WA003 DEC 16/2014

Tables

TABLE 1
SOIL VAPOR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHd ($\mu g/m^3$)	TPHg ($\mu g/m^3$)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethyl-benzene ($\mu g/m^3$)	m,p-Xylene ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	Chloromethane ($\mu g/m^3$)	Bromomethane ($\mu g/m^3$)	Hexane ($\mu g/m^3$)	Cyclohexane ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Cumene ($\mu g/m^3$)	Propyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl-benzene ($\mu g/m^3$)	4-Ethyl-toluene ($\mu g/m^3$)	O_2 (%)	N_2 (%)	CO_2 (%)	CH_4 (%)	He (%)
Soil Vapor Wells																						
VP-1	08/19/08	13,000	1,300,000	300	140	240	540	--	<160	<75	9,400	12,000	27,000	1,600	2,800	<95	660	17	--	4.00	--	<0.12
	10/22/09	--	<88	<3.4	<4.1	<4.7	<4.7	--	<8.9	<4.2	<3.8	<3.7	<4.4	<5.3	<5.3	<5.3	<5.3	9.4	--	5.70	--	<0.11
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VP-2	08/19/08	24,000	1,500,000	140	<86	130	300	--	<190	<89	5,500	19,000	12,000	900	1,700	<110	370	8.9	--	11.00	--	<0.11
	10/22/09	--	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	13	--	8.00	--	<0.12
	06/29/10	--	<280	<4.3	<5	<5.9	<5.9	<28	--	--	--	--	--	--	--	--	--	16	79	5.10	0.0005	<0.14
	06/29/10[1]	--	820	<4.3	<5.0	<5.8	<5.8	<28	--	--	--	--	--	--	--	--	--	16	79	5.10	<0.00027	<0.13
	11/16/10[2]	--	<160	<3.8	<4.4	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	18	79	3.10	<0.00024	<0.12
VP-3	08/19/08	53,000E	**4,100,000**	<700	<830	<960	1,200	--	<1,800	<850	38,000	47,000	77,000	4,000	5,700	1,200	<1100	1.7	--	11.00	--	<0.11
	10/22/09	--	1,800,000	<130	<150	<180	<180	--	<330	<160	6,200	6,200	1,800	<200	<200	<200	<200	1.4	--	8.10	--	<0.12
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	340,000	<38	<45	<52	<52	<250	--	--	--	--	--	--	--	--	--	4.1	87	8.10	0.66	<0.12
VP-4	08/19/08	91,000S	**220,000,000**	**1,100,000**	49,000	**570,000**	70,000	--	**3,900,000**	**70,000**	8,400,000	3,600,000	5,100,000	57,000	84,000	<19,000	37,000	0.55	--	16.00	--	<0.13
	10/22/09	--	**140,000,000**	**1,100,000**	<48,000	**650,000**	71,000	--	<100,000	<49,000	7,700,000	3,400,000	4,900,000	64,000	110,000	<62,000	<62,000	0.64	--	15.00	--	<0.13
	10/22/09[1]	--	**130,000,000**	**1,000,000**	<46,000	**540,000**	57,000	--	<100,000	<47,000	7,300,000	3,200,000	4,600,000	<59,000	92,000	<59,000	<59,000	0.62	--	14.00	--	<0.12
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**130,000,000**	**830,000**	30,000	**470,000**	44,000	<25,000	--	--	--	--	--	--	--	--	--	1.1	43	12.00	41	0.28
VP-5	08/19/08	110,000S	**29,000,000**	**28,000**	<4,400	<5,000	<5,000	--	<9,600	<4,500	630,000	430,000	660,000	7,000	<5,700	<5,700	<5,700	2.0	--	15.00	--	<0.12
	10/22/09	--	**20,000,000**	**16,000**	<4,800	<5,500	<5,500	--	<10,000	<4,900	370,000	310,000	490,000	12,000	15,000	<6,200	<6,200	1.3	--	17.00	--	<0.13
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	--	**18,000,000**	**11,000**	1,600	<1600	1,600	<8000	--	--	--	--	--	--	--	--	--	1.5	82	16.00	0.030	<0.11
	11/16/10[1]	--	**18,000,000**	**12,000**	1,500	<1600	1,700	<8000	--	--	--	--	--	--	--	--	--	1.4	82	16.00	0.030	<0.11
VP-6	08/19/08	96,000S	**150,000,000**	**20,000**	<10,000	<12,000	<12,000	--	**1,200,000**	**25,000**	3,300,000	3,200,000	2,800,000	17,000	<14,000	<14,000	<14,000	3.9	--	9.80	--	<0.11
	08/19/08[1]	22,000	840,000	100	<86	130	290	--	<190	<89	4,400	9,800	12,000	890	1,700	<110	390	9.2	--	10.00	--	<0.11
	06/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/16/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
SFRWQCB ESLs		***570,000***	***2,500,000***	***420***	***1,300,000***	***4,900***	***440,000[4]***	***360***	***390,000***	***22,000***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***

Abbreviations and Notes:

Bold = indicates that measured concentration exceeds the ESL for shallow soil gas under commercial/industrial land use.
TPHd = Total petroleum hydrocarbons as diesel by EPA Method TO-17
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-3 (8/19/08) or TO-15 GC/MS
Volatile Organic Compounds by EPA Method TO-15
Oxygen (O_2), nitrogen (N_2), carbon dioxide (CO_2), methane (CH_4) and helium (He) by ASTM Method D-1946
NE = Not established
NS = Not sampled due to the presence of water in vapor well
B = Compound present in laboratory blank greater than reporting limit, background subtraction not perfo:
ESL = Environmental Screening Levels for shallow soil gas associated with potential vapor intrusion concerns at commercial/industrial sites (Table E, SFRWQCB, 2013).
[1] = Field duplicate sample
[2] = TPHg analysis by TO-15 APH
[3] = Estimated value due to laboratory error
[4] = ESL is for total xylenes
< = Not detected at or above stated laboratory reporting limit
-- = Not analyzed

