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September 12, 2014

RECEIVED

By Alameda County Environmental Health at 3:40 pm, Sep 12, 2014

Mr. Mark Detterman
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Dear Mr. Detterman:

Attached for your review is the *Data Gap Investigation Work Plan* for Chevron-branded service station 90504, located at 15900 Hesperian Boulevard in San Lorenzo, California. This report was prepared by Stantec Consulting Services Inc. (Stantec), upon whose assistance and advice I have relied. I declare under penalty of perjury that the information and/or recommendations contained in the attached report are true and correct, to the best of my knowledge.

If you have any further questions, please do not hesitate to contact me or the Stantec project manager, Travis Flora, at (408) 356-6124 ext. 238, or travis.flora@stantec.com.

Sincerely,

A handwritten signature in cursive script that reads "Carryl MacLeod".

Carryl MacLeod
Project Manager

Data Gap Investigation Work Plan

Chevron-branded Service
Station 90504
15900 Hesperian Boulevard
San Lorenzo, California



Prepared for:
Chevron Environmental
Management Company
6101 Bollinger Canyon Road
San Ramon, CA 94583

Prepared by:
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September 12, 2014

DATA GAP INVESTIGATION WORK PLAN

Chevron-branded Service Station 90504, 15900 Hesperian Boulevard, San Lorenzo, California
September 12, 2014

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Prepared by *Belinda Espino*
(signature)

Belinda Espino
Project Scientist

Reviewed by *Marisa Kaffenberger*
(signature)

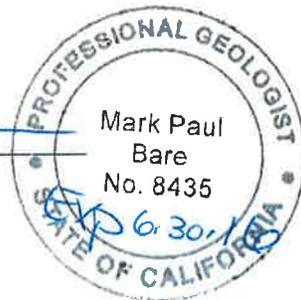
Marisa Kaffenberger
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Travis L. Flora
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Mark Bare, P.G.
Senior Geologist



DATA GAP INVESTIGATION WORK PLAN

Chevron-branded Service Station 90504, 15900 Hesperian Boulevard, San Lorenzo, California

September 12, 2014

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1.0 Introduction

On behalf of Chevron Environmental Management Company (Chevron), Stantec Consulting Services Inc. (Stantec) is pleased to submit this *Data Gap Investigation Work Plan* for Chevron-branded service station 90504, which is located at 15900 Hesperian Boulevard, San Lorenzo, Alameda County, California (the Site - shown on **Figure 1**). This report was prepared at the request of Alameda County Environmental Health (ACEH) in a letter dated July 7, 2014. ACEH correspondence is presented as **Appendix A**.

1.1 PURPOSE

The purpose of this work plan is to address data gaps identified by Stantec in the *Site Conceptual Model*, dated April 28, 2014 (Stantec, 2014a), and to address comments made by ACEH in correspondence dated July 7, 2014, in response to the *Site Conceptual Model*. The purpose of the scope of work proposed is to evaluate the vertical and lateral extent of petroleum hydrocarbons in soil in the area around the recent light non-aqueous phase liquid (LNAPL) releases and to determine whether secondary source removal is needed. Additionally, the scope of work will assess the lateral extent of the dissolved-phase petroleum hydrocarbon plume off Site, as well as determine if the Site meets the media-specific criteria set forth in the Low-Threat Underground Storage Tank (UST) Case Closure Policy (LTCP) (SWRCB, 2012).

1.2 ORGANIZATION

The remainder of this work plan includes Site background information, the proposed scope of work for the data gap investigation, the reporting elements, and an estimated schedule for the proposed investigation activities.

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2.0 Site Background

2.1 SITE DESCRIPTION AND LAND USE

The Site is an active Chevron-branded service station located on the eastern corner at the intersection of Hesperian Boulevard and Post Office Road in San Lorenzo, California. The Site has been occupied by a gasoline service station since approximately 1969. Current Site features include three 10,000-gallon fiberglass gasoline USTs, one 10,000-gallon fiberglass diesel UST, three fuel dispenser islands, and a station building with three service bays. The USTs are located in the southern portion of the Site, the fuel dispenser islands are located in the central portion of the Site, and the station building is located in the northeastern portion of the Site. In 1983, two 10,000-gallon and one 5,000-gallon steel USTs were replaced with the existing fiberglass USTs (Cambria Environmental Technology, Inc. [Cambria], 2004). In January 1994, the fuel dispenser islands were replaced (Weiss Associates [Weiss], 1994), and in March 1994, a 1,000-gallon steel waste oil UST located northeast of the station building was replaced with a 1,000-gallon fiberglass UST (Touchstone Developments [Touchstone], 1994). The 1,000-gallon fiberglass UST was later removed in 2001 (Gettler-Ryan Inc. [G-R], 2001). A Site Plan is shown on **Figure 2**.