TABLE 2
SUB-SLAB SOIL GAS INDOOR/OUTDOOR AIR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHg	Benzene	Toluene	Ethylbenzene	m,p-Xylene	Naphthalene	Chloromethane	Bromomethane	Hexane	Cyclohexane	Heptane	Cumene	Propylbenzene	1,3,5-Trimethylbenzene	4-Ethyltoluene	O_2	N_2	CO_2	CH_4	He
		($\mu g/m^3$)																			
IA-1 ***(Indoor air)***	06/29/10	290	**0.52**	4.50	0.27	0.97	<4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10[2]	220	**1.70**	7.70	0.61	2.20	<4.1	--	--	--	--	--	--	--	--	--	22	78	0.042	0.00021	<0.078
VP-9	07/24/09	8,800	<3.8	38	<5.3	19	--	<9.8	<4.6	<4.2	<4.1	<4.9	<5.8	<5.8	<5.8	<5.8	15	--	0.14	--	29.00
	10/22/09	<90	<3.5	<4.1	<4.8	<4.8	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	20	--	0.73	--	<0.11
	06/29/10	<230	<3.6	<4.3	<4.9	<5.0	<24	--	--	--	--	--	--	--	--	--	19	80	1.10	<0.00023	<0.11
	11/16/10	<250[3]	<3.9	<4.6	<5.3	<5.3	<26	--	--	--	--	--	--	--	--	--	19	80	1.20	<0.00024	<0.12
IA-2 ***(Indoor air)***	06/29/10	490	**0.57**	5.20	2.30	8.3	<4.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10[2]	390	**0.97**	15.00	1.80	5.7	<4.4	--	--	--	--	--	--	--	--	--	22	78	0.048	0.00021	<0.084
VP-7	07/24/09	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	19	--	0.60	--	<0.12
	06/29/10	<240	<3.7	<4.3	<5.0	<5.0	<24	--	--	--	--	--	--	--	--	--	21	78	0.30	<0.00023	0.21
	11/16/10	<260[3]	<4.1	<4.9	<5.6	<5.6	<27	--	--	--	--	--	--	--	--	--	20	79	0.50	<0.00026	0.54
VP-8	07/24/09	490	<3.5	<4.1	<4.8	<4.8	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	<5.4	<5.4	<5.4	21	--	0.56	--	<0.11
	07/24/09[1]	8,200	7	48	24	100	--	<9.1	<4.3	<3.9	<3.8	<4.5	<5.4	14	33	79	21	--	0.56	--	<0.11
	06/29/10	310	24	71	5.9	47	<25	--	--	--	--	--	--	--	--	--	20	79	0.61	<0.00024	0.57
	06/29/10[1]	340	24	70	5.3	44	<25	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10	<250[3]	<3.9	<4.6	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	19	79	0.98	<0.00024	1.10
IA-3 ***(Indoor air)***	07/09/10	110	0.39	1.80	0.27	0.92	<4.3	--	--	--	--	--	--	--	--	--	22	78	0.040	0.00019	<0.082
	07/09/10[3]	100	**0.41**	2.00	0.26	0.91	<4.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10[2]	530	**4.20**	35.00	**6.00**	23.00	<4.2	--	--	--	--	--	--	--	--	--	22	78	0.046	0.00021	<0.081
VP-10	07/24/09	2,500B	<3.7	7	52	130	--	<9.6	<4.5	<4.1	<4.0	12	<5.7	12	21	59	17	--	0.48	--	16.00
	10/22/09	2,100	16	6.1	12	<5.2	--	<10	<4.7	100	45	91	<5.9	<5.9	<5.9	<5.9	20	--	0.29	--	2.40
	06/29/10	<250	<3.8	<4.5	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	19	73	0.43	<0.00024	7.30

TABLE 2
SUB-SLAB SOIL GAS INDOOR/OUTDOOR AIR ANALYTICAL RESULTS
FORMER SIGNAL OIL MARINE STORAGE AND DISTRIBUTION FACILITY
(CHEVRON FACILITY 206127)
2301-2311 BLANDING AVENUE
ALAMEDA, CALIFORNIA

Vapor Well	Sample Date	TPHg	Benzene	Toluene	Ethylbenzene	m,p-Xylene	Naphthalene	Chloromethane	Bromomethane	Hexane	Cyclohexane	Heptane	Cumene	Propylbenzene	1,3,5-Trimethylbenzene	4-Ethyltoluene	O_2	N_2	CO_2	CH_4	He
		($\mu g/m^3$)																			
	11/16/10	260[3]	<4.0	6.3	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	72	0.42	<0.00025	10.00
VP-11	07/24/09	450B	<3.9	13	<5.2	8	--	<10	<4.7	<4.3	<4.2	<5.0	<5.9	<5.9	<5.9	<5.9	16	--	0.26	--	22.00
	10/22/09	<99	<3.9	<4.6	<5.2	<5.2	--	<10	<4.7	<4.3	<4.2	<5.0	<5.9	<5.9	<5.9	<5.9	14	--	4.00	--	<0.12
	06/29/10	<240	<3.8	<4.5	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	18	80	1.90	<0.00024	<0.12
	11/16/10	<260	<4.0	<4.7	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	80	1.70	<0.00025	<0.12
	11/16/10[1]	<260[3]	<4.0	<4.7	<5.4	<5.4	<26	--	--	--	--	--	--	--	--	--	18	80	1.70	<0.00025	<0.12
VP-12	07/24/09	190B	<3.6	<4.2	<4.9	<4.9	--	<9.2	<4.3	<3.9	<3.8	<4.6	<5.5	<5.5	<5.5	<5.5	19	--	0.73	--	0.43
	07/24/09[1]	1,600B	<3.6	<4.2	<4.9	<4.9	--	<9.2	<4.3	<3.9	<3.8	<4.6	<5.5	<5.5	<5.5	<5.5	19	--	0.73	--	0.44
	10/22/09	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	18	--	1.40	--	<0.12
	06/29/10	<220	<3.5	<4.1	<4.8	<4.8	<23	--	--	--	--	--	--	--	--	--	20	80	0.45	<0.00022	<0.11
	11/16/10	<240[3]	<3.8	<4.5	<5.2	<5.2	<25	--	--	--	--	--	--	--	--	--	20	80	0.50	<0.00024	<0.12
IA-4 ***(Indoor air)***	06/29/10	490	**1.80**	16.00	2.10	7.9	<4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10[2]	200	**0.77**	4.40	0.74	2.5	<4.4	--	--	--	--	--	--	--	--	--	22	78	0.041	0.00020	<0.084
VP-13	07/24/09	8,600B	<3.6	200	<5.0	9	--	<9.4	<4.4	<4.0	<3.9	<4.7	<5.6	<5.6	<5.6	<5.6	15	--	0.16	--	26.00
	10/22/09	<95	<3.7	<4.4	<5.0	<5.0	--	<9.6	<4.5	<4.1	<4.0	<4.8	<5.7	<5.7	<5.7	<5.7	20	--	1.30	--	<0.12
	06/29/10	<240	<3.8	<4.4	<5.1	<5.1	<25	--	--	--	--	--	--	--	--	--	16	82	2.00	<0.00024	<0.12
	11/16/10	450[3]	<3.9	<4.6	<5.3	<5.3	<26	--	--	--	--	--	--	--	--	--	15.00	78	2.60	<0.00024	4.70
Outdoor Ambient Air																					
OA-1	06/29/10	<160	0.24	0.78	0.15	0.48	<4.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11/16/10[2]	110	**0.61**	2.10	0.38	1.20	<4.1	--	--	--	--	--	--	--	--	--	22	78	0.043	0.00021	<0.078
SFRWQCB ESLs (Indoor Air)		***2,500***	***0.42***	***1,300***	***4.9***	***440***	***0.36***	***3,900***	***22***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***
SFRWQCB ESLs (Soil Gas)		***2,500,000***	***420***	***1,300,000***	***4,900***	***440,000***	***360***	***390,000***	***22,000***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***	***NE***

Abbreviations and Notes:

Bold = indicates that measured concentration exceeds the ESL for indoor air under commercial/industrial land use.
Underline = indicates that measured concentration exceeds the ESL for indoor air under commercial/industrial land use adjusted by a factor of 100 to account for attenuation between sub-slab and indoor air.
TPHg = Total petroleum hydrocarbons as gasoline by EPA Method TO-15 GC/MS SIM.
Volatile organic compounds by EPA Method TO-15 GC/MS SIM.
Oxygen (O_2), nitrogen (N_2), carbon dioxide (CO_2), methane (CH_4) and helium (He) by ASTM Method D-1946.
ESLs = Environmental Screening Levels associated with ambient and indoor air at commercial/industrial sites (Table E, SFRWQCB, 2013).
[1] = ESL is for total xylenes.
[2] = Samples analyzed by Modified TO-15 APH
[3] = Field duplicate sample
B = Compound present in laboratory blank greater than reporting limit, background subtraction not performed
NE = Not established.
< = Not detected at or above stated laboratory reporting limit.
-- = Not analyzed/not applicable.

Attachment A
ACEH Letter dated September 30, 2015

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

September 30, 2015

Mr. Mike Bauer (*Sent via E-mail to: mikebauer@chevron.com*)
Chevron Environmental Management Company
145 S. State College Blvd.
Brea, CA 92821

Ms. Julie Beck Ball
Mr. Peter Reinhold Beck
2720 Broderick Street
San Francisco, CA 94123

Subject: Case File Review for SLIC Case No. RO0002466 and GeoTracker Global ID T06019744728, Park Street Landing 2301-2337 Blanding Avenue, Alameda, CA 94501

Dear Mr. Bauer and Ms. Ball:

Alameda County Environmental Health (ACEH) staff has reviewed the Spills, Leaks, Investigations, and Cleanups (SLIC) case file for the above referenced site including the documents entitled, "*Site Conceptual Model and Low-Threat Closure Request,*" dated February 10, 2015 (SCM) and "*Second Semi-Annual 2015 Groundwater Monitoring and Sampling Report*," dated September 18, 2015. Both documents were prepared on Chevron's behalf by Conestoga-Rovers & Associates which is now GHD Services, Inc. The SCM reviews the site conditions and concludes that the site meets the general and media-specific criteria in the State Water Resources Control Board Low-Threat Underground Storage Tank Case Closure Policy (LTCP) for case closure.

Based on our review of the SCM which is discussed in the technical comments below, the current site data does not support the conclusion that the site meets the general or media-specific criteria in the LTCP. Elevated concentrations of petroleum hydrocarbons are present in soil, soil vapor, and groundwater beneath the site. The potential for vapor intrusion to indoor air has also not been fully evaluated as discussed in technical comment 4 below. Based on these considerations, further assessment of the potential for vapor intrusion is required prior to decisions regarding site cleanup or closure.

TECHNICAL COMMENTS

1. **General Criteria for Secondary Source Removed.** Section 3.1 of the SCM indicates that historical documents do not contain information related to secondary source removal. The SCM concludes that, "soil and groundwater data demonstrate that hydrocarbon impact is limited to the areas of the former ASTs and loading rack," and that "soil beneath the site is mostly clay and appears to have limited petroleum hydrocarbon migration." However, a review of cross sections for the site indicates that petroleum hydrocarbon contamination extends below the clay layer at the site. The clay layer does not appear to be an effective barrier to contaminant migration. The site does not appear to meet the general criteria for secondary source removal.