Land use near the Site consists of a mixture of commercial and residential properties. The Site is bounded on the northwest by Post Office Road followed by a parking lot for a strip mall, to the northeast by a parking lot for the post office, to the southeast by a commercial building, and on the southwest by Hesperian Boulevard followed by residential properties.

2.2 REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY

The Site is located atop unconsolidated Quaternary-age alluvial fan deposits, typically described as consisting of interbedded fine-grained materials (Conestoga-Rovers & Associates [CRA], 2007).

A description of the regional and local geology and hydrogeology and soil boring and well construction logs are included in the *Site Conceptual Model* (Stantec, 2014a). Geologic cross-sections A-A' and B-B' are included in the *Site Conceptual Model and Closure Request*, dated September 14, 2007 (CRA, 2007). These cross-sections show Site stratigraphy, the historical range of groundwater elevations, sample depths, and total petroleum hydrocarbons as gasoline range organics (TPH-GRO), benzene, and methyl tertiary-butyl ether (MtBE) analytical results for select soil and groundwater samples collected during historical assessments. As shown in the boring logs and cross-sections, soils beneath the Site generally consist of clay and silt to the maximum depth explored (25.5 feet below ground surface [bgs]), with a non-continuous sand lens in off-site boreholes C-7 and C-9 from approximately 4 to 6 feet bgs.

Well construction details, a screen interval assessment, and historical groundwater elevation data are included in the *First Quarter 2014 Groundwater Monitoring Special Event and LNAPL Recovery Status Report*, dated April 8, 2014. The historical range of depth-to-groundwater (DTW) measurements for the Site is approximately 6.5 to 17 feet below top of casing (TOC). During First

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Quarter 2014, DTW gauged in wells for the Site ranged from 9.10 to 13.61 feet below TOC. Wells C-1 through C-8 were screened across the prevailing groundwater table, while the groundwater elevations in wells C-9 through C-11 were measured above the upper screen interval and the screen intervals were entirely submerged. Further evaluation of wells C-9 through C-11, regarding their submerged screen intervals, is provided in Appendix B of the *Site Conceptual Model* (Stantec, 2014a).

The direction of groundwater flow during First Quarter 2014 was generally towards the southwest at an approximate hydraulic gradient ranging from 0.003 to 0.020 feet per foot (ft/ft). This is generally consistent with the historical direction of groundwater flow from Fourth Quarter 1989 to First Quarter 2014 (vector mean flow direction to the southwest) (Stantec, 2014b).

2.3 GROUNDWATER PLUME STABILITY

The current monitoring well network appears to be sufficient to assess the groundwater plume associated with the Site with a possible exception in the area between wells C-9 and C-10, which is being addressed by off-site boring SB-10. Further evaluation will be included in the resulting investigation report, and existing wells will continue to be monitored and sampled on a routine basis with evaluations and recommendations presented in groundwater monitoring reports.

2.4 SENSITIVE RECEPTOR AND WATER SUPPLY WELL SURVEYS

Sensitive receptor survey information is provided in Appendix B of the *Site Conceptual Model* (Stantec, 2014a).

If groundwater data from off-site soil boring SB-10 confirms the lateral extent of the dissolved-phase petroleum hydrocarbon plume, no other sensitive receptor survey is warranted. If soil and groundwater data from the off-site soil boring exceed LTCP criteria, additional recommendations will be made, as appropriate, to further evaluate the extent of the plume and potential receptors.

2.5 CONDUIT SURVEY

ACEH asked about the on-site utility corridor immediately north of the UST complex in the correspondence dated July 7, 2014. The corridor is addressed in Appendix B of the *Site Conceptual Model* (Stantec, 2014a).

2.6 RELEASE HISTORY

Please refer to Stantec's *Site Conceptual Model* (Stantec, 2014a) for a summary of the historical releases at the Site prior to the recent LNAPL releases.