2. **Connection and Discharges to Surface Water.** A review of cross sections for the site indicates that a layer of permeable sands and silts appears to extend from the site to the Alameda Canal. The 2012 tidal study confirmed that water levels in several monitoring wells at the site had strong responses to tidal fluctuations indicating that the site is hydraulically connected to the Alameda Canal. There appears to be a migration pathway for contaminated groundwater in well MW-1RB to the Alameda Canal. We do not concur that the site meets Class 5 of the groundwater-specific criteria. During the most recent groundwater sampling event, the concentration of total petroleum hydrocarbons as gasoline detected in groundwater from well MW-1RB was 1,300 micrograms per liter, which is the highest concentration detected historically for well MW-1RB. Since groundwater concentrations are not decreasing in some areas of the site and there appears to be a migration pathway to Alameda Canal, it is possible that the site represents a chronic source for petroleum hydrocarbons discharging to the adjacent surface water in the Alameda Canal. Groundwater sampling is to be continued on a semi-annual basis.

3. **Mass Flux.** The mass flux calculations for discharge to the Alameda Canal that are presented in the November 30, 2012 "*Piezometer Installation and Tidal Study Report,*" appear to be significantly biased low. Parameters such as hydraulic conductivity and average gradient used to estimate seepage velocity did not reflect site conditions. If mass flux calculations are to be presented in future reports, they must meet the following:
    - The parameters used must be representative of site conditions.
    - All parameters must be shown in tables with a reference
    - The calculations are to be clearly shown.
    - Diluting the discharge using the tidal flow in the canal is not acceptable; the estimated concentration at discharge without dilution is to be shown.

4. **Vapor Intrusion.** We do not concur that the site meets the vapor specific-criteria in the LTCP which requires that a site-specific risk assessment demonstrates that human health is protected to the satisfaction of the regulatory agency. The concentrations of petroleum hydrocarbons detected in indoor air samples and soil vapor samples collected at 5 feet exceed applicable screening criteria. Sub-slab sampling results do not exceed screening criteria. Based on the sub-slab sampling results, the SCM concludes that the indoor air samples are affected by indoor sources within the building and that elevated soil vapor results do not represent a risk. Recent evaluations of sub-slab sampling suggest a higher level of uncertainty regarding the representativeness of sub-slab data than previously recognized (*Estimation of Generic Subslab Attenuation Factors for Vapor Intrusion Investigations, R. Brewer, el al., Groundwater Monitoring and Remediation 34, No. 4, 2014)*. Potential sources of error include temporal variability, uncertainty in the duration, entry rate, and volumes of vapors intruded to indoor air, potential discrepancies between vapor entry points and sample locations, and spatial variability. We do not believe that sub-slab data provide a sufficient basis to discount the indoor air data and soil vapor data. Therefore, we request that you conduct additional assessment of vapor intrusion to the existing buildings that includes additional indoor and outdoor air sampling, soil vapor sampling, and potentially additional sub-slab sampling. Plans for indoor and ambient air sampling must include consideration of building ventilation and seasonal effects. Plans for additional sub-slab sampling must consider the potential sources of error identified above. Please include plans for additional vapor intrusion assessment in a Vapor Intrusion Assessment Work Plan no later than November 30, 2015.

5. **Direct Contact and Outdoor Air Exposure Criteria.** The maximum concentrations of petroleum constituents in soil between 0 and 5 feet bgs exceed the LTCP criteria for both residential and commercial land use. We do not concur with the SCM that the maximum concentrations in soil are less than levels from a site-specific risk assessment. We are not aware of any site-specific risk assessment conducted for shallow soil at the site. Section 3.2.3 of the SCM discusses sub-slab, vapor, and indoor air results without explaining how they relate to direct contact risks from soil. If site cleanup for shallow soil does not occur, land use and site management restrictions will be required.

TECHNICAL REPORT REQUEST

Please upload technical reports to ACEH ftp site (Attention: Jerry Wickham), and to the State Water Resources Control Board's GeoTracker website, in accordance with the following file naming convention and schedule:

- **November 30, 2015** – Vapor Intrusion Assessment Work Plan
  File to be named: WP_R_yyyy-mm-dd

- **March 25, 2016** – Semi-annual Groundwater Monitoring Report – First Quarter 2016
  File to be named: GWM_R_yyyy-mm-dd

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

If you have any questions, please call me at 510-567-6791 or send me an electronic mail message at jerry.wickham@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm. If your email address does not appear on the cover page of this notification, ACEH is requesting you provide your email address so that we can correspond with you quickly and efficiently regarding your case.

Sincerely,

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297
Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Mr. Brian Silva, Conestoga-Rovers & Associates, 10969 Trade Center Drive, Suite 107, Rancho Cordova, CA 95670 (*Sent via E-mail to: Brian.Silva@ghd.com*)

Mr. Monroe Wingate, C/o Alan Wingate, 18360 Carriger Road, Sonoma, CA 95476

Jerry Wickham, ACEH (*Sent via E-mail to: jerry.wickham@acgov.org*)

GeoTracker, e-File

Attachment 1

Responsible Party(ies) Legal Requirements / Obligations

REPORT REQUESTS

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/).

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**REVISION DATE:** May 15, 2014
	ISSUE DATE: July 5, 2005
	PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010, July 25, 2010
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- **Please do not submit reports as attachments to electronic mail.**
- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- **Signature pages and perjury statements must be included and have either original or electronic signature.**
- **Do not password protect the document**. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted**.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

1) Obtain User Name and Password
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to deh.loptoxic@acgov.org
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for**.

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
   b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to deh.loptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
   d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

Silva, Brian

From: Wickham, Jerry, Env. Health <jerry.wickham@acgov.org>
Sent: Tuesday, November 24, 2015 2:09 PM
To: Silva, Brian
Cc: tmoise@chevron.com
Subject: RO2466 Schedule extension

Brian,

Based on your request contained in correspondence dated November 23, 2015, the schedule for submittal of a Soil Vapor Assessment Work Plan for case RO2466 is extended to March 1, 2016.

Regards,
Jerry Wickham
Alameda County Environmental Health

_____

Attachment B
Building Surveys

APPENDIX K - BUILDING SURVEY FORM

This form must be completed for each building involved in an indoor air investigation.

Preparer's name IAN HULL Date prepared 06/29/2010

Preparer's affiliation CRA FOR CHEVRON EMC

Telephone number 510 - 420 - 0700

1. **OCCUPANT** Name MARK'S PAINTS

Address 2317 BLANDING AVE

SUITE A - C

City ALAMEDA

Home telephone number 510 - 522 - 0717

Office telephone number –

2. **OWNER OR LANDLORD** Name JULIE BALL, PETER BECK, TOTSY BECK
(If different than occupant)

Address P.O. Box 278 #220

MEADOW VALLEY, CA 95956

Telephone number –

A. Type of Building Construction

Type (circle appropriate responses): Single Family Multiple Dwelling (Commercial)

Ranch	Two-family
Raised Ranch	Duplex
Split Level	Office
Colonial	(Warehouse)
Mobile Home	Strip Mall
Apartment Building:	Number of ~~Units~~ KMs 8
Other	

Building Age _____ Number of stories ONE, VAULTED CEILING

Area of the Building (square feet) ~6,400

Is the building insulated? (yes) / no How sealed is the building? MODERATE, BACK DOORS LEFT OPEN

Number of elevators in the building 0

Condition of the elevator pits (sealed, open earth, etc.) N/A

General description of building construction materials METAL, WOOD, DRYWALL

B. Foundation Characteristics (circle all that apply)

1. Full basement, crawlspace, (slab on grade), other _____
2. Basement floor description: concrete, dirt, wood, other N/A
   a. The basement is: wet, damp, dry _____
   b. Sump present? yes / no _____ Water in sump? yes / no _____
   c. The basement is: finished, unfinished _____
   d. Is the basement sealed? Provide a description _____
3. Concrete floor description: unsealed, painted, (covered) with TILE
4. Foundation walls: poured concrete, block, stone, wood, other METAL
5. Identify all potential soil gas entry points and their size (e.g., (cracks), voids, pipes, utility ports, sumps, drain holes, etc.). Include these points on the building diagram.

C. Heating, Ventilation, and Air Conditioning (circle all that apply)

1. The type of heating system(s):

(Hot Air Circulation)	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood Stove
Electric Baseboard	Other (specify) _____

2. The type of fuel used: (Natural Gas) Fuel Oil, Electric, Wood, Coal, Solar

   Other (specify) _____
3. Location of heating system: ABOVE FRONT ROOM, NOT USED OFTEN
4. Is there air-conditioning? yes (no) ~~Central Air or Window Units~~?

Specify the location N/A

5. Are there air distribution ducts present? (yes) / no

6. Describe the supply and cold air return duct work including whether there is a cold air return and comment on the tightness of duct joints.
INSULATED, RUN ABOVE FRONT ROOM AND OFFICES IN BACK, NO COLD AIR RETURN

7. Is there a whole house fan? yes / no NO
What is the rated size of the fan? –

8. Temperature settings inside during sampling. Note day and night temperatures.
   a. Daytime temperature(s) N/A
   b. Nighttime temperature(s) N/A
   (Note times if system cycles during non-occupied hours during the day)

9. Estimate the average time doors and windows are open to allow fresh outside air into the building. Note rooms that frequently have open windows or doors.
BACK ROOM FOR PAINT MIXING IS OPEN ~90%. NO OTHER DOORS/WINDOWS OPEN OFTEN

D. Potential Indoor Sources of Pollution

1. Is the laundry room located inside the home? yes / (no)

2. Has the house ever had a fire? yes / (no)

2. Is there an attached garage? (yes) / no

3. Is a vehicle normally parked in the garage? (yes) / no

4. Is there a kerosene heater present? yes / (no)

5. Is there a workshop, hobby or craft area in the residence? (yes) / no

6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.

7. Is there a kitchen exhaust fan? yes (no) Where is it vented? N/A

8. Is the stove gas or electric? N/A Is the oven gas or electric? –

9. Is there an automatic dishwasher? yes (no)

10. Is smoking allowed in the building? yes (no)

11. Has the house ever been fumigated or sprayed for pests? If yes, give date, type and location of treatment.

E. Water and Sewage (Circle the appropriate response)

Source of Water

(Public Water) Drilled Well Driven Well Dug Well Other (Specify) _____

Water Well Specifications

Well Diameter N/A
Well Depth _____
Depth to Bedrock _____
Feet of Casing _____

Grouted or Ungrouted N/A
Type of Storage Tank _____
Size of Storage Tank _____
Describe type(s) of Treatment _____

Water Quality

Taste and/or odor problems with water? yes (no) If so, describe _____

Is the water (chlorinated) brominated, or ozonated? (yes) no _____

How long has the taste and/or odor problem been present? N/A

Sewage Disposal: (Public Sewer) Septic Tank Leach Field Other (Specify) _____

Distance from well to septic system N/A Type of septic tank additives N/A

F. Plan View

Sketch each floor and if applicable, indicate air sampling locations, possible indoor air pollution sources, preferential pathways and field instrument readings.

G. Potential Outdoor Sources of Pollution

Draw a diagram of the area surrounding the building being sampled. If applicable, provide information on the spill locations (if known), potential air contamination sources (industries, service stations, repair shops, retail shops, landfills, etc.), outdoor air sampling locations, and field instrument readings.

Also, on the diagram, indicate barometric pressure, weather conditions, ambient and indoor temperatures, compass direction, wind direction and speed during sampling, the locations of the water wells, septic systems, and utility corridors if applicable, and a statement to help locate the site on a topographical map.

APPENDIX L – HOUSEHOLD PRODUCTS INVENTORY FORM

Occupant of Building MARK'S PAINT

Address 2317 BLANDING AVE, SUITES A-C

City ALAMEDA

Field Investigator IAN HULL Date 06/29/2010

Product Description (commercial name, dispenser type, container size, manufacturer, etc.)	Volatile Ingredients in the Product	Field Instrument Reading
PAINT		
PAINT HARDENERS		
PAINT DYE		
PAINT THINNER		

Comments:

APPENDIX K - BUILDING SURVEY FORM

This form must be completed for each building involved in an indoor air investigation.