Attempts to obtain information on the recent LNAPL release were made by working with Chevron and the service station owner/operator. Maintenance records from that time showed

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that two separate releases occurred. The first release reportedly occurred in 2011 and was associated with the western dispenser island, leading to a release of approximately 10 gallons of product. The second release reportedly occurred in 2012 and appears to have been an issue with the diesel turbine at the west end of the diesel UST in the southwest portion of the Site. No other information, such as a specific mechanism or volume or depth, was found for the diesel UST release. A Site plan showing the locations of the different types of fuels in the USTs and the locations of the product conveyance lines was acquired from Chevron, and that information was added to the Site Plan shown on **Figure 2**.

2.7 PREVIOUS INVESTIGATIONS AND REMEDIATION

Please refer to Stantec's *Site Conceptual Model* (Stantec, 2014a) for a complete summary of previous investigations and remediation conducted at the Site.

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3.0 Proposed Scope of Work

Based on ACEH correspondence dated July 7, 2014, Stantec is proposing the advancement of nine on-site soil borings (SB-1 through SB-9) to define the vertical and lateral extent of petroleum hydrocarbons in soil, and one off-site soil boring (SB-10) to evaluate the extent of the dissolved-phase groundwater plume, and to evaluate whether the Site meets the media-specific criteria set forth in the LTCP (groundwater-specific criteria scenario 2). The locations of the proposed soil borings are shown on **Figure 2**.

3.1 PRELIMINARY FIELD ACTIVITIES

3.1.1 Permitting and Notifications

Stantec will obtain all necessary permits from ACEH and the City of San Lorenzo. Because one of the proposed locations is in the street, a right-of-way (ROW) encroachment permit will be required. A traffic control plan will be prepared and implemented according to the guidelines established in the City of San Lorenzo ROW encroachment permit. Access agreements will also have to be established with the affected property owners prior to commencing proposed activities. These permitting and access requirements can take several weeks to several months to complete.

A schedule of field activities will be communicated to the respective property owners and tenants a minimum of two weeks prior to field activities in order to minimize potential disruptions to normal activities.

As required by law, Underground Service Alert (USA) - North will be notified at least 48 hours before any intrusive activities. In addition to notifying USA - North, Stantec will retain the service of a private utility locating contractor to determine if underground utilities are located near the proposed boring locations.

3.1.2 Health and Safety Plan

Stantec will generate a Site-specific health and safety plan (HASP) as required by the State of California General Industry Safety Order 5192 and Title 29 of the Code of Federal Regulations, Section 1910.120. The HASP will outline potential hazards to Stantec personnel and subcontractors during the field activities described herein. Job safety analyses (JSAs) for tasks to be performed by Stantec personnel (e.g., driving, oversight of boring advancement, sample collection, etc.) will be included. The HASP will also include required personal protective equipment (PPE) to be worn by all Stantec field personnel for each task. In addition, Stantec will produce a Journey Management Plan (JMP) in an attempt to prevent losses associated with motor vehicle incidents driving to and from the Site. A copy of Stantec's HASP and JMP will be available on Site during all field activities.

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3.2 SOIL AND GROUNDWATER INVESTIGATION ACTIVITIES

3.2.1 Soil Boring Advancement

Stantec will contract a California-licensed (C-57) driller to advance each of the proposed soil borings (SB-1 through SB-10; shown on **Figure 2**). Soil borings SB-1 through SB-9 will be advanced to a depth of approximately 12 feet bgs, while soil boring SB-10 will be advanced to a total depth of approximately 10 feet bgs. Detailed field records of all activities will be recorded by Stantec field personnel and will include Site conditions, sampling processes, names of field personnel, pertinent dates and times, etc.

Field activities will be performed under the direction of a State of California professional geologist. A hand auger will be used to advance SB-1 through SB-10 to a total depth of 8 feet bgs. Shallow soil boring SB-10 will be advanced to total depth (10 feet bgs) with a hand auger. Total depth of boring SB-10 may extend deeper if groundwater is not encountered within the first 10 feet bgs. Shallow soil samples will be collected using a slide hammer with stainless steel or brass sleeve insert or using a hand auger attachment that contains a stainless steel or brass sleeve insert. A direct-push drill rig will be used to advance the nine deep boreholes (SB-1 through SB-9) to a total depth of 12 feet bgs after completing each borehole to 8 feet bgs using a hand auger. The nine deep boreholes will be advanced to approximately 12 feet bgs using a dual tube sampler, which is capable of retaining soil columns approximately 5 feet long and 1.5 inches in diameter.