Preparer's name David Grenart Date prepared 6/29/10

Preparer's affiliation CRA

Telephone number 510-420-3353

1. **OCCUPANT**

Name Enterprise Car Rental

Address 2307 BLANDING AVENUE

SUITE A

City ALAMEDA

Home telephone number –

Office telephone number 510-523-7457

2. **OWNER OR LANDLORD**

Name JULIE BELL, PETER BECK, TOTSY BECK
(If different than occupant)

Address P.O. BOX 278 #220

MEADOW VALLEY, CA 95956

Telephone number –

A. Type of Building Construction

Type (circle appropriate responses): Single Family Multiple Dwelling (Commercial)

Ranch	Two-family
Raised Ranch	Duplex
Split Level	(Office)
Colonial	Warehouse
Mobile Home	Strip Mall
Apartment Building:	Number of Units
Other	

Building Age _____ Number of stories 1

Area of the Building (square feet) ~ 2,500

Is the building insulated? (yes) no How sealed is the building? MODERATELY

Number of elevators in the building 0

Condition of the elevator pits (sealed, open earth, etc.) NA

General description of building construction materials METAL, WOOD, DRY WALL

IN GOOD DESCRIPTION

B. Foundation Characteristics (circle all that apply)

1. Full basement, crawlspace, slab on grade, other _____
2. Basement floor description: concrete, dirt, wood, other —
   a. The basement is: wet, damp, dry —
   b. Sump present? yes / no — Water in sump? yes / no —
   c. The basement is: finished, unfinished —
   d. Is the basement sealed? Provide a description —
3. Concrete floor description: unsealed, painted, covered; with Tile/Carpet (front room) Back Room
4. Foundation walls: poured concrete, block, stone, wood, other unknown
5. Identify all potential soil gas entry points and their size (e.g., cracks, ~~voids, pipes, utility ports, sumps, drain holes, etc.~~). Include these points on the building diagram. Back Room

C. Heating, Ventilation, and Air Conditioning (circle all that apply)

1. The type of heating system(s):

Hot Air Circulation	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood Stove
Electric Baseboard	Other (specify) _____

2. The type of fuel used: Natural Gas, Fuel Oil, Electric, Wood, Coal, Solar

   Other (specify) _____
3. Location of heating system: Backroom
4. Is there air-conditioning? yes / no Central Air or Window Units?

Specify the location Backroom

5. Are there air distribution ducts present? (yes) / no

6. Describe the supply and cold air return duct work including whether there is a cold air return and comment on the tightness of duct joints.
UNKNOWN - ALL DUCTS LOCATED IN INACCESSIBLE LOCATION

7. Is there a whole house fan? yes / (no)
What is the rated size of the fan? _____

8. Temperature settings inside during sampling. Note day and night temperatures.
   a. Daytime temperature(s) ~70
   b. Nighttime temperature(s) ~70
   (Note times if system cycles during non-occupied hours during the day)

9. Estimate the average time doors and windows are open to allow fresh outside air into the building. Note rooms that frequently have open windows or doors.
FRONT OF BUILDING = 2%, BACK ROOM 100% WHILE BUSINESS OPEN

D. Potential Indoor Sources of Pollution

1. Is the laundry room located inside the home? yes / (no)

2. Has the house ever had a fire? yes / (no)

2. Is there an attached garage? (yes) / no

3. Is a vehicle normally parked in the garage? (yes) / no

4. Is there a kerosene heater present? yes / (no)

5. Is there a workshop, hobby or craft area in the residence? yes / (no)

6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.

7. Is there a kitchen exhaust fan? yes / (no) Where is it vented? _____

8. Is the stove gas or electric? N/A Is the oven gas or electric? —

9. Is there an automatic dishwasher? yes / (no)

10. Is smoking allowed in the building? yes / (no)

11. Has the house ever been fumigated or sprayed for pests? If yes, give date, type and location of treatment.
_____

E. Water and Sewage (Circle the appropriate response)

Source of Water

(Public Water) Drilled Well Driven Well Dug Well Other (Specify) _____

Water Well Specifications

Well Diameter _____ Grouted or Ungrouted _____

Well Depth _____ Type of Storage Tank _____

Depth to Bedrock _____ Size of Storage Tank _____

Feet of Casing _____ Describe type(s) of Treatment _____

Water Quality

Taste and/or odor problems with water? yes (no) If so, describe _____

Is the water (chlorinated,) brominated, or ozonated? (yes) no _____

How long has the taste and/or odor problem been present? —

Sewage Disposal: (Public Sewer) Septic Tank Leach Field Other (Specify) _____

Distance from well to septic system — Type of septic tank additives —

F. Plan View

Sketch each floor and if applicable, indicate air sampling locations, possible indoor air pollution sources, preferential pathways and field instrument readings.

G. Potential Outdoor Sources of Pollution

Draw a diagram of the area surrounding the building being sampled. If applicable, provide information on the spill locations (if known), potential air contamination sources (industries, service stations, repair shops, retail shops, landfills, etc.), outdoor air sampling locations, and field instrument readings.

Also, on the diagram, indicate barometric pressure, weather conditions, ambient and indoor temperatures, compass direction, wind direction and speed during sampling, the locations of the water wells, septic systems, and utility corridors if applicable, and a statement to help locate the site on a topographical map.

APPENDIX L – HOUSEHOLD PRODUCTS INVENTORY FORM

Occupant of Building Enterprise Rental

Address 2307 BLANDING AVE, SUITE A

City ALAMEDA, CA

Field Investigator DAVE GRUNAT Date 06/29/2010

Product Description (commercial name, dispenser type, container size, manufacturer, etc.)	Volatile Ingredients in the Product	Field Instrument Reading
2x Gasoline Canisters	Gasoline	
Various Car Washing Cleaners		
↳ Glade		
Red Star Detergent Health 1	Sodium Hydroxide	
Bug-A-Way Health 2 Flamability 1		
Wash + Wax AB Health 1		
Terminator Health 1		
Tuffstuff		
Gluss Cleaner		

Comments:
OFTEN CLEAN RENTAL CARS IN BACK ROOM

APPENDIX K - BUILDING SURVEY FORM

This form must be completed for each building involved in an indoor air investigation.

Preparer's name IAN HULL Date prepared 06/29/2010

Preparer's affiliation CONESTOGA - ROVERS & ASSOC. FOR CHEVRON EMC

Telephone number 510 - 420 - 0700

1. **OCCUPANT**

Name EMPTY

Address 2307 BLANDING AVE

SUITE E

City ALAMEDA

Home telephone number N/A

Office telephone number N/A

2. **OWNER OR LANDLORD**

Name JULIE BALL, PETER BECK, TOTSY BECK
(If different than occupant)

Address P.O. BOX 278 #220

MEADOW VALLEY, CA 95956

Telephone number -

A. Type of Building Construction

Type (circle appropriate responses): Single Family Multiple Dwelling (Commercial)

Ranch	Two-family
Raised Ranch	Duplex
Split Level	Office
Colonial	(Warehouse)
Mobile Home	Strip Mall
Apartment Building:	Number of ~~Units~~ RMS 3 W/ BATHROOM
Other	

Building Age _____ Number of stories ONE, VAULTED CEILING

Area of the Building (square feet) ~1,800

Is the building insulated? (yes) / no How sealed is the building? MODERATE

Number of elevators in the building 0

Condition of the elevator pits (sealed, open earth, etc.) N/A

General description of building construction materials STEEL OR IRON W/ [redacted]

SHEETROCK AND ROLL UP DOORS

B. Foundation Characteristics (circle all that apply)

1. Full basement, crawlspace, (slab on grade), other _____
2. Basement floor description: concrete, dirt, wood, other N/A
   a. The basement is: wet, damp, dry _____
   b. Sump present? yes / no _____ Water in sump? yes / no ____
   c. The basement is: finished, unfinished _____
   d. Is the basement sealed? Provide a description _____
3. Concrete floor description: unsealed, painted, (covered) with CARPET
4. Foundation walls: poured concrete, block, stone, wood, other METAL
5. Identify all potential soil gas entry points and their size (~~e.g., cracks, voids, pipes, utility ports, sumps, drain holes, etc.~~). Include these points on the building diagram.
   BATHROOM

C. Heating, Ventilation, and Air Conditioning (circle all that apply)

1. The type of heating system(s):

(Hot Air Circulation)	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood Stove
Electric Baseboard	Other (specify) _____

2. The type of fuel used: (Natural Gas), Fuel Oil, Electric, Wood, Coal, Solar

   Other (specify) _____
3. Location of heating system: ABOVE BATHROOM
4. Is there air-conditioning? (yes) no (Central Air) or Window Units?

Specify the location ABOVE BATHROOM

5. Are there air distribution ducts present? (yes) / no

6. Describe the supply and cold air return duct work including whether there is a cold air return and comment on the tightness of duct joints.
DUCTS APPEAR IN GOOD CONDITION, NO COLD AIR RETURN

7. Is there a whole house fan? yes / no NO
What is the rated size of the fan? —

8. Temperature settings inside during sampling. Note day and night temperatures.
   a. Daytime temperature(s) 70° F
   b. Nighttime temperature(s) 70° F
   (Note times if system cycles during non-occupied hours during the day)

9. Estimate the average time doors and windows are open to allow fresh outside air into the building. Note rooms that frequently have open windows or doors.
SHUT; BOTH ROOMS 98% OF TIME

D. Potential Indoor Sources of Pollution

1. Is the laundry room located inside the home? yes / (no)

2. Has the house ever had a fire? yes / (no)

2. Is there an attached garage? yes / (no)

3. Is a vehicle normally parked in the garage? yes / (no)

4. Is there a kerosene heater present? yes / (no)

5. Is there a workshop, hobby or craft area in the residence? yes / (no)

6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.

7. Is there a kitchen exhaust fan? yes / (no) Where is it vented? —

8. Is the stove gas or electric? N/A Is the oven gas or electric? —

9. Is there an automatic dishwasher? yes / (no)

10. Is smoking allowed in the building? yes / (no)

11. Has the house ever been fumigated or sprayed for pests? If yes, give date, type and location of treatment.

E. Water and Sewage (Circle the appropriate response)

Source of Water

(Public Water) Drilled Well Driven Well Dug Well Other (Specify) _____

Water Well Specifications

Well Diameter N/A _____ Grouted or Ungrouted NA _____

Well Depth _____ Type of Storage Tank _____

Depth to Bedrock _____ Size of Storage Tank _____

Feet of Casing _____ Describe type(s) of Treatment _____

Water Quality

Taste and/or odor problems with water? yes /(no) If so, describe _____

Is the water (chlorinated), brominated, or ozonated? yes / no _____

How long has the taste and/or odor problem been present? N/A

Sewage Disposal: (Public Sewer) Septic Tank Leach Field Other (Specify) _____

Distance from well to septic system – Type of septic tank additives –

F. Plan View

Sketch each floor and if applicable, indicate air sampling locations, possible indoor air pollution sources, preferential pathways and field instrument readings.

G. Potential Outdoor Sources of Pollution

Draw a diagram of the area surrounding the building being sampled. If applicable, provide information on the spill locations (if known), potential air contamination sources (industries, service stations, repair shops, retail shops, landfills, etc.), outdoor air sampling locations, and field instrument readings.

Also, on the diagram, indicate barometric pressure, weather conditions, ambient and indoor temperatures, compass direction, wind direction and speed during sampling, the locations of the water wells, septic systems, and utility corridors if applicable, and a statement to help locate the site on a topographical map.

APPENDIX L – HOUSEHOLD PRODUCTS INVENTORY FORM

Occupant of Building EMPTY

Address 2307 BLANDING AVE

City ALAMEDA

Field Investigator IAN HULL Date 06/29/2010

Product Description (commercial name, dispenser type, container size, manufacturer, etc.)	Volatile Ingredients in the Product	Field Instrument Reading
PAINT		
WOOD SEALANT		

Comments:
PAINT POURED ONTO TARPS ON FLOOR IN PUDDLES TO DRY.