3.2.2 Soil Sampling

Soil cores may be collected from the hand auger using a slide hammer with a brass or stainless steel sleeve insert, or they may be collected using a brass or stainless steel sleeve insert within the auger head attachment. The direct-push dual tube sampler contains an acetate liner that retains a relatively undisturbed soil core from which soil samples are collected. Stantec field personnel will log soil cores for lithological content using the Unified Soil Classification System (USCS) as a guide and for relative moisture content, composition, first-encountered DTW, photoionization detector (PID) readings, and other notable field observations. Portions of each soil core will be placed in a Ziploc® bag and field-screened using a PID to evaluate the presence of volatile organic compounds (VOCs) that may collect in the headspace of the bag.

Each soil boring will be logged, and soil samples will be collected from soil borings SB-1 through SB-10 at approximately 2.5, 5, 7.5, and 10 feet bgs (total depth at SB-10). Based on UST maintenance records, the depth of the USTs is approximately 10.5 feet bgs, so soil borings SB-1 through SB-9 will have an additional soil sample collected at 12 feet bgs with the potential to collect deeper soil samples based on field observations, such as elevated PID readings, odor, or staining. Each soil sample collected for holding will be sealed with Teflon® sheets, capped with plastic end caps, labeled with identifying information, and stored in an ice-filled cooler for preservation pending submittal for laboratory analysis.

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3.2.3 Groundwater Sampling

Following advancement of SB-10 to total depth, a temporary pre-packed groundwater monitoring well casing will be installed and groundwater samples will be collected. If groundwater is not encountered within 10 feet, the soil boring may be advanced deeper, but depth should be limited to no deeper than 2 to 3 feet below DTW. During groundwater sampling, a DTW measurement will be collected and used to calculate the three casing volumes that will be removed from the casing prior to collecting the groundwater sample. During this process, groundwater quality parameters, including temperature, pH, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) will be recorded in order to evaluate whether the collected groundwater is representative of the aquifer. If the boring does not produce sufficient water, groundwater samples may be collected without purging the desired volume. Groundwater samples will be collected in sample containers appropriate for the specified analyses, sealed, labeled, and placed into an ice-filled cooler for preservation.

At this time Stantec does not recommend the collection of groundwater samples from on-site soil borings. There is sufficient coverage with existing on-site wells (C-1 through C-6). Wells are currently analyzed for total petroleum hydrocarbons as motor oil (TPH-MO); total petroleum hydrocarbons as diesel range organics (TPH-DRO); TPH-GRO; benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds); and naphthalene, and these analyses will continue. Polycyclic aromatic hydrocarbons (PAHs) in groundwater are not a requirement of the LTCP, as the area of the former waste oil tank is up-gradient and away from the area of the recent LNAPL releases; therefore, additional PAH analyses will not be completed.

3.2.4 Laboratory Analysis

Soil samples will be transported and submitted under chain-of-custody protocol to Eurofins Lancaster Laboratories, Inc. (Eurofins), a State of California-certified analytical laboratory, and analyzed for the following constituents of concern:

- TPH-MO, TPH-DRO, and TPH-GRO by United States Environmental Protection Agency (US EPA) Method 8015B; and
- BTEX compounds and naphthalene by US EPA Method 8260B (SW-846).

Groundwater samples will be transported and submitted under chain-of-custody protocol to Eurofins and analyzed for the following constituents of concern:

- TPH-MO and TPH-DRO with silica gel cleanup, and TPH-GRO by US EPA Method 8015B; and
- BTEX compounds and naphthalene by US EPA Method 8260B (SW-846).

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3.2.5 Soil Boring Completion Activities

After each soil boring has been advanced to the proposed depth and representative soil and groundwater samples have been collected, each soil boring will be completed to ground surface with cement grout. The cement grout will consist of approximately 95 percent Portland cement and 5 percent bentonite powder.

3.3 WASTE MANAGEMENT

Investigation-derived waste (e.g., soil cuttings, decontamination water, etc.) generated during the proposed field activities will be placed in Department of Transportation-approved 55-gallon drums. Composite soil samples will be collected from the drums and submitted to Eurofins for waste characterization purposes. The drums will be properly labeled and stored on Site pending receipt of analytical results and profile evaluation by CRA. CRA will arrange removal and disposal of all waste.

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4.0 Report Preparation

Data gathered during the investigation activities proposed herein will be documented in a Site investigation report. The report will include a summary of field activities; tabulated analytical data; a Site location map; an updated Site plan showing final locations; soil boring logs with geologic descriptions; certified laboratory analysis reports and chain-of-custody documentation; a discussion of the findings based on the new data; and conclusions and recommendations, as appropriate. As requested in the ACEH correspondence dated July 7, 2014, Stantec will also provide a map and table showing known water supply well locations within a 0.25-mile radius of the Site, along with pertinent, non-confidential details on those water supply wells.

Results from the investigation will be used to address identified data gaps and to evaluate whether the case complies with the media-specific criteria of the LTCP. If all data gaps have been sufficiently addressed and no further assessment is necessary, the report will also include relevant sections of the Site conceptual model updated based on new data. If the case is determined to comply with LTCP criteria, the report will also include a low-threat closure request. If additional data gaps are identified or if the Site does not meet LTCP criteria, additional recommendations will be made, as appropriate.

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5.0 Schedule of Activities

Stantec will begin planning and scheduling the proposed investigation activities following approval of this work plan by ACEH. Stantec anticipates completing the pre-field planning, health and safety plan, and access agreement and ROW encroachment permit acquisition over a span of approximately three months. Following pre-field activities, Stantec anticipates completing the soil and groundwater investigation over a span of approximately two weeks. Laboratory analysis reports will be obtained approximately 2 to 4 weeks following submission of the samples to the laboratory. Stantec will submit the data gap investigation report to ACEH approximately 45 days following the receipt of all final certified laboratory analysis reports.

DATA GAP INVESTIGATION WORK PLAN

Chevron-branded Service Station 90504, 15900 Hesperian Boulevard, San Lorenzo, California
September 12, 2014

6.0 References

Cambria, 2004. *Site Closure Request*. March 26.

CRA, 2007. *Site Conceptual Model and Closure Request*. September 14.

G-R, 2001. *Underground Storage Tank Removal Observation Report*. July 13.

Stantec, 2014a. *Site Conceptual Model*. April 28.

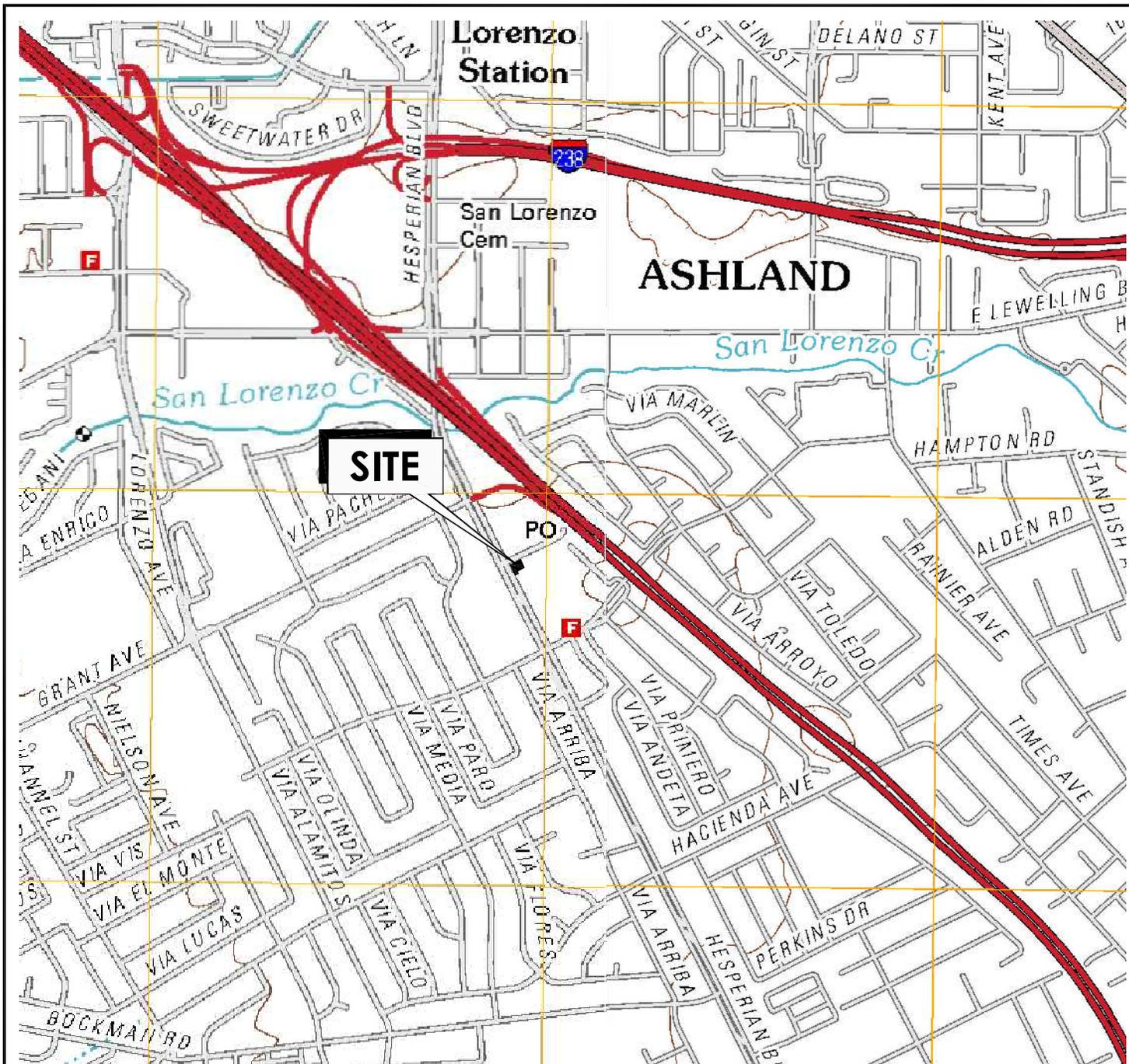
Stantec, 2014b. *First Quarter 2014 Groundwater Monitoring Special Event and LNAPL Recovery Status Report*. April 8.

SWRCB, 2012. *Low Threat Underground Storage Tank Case Closure Policy*. Effective August 17.

Touchstone, 1994. *Underground Storage Tank Removal Report*. April 14.

Weiss, 1994. *Soil Sampling and Disposal*. March 30.

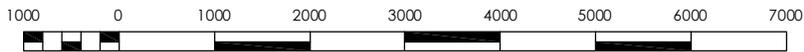
FIGURES



CALIFORNIA



SCALE IN MILES



SCALE IN FEET

REFERENCE: USGS 7.5 MINUTE QUADRANGLES;
SAN LEANDRO, CALIFORNIA; 2012 AND HAYWARD, CALIFORNIA; 2012



15575 Los Gatos Blvd, Building C
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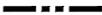
FOR:
CHEVRON-BRANDED
SERVICE STATION 90504
15900 HESPERIAN BOULEVARD
SAN LORENZO, CALIFORNIA

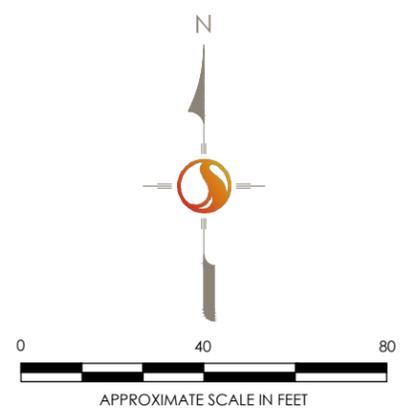
SITE LOCATION MAP

FIGURE:

1

JOB NUMBER: 211602395	DRAWN BY: JRO	CHECKED BY: EEO	APPROVED BY: TLF	DATE: 03/25/14
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- LEGEND**
-  APPROXIMATE PROPERTY BOUNDARY
 -  UST UNDERGROUND STORAGE TANK
 -  GROUNDWATER MONITORING WELL
 -  SOIL VAPOR WELL
 -  SOIL BORING
 -  SOIL SAMPLE
 -  PRODUCT PIPING
 -  VENT LINES
 -  PROPOSED SOIL BORING



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 15575 Los Gatos Blvd, Building C Los Gatos, CA 95032 PHONE: (408) 356-6124 FAX: (408) 356-6138	FOR: CHEVRON-BRANDED SERVICE STATION 90504 15900 HESPERIAN BOULEVARD SAN LORENZO, CALIFORNIA	SITE PLAN		FIGURE: 2
	JOB NUMBER: 211602395	DRAWN BY: JRO/ARA	CHECKED BY: EEO	APPROVED BY: TLF

APPENDIX A
ACEH Correspondence



ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
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(510) 567-6700
FAX (510) 337-9335

July 7, 2014

Ms. Carryl MacLeod
Chevron Environmental Management
6101 Bollinger Canyon Road
San Ramon, CA 94583
(sent via electronic mail to:
CMacleod@chevron.com)

Mr. Scott Bohannon
Bohannon Organization
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San Mateo, CA 94403
(sent via electronic mail to:
Scott.Bohannon@ddbbo.com)

Mr. Bob Webster
Bohannon Organization
60 31st Avenue
San Mateo, CA 94403
(sent via electronic mail to:
Robert.Webster@ddbbo.com)

Subject: Request for Work Plan; Fuel Leak Case No. RO0000007 (Global ID # T0600100302),
Chevron #9-0504, 15900 Hesperian Blvd., San Lorenzo, CA 94580

Dear Ms. MacLeod, and Messrs. Bohannon and Webster:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site, including the *First Quarter 2014 Groundwater Monitoring Special Event and LNAPL Recovery Status Report*, dated April 8, 2014 and the *Site Conceptual Model*, dated April 28, 2014. Both reports were prepared by Stantec Consulting Services, Inc. (Stantec) of Los Gatos, California. Thank you for submitting the reports. Stantec identified five Low-Threat Closure Policy (LTCP) data gaps in the SCM, and recommended that a work plan be generated. ACEH is in general agreement with the conclusions and recommendations contained in the SCM; however, discusses differences in the sections below.

ACEH has evaluated the data and recommendations presented in the above-mentioned reports, in conjunction with the case files, to determine if the site is eligible for closure as a low risk site under the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP). Based on ACEH staff review, we have determined that the site fails to meet the LTCP General Criteria f (Secondary Source Removal), and the Media-Specific Criteria for Groundwater, and the Media-Specific Criteria for Direct Contact.

Based on the review of the case file ACEH requests that you address the following technical comments and send us the documents requested below.

TECHNICAL COMMENTS

- 1. General Criteria f – Secondary Source Has Been Removed to the Extent Practicable –**
“Secondary source” is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described in the policy. “To the extent practicable” means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy.

As stated in the July 13, 2012 directive letter, and further noted in the SCM, the diesel release location is not currently known, thus it is unknown if the secondary source has been removed to the extent practicable. In discussions with the UST inspector for the County Certified Unified Program Agency (CUPA) Program, it is understood that troubles with the diesel turbine pump were

encountered at the site. Therefore, please detail a strategy, as outlined in the SCM, in the Data Gap Work Plan (described in Technical Comment 4 below) to address this issue.

2. **LTCP Media Specific Criteria for Groundwater** – To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed in the policy.

Our review of the case files indicates that insufficient data collection and analysis has been presented to support the requisite characteristics of plume stability or plume classification as follows:

- a. **Downgradient Extent of Groundwater Plume** – As identified in the January 23, 2014 directive letter, downgradient wells C-9, C-10, and C-11 are consistently submerged, and are widely spaced such that a contaminant plume may by-pass the submerged well network. The SCM stated that although the wells are submerged there is no evidence that the groundwater samples collected from the wells are not representative of downgradient groundwater concentrations, and proposed the installation of one soil bore to collect a downgradient grab groundwater sample in order to define the downgradient extent of the plume.

ACEH notes that the dissolved-phase plume extent can be defined through additional investigation or by delineating the maximum extent of a likely plume by using the LTCP technical justification papers and rose diagram of flow directions, and locating sensitive receptors including basements, water supply wells (including unregistered wells requiring a neighborhood door to door canvas), and other dewatering infrastructures within that area. The intent is to verify that the separation distance between contaminated groundwater and a receptor is maintained, as required by the LTCP.

- b. **Groundwater Plume Stability** – In March 2012 mobile diesel free-phase (FP) appeared in well C-2. Since shortly thereafter, Total Petroleum Hydrocarbons as diesel (TPHd) concentrations have been analyzed at the site. Concentrations have fluctuated up to 20,000 µg/l TPHd (with silica gel cleanup), and down to 7,100 µg/l TPHd. Thus groundwater plume concentration stability does not appear to be present beneath the site.
- c. **Five Years of Declining Groundwater Concentrations** – Concentrations of TPH as gasoline (TPHg) in well C-2 have been increasing since the March 2010 sampling event. Additionally, since approximately March 2007 concentrations of TPHg have been increasing in offsite downgradient well C-8. The source of this contamination is uncertain; however, the documented presence of the onsite utility corridor (sanitary sewer and water) immediately north of the UST complex may allow the contamination to by-pass well C-2.
- d. **Distance to Nearest Well** – A well survey of known well locations has recently been undertaken; however, the data has not been tabulated or depicted in a succinct manner, such as on a site vicinity map. In order to quickly assess the location of vicinity wells, ACEH requests that the data be tabulated and depicted on a vicinity map. ACEH is aware that well construction details are confidential; however, well locations are not.

Additionally as noted above, an additional concern for this area of San Lorenzo is unregistered residential water supply wells. The area has a significantly higher incidence of unregistered residential wells that standard well surveys will not locate. It is appropriate to verify that well owners will not be exposed to residual downgradient groundwater contamination.

- e. **Neighborhood Sensitive Receptors** – The lack of downgradient delineation of the groundwater plume may leave the downgradient residential neighborhood at risk. The lack of a neighborhood sensitive receptor survey (basements, foundation depths, or other subsurface constructions and dewatering activities) eliminates the ability to determine if a sufficient factor of safety is present for these residents. Should basements be present, the separation distance between impacted groundwater and residents may be insufficient.

Please present a strategy in the Revised Data Gap Work Plan (described in Technical Comment 4 below) to address the items discussed above.

- 3. LTCP Media Specific Criteria for Direct Contact and Outdoor Air Criteria** – The LTCP describes conditions where direct contact with contaminated soil or inhalation of contaminants volatilized to outdoor air poses a low threat to human health. According to the policy, release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if the maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth bgs. Alternatively, the policy allows for a site specific risk assessment that demonstrates that maximum concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health, or controlling exposure through the use of mitigation measures, or institutional or engineering controls.

As noted in the SCM, diesel, benzene, ethylbenzene, naphthalene and Poly-Aromatic Hydrocarbons (PAHs), concentrations in soil are likely to have changed since the release of diesel fuel product before March 2012. The SCM proposes to define the extent of the soil source from the release, and to collect representative samples.

Therefore, please present the strategy in the Data Gap Work Plan described in Technical Comment 4 below to collect sufficient data to satisfy the direct contact and outdoor air exposure criteria in the areas of likely dispenser locations. Please also collect a groundwater sample from borings and propose the requisite analysis including naphthalene and polycyclic aromatic hydrocarbons (PAH) analysis.

- 4. Data Gap Investigation Work Plan** – Please prepare Data Gap Investigation Work Plan to address the technical comments listed above. Please support the scope of work in the Data Gap Investigation Work Plan with Data Quality Objectives (DQOs) that relate the data collection to each LTCP criteria. For example please clarify which scenario within each Media-Specific Criteria a sampling strategy is intended to apply to. Please sequence activities in the proposed revised data gap investigation scope of work to enable efficient data collection in the fewest mobilizations possible.

TECHNICAL REPORT REQUEST

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

- **September 12, 2014** – Data Gap Investigation Work Plan
(File to be named: WP_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.

Online case files are available for review at the following website: <http://www.acgov.org/aceh/index.htm>.

Thank you for your cooperation. If you have any questions, please call me at (510) 567-6876 or send me an electronic mail message at mark.detterman@acgov.org.

Sincerely,



Digitally signed by Mark E. Detterman
DN: cn=Mark E. Detterman, o, ou,
email, c=US
Date: 2014.07.07 14:35:57 -07'00'

Mark E. Detterman, PG, CEG

Senior Hazardous Materials Specialist

Enclosures: Attachment 1 – Responsible Party (ies) Legal Requirements / Obligations
Electronic Report Upload (ftp) Instructions

Ms. MacLeod, and Messrs. Bohannon and Webster
RO0000007
July 7, 2014, Page 4

cc: Ms. Alexis Fischer, Chevron Environmental Management Company, 6101 Bollinger Canyon Road, San Ramon, CA 94583; (sent via email to AFischer@chevron.com)

Travis Flora, Stantec Consulting Services, Inc., 15575 Los Gatos Blvd, Los Gatos, CA 95032;
(sent via email to travis.flora@stantec.com)

Dilan Roe, ACEH (sent via email to dilan.roe@acgov.org)

Mark Detterman, ACEH (sent via electronic mail to mark.detterman@acgov.org)
Electronic File, GeoTracker