APPENDIX K - BUILDING SURVEY FORM

This form must be completed for each building involved in an indoor air investigation.

Preparer's name Hansen Rigging David Grunat Date prepared 6/21/10

Preparer's affiliation CRA

Telephone number 510-420-3353

1. **OCCUPANT**

Name Hansen Rigging

Address 2307 Blanding Ave
Suite G

City Alameda, CA

Home telephone number –

Office telephone number 510-521-7027

2. **OWNER OR LANDLORD**

Name JULIE BALL, PETER BECK, TOTSY BECK
(If different than occupant)

Address P.O. Box 278 #220
MEADOW VALLEY, CA 95956

Telephone number N/A

A. Type of Building Construction

Type (circle appropriate responses): Single Family Multiple Dwelling (Commercial)

Ranch	Two-family
Raised Ranch	Duplex
Split Level	Office
Colonial	(Warehouse)
Mobile Home	Strip Mall / Inn
Apartment Building:	Number of Units
Other	

Building Age _____ Number of stories 1

Area of the Building (square feet) 3,000

Is the building insulated? (yes) / no How sealed is the building? MODERATELY

Number of elevators in the building 0

Condition of the elevator pits (sealed, open earth, etc.) N/A

General description of building construction materials METAL, WOOD, DRYWALL

B. Foundation Characteristics (circle all that apply)

1. Full basement, crawlspace, (slab on grade), other _____
2. Basement floor description: concrete, dirt, wood, other N/A
   a. The basement is: wet, damp, dry _____
   b. Sump present? yes / no _____ Water in sump? yes / no _____
   c. The basement is: finished, unfinished _____
   d. Is the basement sealed? Provide a description _____
3. Concrete floor description: unsealed, painted, (covered) with Tile
4. Foundation walls: poured concrete, block, stone, wood, (other) METAL
5. Identify all potential soil gas entry points and their size (e.g., (cracks), ~~voids, pipes, utility ports, sumps, drain holes, etc.~~). Include these points on the building diagram.

C. Heating, Ventilation, and Air Conditioning (circle all that apply)

1. The type of heating system(s):

(Hot Air Circulation)	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood Stove
Electric Baseboard	Other (specify) _____

2. The type of fuel used: (Natural Gas), Fuel Oil, Electric, Wood, Coal, Solar

   Other (specify) _____
3. Location of heating system: In Ceiling above Bathroom and in work zone
4. Is there air-conditioning? (yes) no (Central Air) or Window Units?

Specify the location Ceiling

5. Are there air distribution ducts present? (yes) / no

6. Describe the supply and cold air return duct work including whether there is a cold air return and comment on the tightness of duct joints.
Unknown in ceiling

7. Is there a whole house fan? yes (no)
What is the rated size of the fan? –

8. Temperature settings inside during sampling. Note day and night temperatures.
   a. Daytime temperature(s) ~70
   b. Nighttime temperature(s) ~70
   (Note times if system cycles during non-occupied hours during the day)

9. Estimate the average time doors and windows are open to allow fresh outside air into the building. Note rooms that frequently have open windows or doors.
~20%, STORE FRONT AND REAR ROLL-UP DOORS ONLY OPENABLE SPACES TO OUTSIDE AIR.

D. Potential Indoor Sources of Pollution

1. Is the laundry room located inside the home? yes / (no)

2. Has the house ever had a fire? yes / (no)

2. Is there an attached garage? (yes) / no

3. Is a vehicle normally parked in the garage? (yes) / no

4. Is there a kerosene heater present? yes / (no)

5. Is there a workshop, hobby or craft area in the residence? (yes) / no

6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.

7. Is there a kitchen exhaust fan? yes / (no) Where is it vented? N/A

8. Is the stove gas or electric? N/A Is the oven gas or electric? N/A

9. Is there an automatic dishwasher? yes (no)

10. Is smoking allowed in the building? yes / (no)

11. Has the house ever been fumigated or sprayed for pests? If yes, give date, type and location of treatment.

Apoxy WD-40
Acetone
Alcohol
Silcones

E. Water and Sewage (Circle the appropriate response)

Source of Water

Public Water Drilled Well Driven Well Dug Well Other (Specify) _____

Water Well Specifications

Well Diameter N/A Grouted or Ungrouted N/A

Well Depth _____ Type of Storage Tank _____

Depth to Bedrock _____ Size of Storage Tank _____

Feet of Casing _____ Describe type(s) of Treatment _____

Water Quality

Taste and/or odor problems with water? yes / no If so, describe _____

Is the water chlorinated, brominated, or ozonated? yes / no _____

How long has the taste and/or odor problem been present? N/A

Sewage Disposal: Public Sewer Septic Tank Leach Field Other (Specify) _____

Distance from well to septic system — Type of septic tank additives —

F. Plan View

Sketch each floor and if applicable, indicate air sampling locations, possible indoor air pollution sources, preferential pathways and field instrument readings.

G. Potential Outdoor Sources of Pollution

Draw a diagram of the area surrounding the building being sampled. If applicable, provide information on the spill locations (if known), potential air contamination sources (industries, service stations, repair shops, retail shops, landfills, etc.), outdoor air sampling locations, and field instrument readings.

Also, on the diagram, indicate barometric pressure, weather conditions, ambient and indoor temperatures, compass direction, wind direction and speed during sampling, the locations of the water wells, septic systems, and utility corridors if applicable, and a statement to help locate the site on a topographical map.

APPENDIX L – HOUSEHOLD PRODUCTS INVENTORY FORM

Occupant of Building HANSEN'S RIGGING (SUITE G)

Address 2307 BLANDING AVE, SUITE G

City ALAMEDA

Field Investigator DAVE GRUNAT Date 06/29/2010

Product Description (commercial name, dispenser type, container size, manufacturer, etc.)	Volatile Ingredients in the Product	Field Instrument Reading
EPOXY		
ACETONE		
ALCOHOL (ISOPROPYL)		
SILICONES		
WD-40		
WELDING EQUIP		

Comments: