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INTERIM REMEDIAL ACTION WORKPLAN

FORMER CALTRANS HEGENBERGER
MAINTENANCE STATION
555 HEGENBERGER ROAD
OAKLAND, ALAMEDA COUNTY, CALIFORNIA



GEOCON
CONSULTANTS, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

CALIFORNIA DEPARTMENT OF TRANSPORTATION,
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
111 GRAND AVENUE, 14TH FLOOR
OAKLAND, CALIFORNIA

GEOCON PROJECT NO. E8722-02-01B

AUGUST 2016



Geocon Project No. E8722-02-01B
August 5, 2016

Mr. Bahram Sazegar
Caltrans – District 4
Office of Environmental Engineering, MS 8C
111 Grand Avenue, 14th Floor
Oakland, California 94623

Subject: INTERIM REMEDIAL ACTION WORKPLAN
FORMER CALTRANS HEGENBERGER MAINTENANCE STATION
555 HEGENBERGER ROAD
OAKLAND, ALAMEDA COUNTY, CALIFORNIA

Dear Mr. Sazegar:

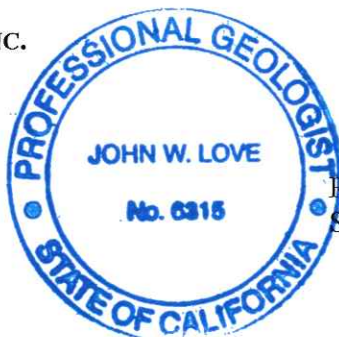
Geocon Consultants, Inc. has prepared this *Interim Remedial Action Workplan* for the Former Caltrans Maintenance Station site located at 555 Hegenberger Road in Oakland, Alameda County, California. Our report contains details of field services and laboratory analytical results.

Caltrans' authorization to submit this report is provided in Appendix B. Please contact the undersigned if you have any questions or comments.

Sincerely,

GEOCON CONSULTANTS, INC.

John Love, PG
Senior Project Geologist



Richard Day, CEG, CHG
Senior Geologist

- (5) Addressee
- (1) Keith Nowell, Alameda County LOP

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INTERIM REMEDIAL ACTION WORKPLAN

1.0 INTRODUCTION

On behalf of Caltrans Department of Transportation – District 4 (Caltrans), Geocon Consultants, Inc. (Geocon) has prepared this *Interim Remedial Action Workplan* for the Former Caltrans Maintenance Station site located at 555 Hegenberger Road in Oakland, California (Figure 1). The workplan was prepared as directed by the Alameda County Health Care Services Agency (ACHCSA) in their letter dated June 13, 2016. A copy of the letter is provided in Appendix A.

1.1 Background

Since 1948, the site is known to have been used as both City of Oakland and Caltrans maintenance yards. The latter occupied the site from at least 1978 until the early 1990's, at which time two 2,000-gallon diesel underground storage tanks (USTs) and two 6,500-gallon gasoline USTs (see Figure 2) were reportedly removed in 1994. The USTs were reportedly last used in 1986.

In September 1994, GHH Engineering, Inc. removed the four USTs. During the UST removals approximately 8,100 gallons of water and product were removed from the tanks. Upon removal from the ground, holes were observed in each UST indicating that a release had occurred. Approximately 280 cubic yards of soil was over-excavated from the common UST pit during the UST removal and disposed offsite.

After the USTs were removed in 1994, several subsurface investigations were conducted at the site to delineate the petroleum impacts to soil and groundwater resulting from the unauthorized release(s) of gasoline and diesel fuel from the four USTs. Locations of temporary borings and groundwater monitoring wells are shown on Figure 2 and soil and groundwater sample results are provided in Tables 1 to 3.

The most recent investigation at the site was conducted by Geocon in April 2015. The intent of this investigation was to provide additional soil and groundwater data to fill in data gaps necessary to close the site case under the 2012 Low Threat Closure Policy (LTCP) guidelines. The goals of this investigation were to assess hydrogeologic conditions beneath the investigation area, delineate the lateral extent of impacts to soil and groundwater northwest, northeast, and east of the former UST excavation area, assess potential vapor intrusion to existing buildings, and assess potential impacts to ecological receptors in the tidal channel located approximately 300 feet south of the former USTs.

Results of the April 2015 investigation were presented in the *Additional Soil and Groundwater Investigation Report* prepared by Geocon, dated June 10, 2015. Conclusions presented in the report were that impacts to soil and groundwater at several locations throughout the investigation area will

require active remediation to meet the closure guidelines presented in the 2012 LTCP.

Based on the results of the April 2015 and previous investigations, we recommended the physical removal of impacted soil and groundwater in the vicinity of SB1, SB2, SB3, SB-16, BC-1, BC-2, MW-3 and MW-4. Impacted soil and groundwater is largely confined within 8 feet of ground surface at varying depths, and could be easily accessed given the site is currently undeveloped and the adjacent property where impacts exist is an open parking lot. These near surface soils and groundwater will need to be remediated to levels lower than the applicable San Francisco Bay Regional Water Quality Control Board (RWQCB) environmental screening levels (ESLs) in order to meet the 2012 LTCP guidelines since a bioattenuation zone does not exist at this site.

The ACHCSA concurred with this recommendation and directed that this *Interim Remedial Action Workplan* be prepared.

2.0 PROPOSED INTERIM REMEDIAL ACTION

The proposed interim remedial action will consist of the excavation and offsite disposal of petroleum impacted soil, and the removal and in-place treatment of petroleum-affected groundwater.

The interim remedial effort will consist of the following general activities:

- Permit and offsite property access agreement acquisition, regulatory agency notifications, and utility clearance
- Monitoring well destruction and re-construction
- Soil excavation, disposal, and backfill
- Groundwater removal, disposal, and in-place treatment
- Confirmation soil and groundwater sampling
- Report preparation documenting the interim remedial effort

2.1 Mobilization

The mobilization process will include the following:

- Obtain written permission from the owners of 8099 Coliseum Way (adjacent property) to remove the chain-link-fence separating the two properties, abandon wells MW-1, MW-3, and MW-4, and conduct soil excavation on their site.
- Obtain well destruction permits from the ACHCSA to abandon all site-related wells (MW-1 to MW-5). Most wells will likely be located within areas that will require excavation. Additionally, these wells appear to be screened too deep, since groundwater sample results from borings SB15 and SB17 indicate that groundwater below 16 feet is relatively unaffected by the petroleum hydrocarbon compounds and each of the wells extend to 20 feet below

ground surface (bgs).

- Submit written notification to the Bay Area Air Quality Management District (BAAQMD) and California Occupational Health and Safety Administration (Cal OSHA) regarding the planned soil excavation activities.
- Notify Underground Services Alert (USA) about the planned well abandonments and soil excavation work, and utilize the services of a private utility-locating company to identify potential subsurface utilities residing beneath the 555 Hegenberger and 8099 Coliseum Way sites in the area of the planned well abandonments and soil excavation.

2.2 Monitoring Well Destruction

Monitoring wells MW-1 to MW-5 will be abandoned by drilling out the well casings using a hollow-stem auger drill rig equipped with eight-inch-diameter hollow-stem augers and backfilling the resultant boreholes with Portland cement. Well construction details for MW-1 to MW-5 are provided in Table 4.

Soil cuttings and well construction debris generated during the well abandonments will be stockpiled and covered with plastic sheeting surrounded with straw waddle until it is later incorporated with excavation soils, as discussed in Section 2.3.

2.3 Soil Remediation (Over-Excavation)

Soils encountered during previous investigations have varied depending on location throughout the site. Soils between ground surface and 15 feet typically consist of silty and sandy clay intermittently interbedded with discontinuous zones of porous sands and gravels at varying depths. The irregular distribution of petroleum hydrocarbons reported in soil and groundwater beneath the site is believed to be the result of petroleum hydrocarbons migrating laterally from the former UST excavation area through shallow-depth (<10 feet) groundwater contained within these irregular and discontinuous sandy and gravelly zones. Depth to TPH-impacted groundwater (if present) was encountered in most locations between 4 and 8 feet bgs.

A deeper groundwater-bearing zone was encountered at boring locations SB-15 and SB-17 (see Figure 2) at approximately 16 feet bgs; however, noticeable petroleum odors were not present and analytical laboratory results indicate the vertical extent of petroleum-impacts is primarily contained within 8 feet of ground surface throughout the investigation area.

Based on the results of previous investigations, there are 12 sample locations where soil and/or groundwater samples were reported at concentrations exceeding applicable ESLs for direct exposure and vapor intrusion at commercial sites. The locations are highlighted on Tables 1 to 3, and shown on Figure 2.

The bulk of the residual contaminant mass beneath the site appears to reside within relatively porous channels (preferential pathways) emanating from the former UST excavation area. Since we do not know how these preferential pathways are connected, we recommend starting soil excavation at the furthestmost sample locations (SB11 for instance) and then continuing excavation in the direction(s) of obvious petroleum impacts. Excavation in this manner should limit the volume of soil and groundwater requiring offsite disposal as well as prevent petroleum-impacted groundwater that will likely be present in each excavation area from comingling with less impacted groundwater beneath other areas of the site.

Soil and groundwater samples collected within and around the periphery of the former UST excavation in 2015 indicate that soil and groundwater in this area may not require removal. There were two excavation sidewall soil samples (TE-1 and TE-8) collected in 1994 that were reported to contain benzene at concentrations (2.0 milligrams per kilogram [mg/kg] and 1.8 mg/kg) exceeding the direct exposure ESL of 1.1 mg/kg; however, these concentrations have likely attenuated during the past 20 years and more recent soil and groundwater sample results indicate that TPH-related compounds are now below the applicable ESLs.

The total volume of soil that will require removal and disposal is unknown since we do not know the actual extent of subsurface impacts between the former UST excavation area and the outlying sample locations where soil and groundwater samples indicate petroleum impacts reside; however, assuming half the areas shown on Figure 2 are excavated to a depth of 10 feet the estimated volume of soil that will require removal and offsite disposal is approximately 2,000 cubic yards.

Soil will likely need to be profiled, accepted, and disposed at a Class II landfill facility. The closest Class II landfills would be Altamont Landfill in Livermore, the Hay Road Landfill in Vacaville, and the Keller Canyon Landfill in Pittsburg, California.

Once the excavation(s) is completed confirmation, soil samples will be collected at select locations to confirm that petroleum-impacted soils have been removed; however, since the bulk of the contaminant mass resides in groundwater at this site, post remediation groundwater sampling will be most useful towards assessing the overall remediation effort effectiveness.

The soil samples will be analyzed for TPHg and TPHd following EPA method 8105B, and benzene, toluene, ethylbenzene, and xylenes (BTEX) following EPA Test Method 8021. The sample frequency will depend on site conditions encountered during the remediation effort; however, it should be no less than five soil samples per excavation area.

Once groundwater has been removed and treated (see Section 2.4 below), the excavation will be

backfilled with drain rock or pea gravel to a level which exceeds the depth to groundwater in the excavation. Filter fabric will be placed over the drain rock and the excavation will be backfilled to ground surface with Class II aggregate base rock. Presumably, the ground surface at the adjacent property (8099 Coliseum Way) will need to be repaired with asphalt to match the existing paved surface.

2.4 Groundwater Remediation (Removal and Treatment)

Once soil excavation is completed, groundwater pooled in the excavation will be removed using a vacuum truck. We anticipate removing 50,000 gallons of groundwater during this process. The groundwater will be immediately manifested and transported to a recycling facility for disposal.

After 50,000 gallons of groundwater has been removed from the excavation(s), remaining groundwater pooled in the excavation will be treated with a proprietary oxidizing agent such as PersulfOx® or RegenOx® before the excavation is backfilled. The purpose of utilizing an oxidizing agent will be to reduce benzene concentrations in groundwater below the RWQCB vapor intrusion ESL of 9.7 micrograms per liter ($\mu\text{g/l}$).

After the groundwater removal has been completed, a groundwater sample will be collected from the excavation area for laboratory analysis. The purpose in collecting the groundwater sample is to get baseline contaminant concentrations for the excavation groundwater prior to oxidation using PersulfOx® or RegenOx®. The contaminant concentrations will determine how much oxidant solution will be necessary to treat the excavation groundwater, as well as assess the effectiveness of the application.

Pre- and post-oxidation groundwater samples will be analyzed for TPHg and TPHd following EPA method 8105B, and BTEX following EPA Test Method 8021.

2.5 Monitor Well Construction

After the remediation project has been completed, up to five groundwater monitoring wells will be constructed within the boundaries of the former excavation areas to monitor post-remediation groundwater quality trends. The number, location, and design of the wells will be discussed with the ACHCSA after the remediation project has been completed.

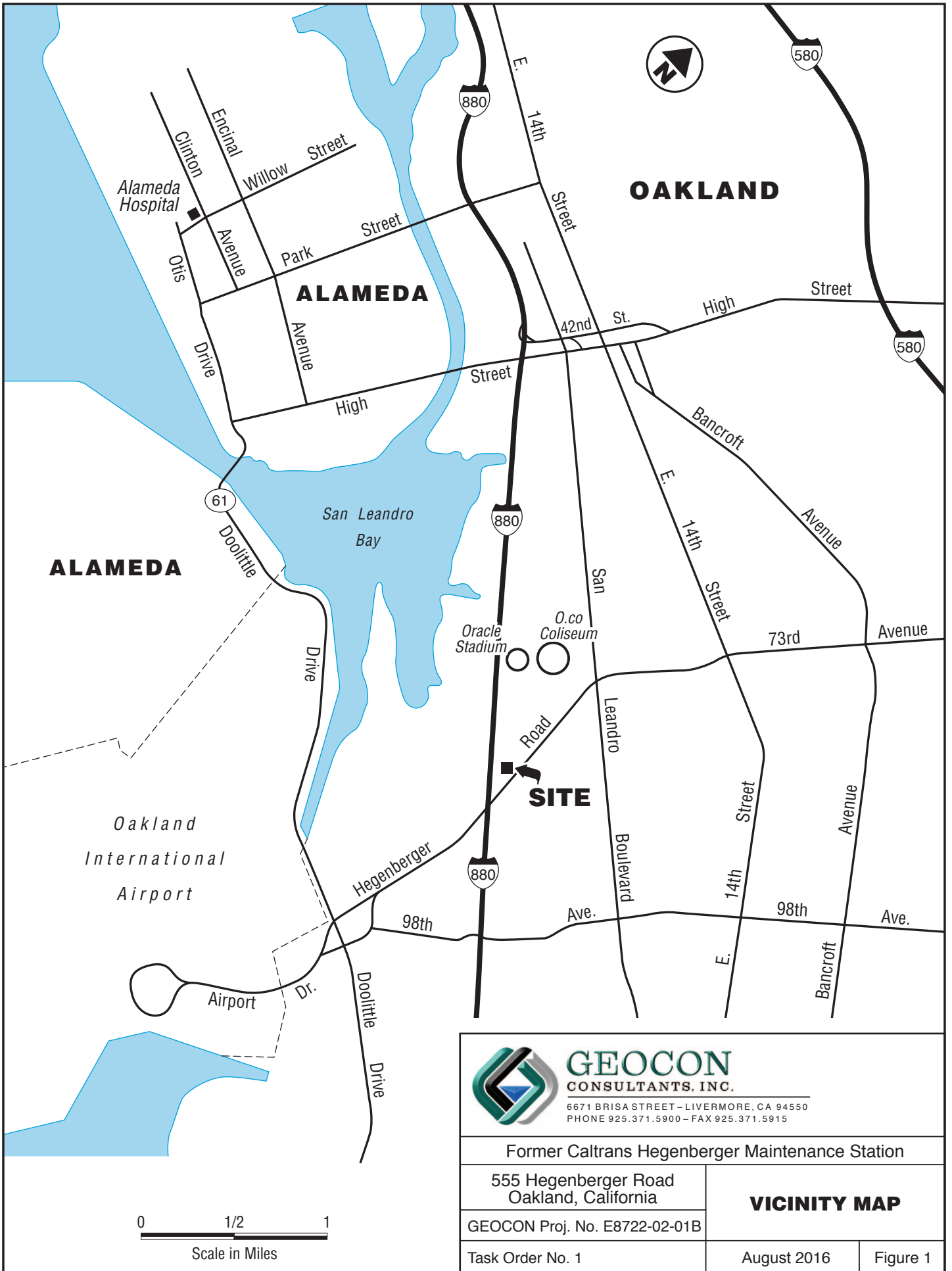
The new well locations and elevations will be surveyed by a licensed land surveyor and the x,y,z coordinates entered into the State Geotracker database once the information is obtained.

Presumably, the wells will be sampled on a quarterly basis for one year to assess contaminant concentration trends in groundwater. Assuming the quarterly sampling indicates the contaminant

plume beneath the site is stable or decreasing in aerial extent and benzene concentrations remain below the vapor intrusion ESL, the site will qualify for closure.

2.6 Soil and Groundwater Remediation Report

After the remediation effort has been completed an *Interim Soil and Groundwater Remediation Report* will be prepared detailing the remediation effort. The report will describe the well abandonments and construction, soil excavation and disposal activities, and the groundwater removal, disposal and treatment operations. The report will include site photographs of the remediation activities, sample location maps, copies of the analytical laboratory reports, waste manifests, well construction logs, well abandonment and construction permits, and BAAQMD permit.



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Former Caltrans Hegenberger Maintenance Station

555 Hegenberger Road
Oakland, California

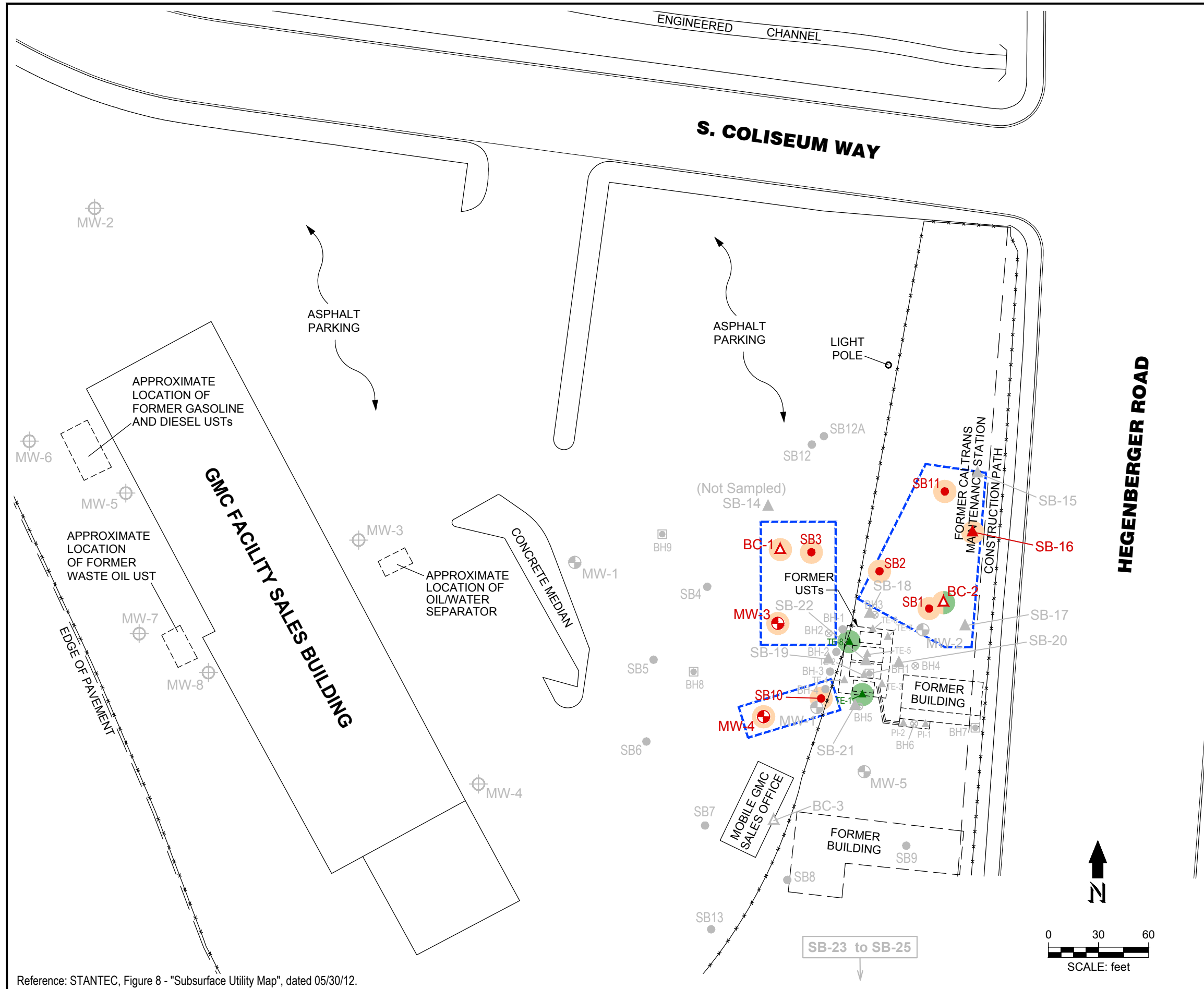
VICINITY MAP

GEOCON Proj. No. E8722-02-01B

Task Order No. 1

August 2016

Figure 1



Legend

- ⊕ Groundwater Monitoring Well (Associated with Former Caltrans)
- ⊕ Groundwater Monitoring Well (Associated with GMC Facility)
- Soil Boring (1993)
- ⊗ Soil Boring (1995)
- ▲ Soil Sample
- Soil Boring (2001)
- Soil Boring (2012)
- ▲ Soil Boring (2015)
- △ Boring Cluster (2015)
- Borings indicated in **RED** had contaminant concentrations in groundwater that exceeded SF Bay RWQCB ESL for vapor intrusion to indoor air.
- Borings indicated in **GREEN** had contaminant concentrations in soil that exceeded SF Bay RWQCB ESL for direct exposure.
- Estimated Soil Excavation Area

Reference: STANTEC, Figure 8 - "Subsurface Utility Map", dated 05/30/12.



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Former Caltrans Hegenberger Maintenance Station	
555 Hegenberger Road, Oakland, California	SITE PLAN
GEOCON Proj. No. E8722-02-01B	August 2016 Figure 2

Table 1
Historical Soil Analytical Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, CA

Sample ID	Date	Depth (feet)	TPHg (mg/kg)	TPHd (mg/kg)	TPHd* (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Other VOCs (mg/kg)
PI-1	9/22/1994	4.0	<20	380	NA	<0.10	<0.10	0.18	<0.10	NA
PI-2	9/22/1994	4.0	<10	<1.0	NA	0.076	<0.05	<0.05	<0.05	NA
TE-1	9/22/1994	8.0	290	27	NA	2.0	<0.5	0.74	1.2	NA
TE-2	9/22/1994	18.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
TE-3	9/22/1994	18.0	11	11	NA	0.03	0.014	0.020	0.022	NA
TE-4	9/22/1994	18.0	<20	<1.0	NA	<0.10	<0.10	<0.10	<0.10	NA
TE-5	9/22/1994	13.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
TE-6	9/22/1994	13.0	140	<1.0	NA	0.13	<0.10	0.51	0.3	NA
TE-7	9/22/1994	8.0	400	<1.0	NA	0.83	<0.50	0.62	1.2	NA
TE-8	9/22/1994	8.0	480	<1.0	NA	1.8	0.51	7.6	8.7	NA
BH1	9/26/1995	16.0	<1.0	<1.0	NA	<0.005	<0.005	0.006	0.021	NA
BH1	9/26/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH2	9/26/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH2	9/26/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH3	9/26/1995	6.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH3	9/26/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH3	9/26/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH4	9/26/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH4	9/26/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH5	9/26/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH5	9/26/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH6	9/26/1995	6.0	<1.0	24	NA	<0.005	<0.005	<0.005	<0.005	NA
BH6	9/26/1995	11.0	<1.0	16	NA	<0.005	<0.005	<0.005	<0.005	NA
BH6	9/26/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW1	9/27/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW1	9/27/1995	19.5	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW2	9/27/1995	6.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW2	9/27/1995	21.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW3	9/27/1995	7.5	<1.0	<1.0	NA	0.012	<0.005	<0.005	<0.005	NA
MW3	9/27/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW3	9/27/1995	21.0	<1.0	<1.0	NA	0.030	0.028	0.030	0.058	NA
MW4	9/27/1995	5.5	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW4	9/27/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW4	9/27/1995	16.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW5	9/27/1995	6.0	1.6	<1.0	NA	<0.005	0.020	0.028	0.088	NA
MW5	9/27/1995	11.0	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
MW5	9/27/1995	19.5	<1.0	<1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH6	12/26/2001	11.0	<1.0	1.0	NA	<0.005	<0.005	<0.005	<0.005	NA
BH9	12/26/2001	6.5	<1.0	1.7	NA	<0.005	<0.005	<0.005	<0.005	NA

Table 1
Historical Soil Analytical Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, CA

Sample ID	Date	Depth (feet)	TPHg (mg/kg)	TPHd (mg/kg)	TPHd* (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Other VOCs (mg/kg)
SB1	4/3/2012	4.0	1.3	<0.646	NA	0.0014 ^J	0.0017 ^J	<0.00064	0.0051	NA
SB3	4/2/2012	0-5	16	120	NA	0.530	0.039	0.023	0.083	NA
SB4	4/2/2012	4.0	<0.340	<0.646	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB5	4/2/2012	4.5	<0.340	35	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB6	4/2/2012	4.0	<0.340	15	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB7	4/5/2012	4.0	<0.340	87	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB7	4/5/2012	10.0	<0.340	<0.646	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB8	4/5/2012	8.0	<0.340	4.6	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB8	4/5/2012	10.0	<0.340	<0.646	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB9	4/3/2012	4.0	<0.340	<0.646	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB10	4/3/2012	4.0	2.7	<0.646	NA	0.0052	0.0013 ^J	0.00078 ^J	0.0012 ^J	NA
SB12	4/4/2012	4.0	<0.340	<0.646	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB12	4/4/2012	7.5	<0.340	110	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
SB13	4/5/2012	4.0	<0.340	31	NA	<0.00063	<0.00065	<0.00064	<0.00068	NA
BC-2	4/20/2015	1.5	0.75	2.5	1.6	<0.0050	<0.0050	<0.0050	<0.0050	ND
BC-2	4/20/2015	3.5	2.7	2.1	1.1	<0.0050	<0.0050	<0.0050	0.0052	n-Butyl benzene = 0.022 sec-Butyl benzene = 0.011
BC-2	4/20/2015	7.0	540	3,400	2,800	<1.0	<1.0	<1.0	<1.0	n-Butyl benzene = 13 sec-Butyl benzene = 3.6 Isopropylbenzene = 6.0 n-Propyl benzene = 22
BC-3	4/20/2015	6.0	<0.25	140	47	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-15	4/20/2015	6.0	<0.25	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-16	4/20/2015	3.5	<0.25	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-16	4/20/2015	6.0	61	250	110	<0.10	<0.10	<0.10	<0.10	n-Butyl benzene = 0.75 sec-Butyl benzene = 0.19
SB-17	4/20/2015	6.5	0.57	4.4	11	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-18	4/24/2015	2.0	0.42	38	54	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-18	4/24/2015	3.5	2.2	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-18	4/24/2015	7.5	6.4	91	53	0.026	<0.0050	<0.0050	0.011	n-Butyl benzene = 0.054 sec-Butyl benzene = 0.011 Isopropylbenzene = 0.013 4-Isopropyl toluene = 0.011 n-Propyl benzene = 0.021
SB-18	4/24/2015	11.5	0.63	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-19	4/24/2015	2.0	<0.25	110	53	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-19	4/24/2015	3.5	<0.25	13	4.8	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-19	4/24/2015	6.5	<0.25	4.2	4.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-19	4/24/2015	11.5	0.53	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-20	4/24/2015	2.0	<0.25	220	220	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-20	4/24/2015	3.5	<0.25	1.5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-20	4/24/2015	7.5	0.32	72	50	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-20	4/24/2015	11.5	<0.25	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-20	4/24/2015	15.0	<0.25	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	ND

Table 1
Historical Soil Analytical Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, CA

Sample ID	Date	Depth (feet)	TPHg (mg/kg)	TPHd (mg/kg)	TPHd* (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Other VOCs (mg/kg)
SB-21	4/24/2015	2.0	<0.25	1.6	2.4	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-21	4/24/2015	3.5	<0.25	6.2	5.0	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-21	4/24/2015	7.5	<0.25	4.9	4.1	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-21	4/24/2015	11.5	<0.25	1.6	3.2	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-22	4/24/2015	2.5	<0.25	6.3	6.6	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-22	4/24/2015	3.5	<0.25	25	16	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-22	4/24/2015	7.5	<0.25	13	8.5	<0.0050	<0.0050	<0.0050	<0.0050	ND
SB-22	4/24/2015	10.5	<0.25	12	75	<0.0050	<0.0050	<0.0050	<0.0050	ND

RWOCB ESL

Direct Exposure Human Health Risk
Levels (Comm/Ind: Shallow Soil
Exposure)
(Feb 2016)

4,100	1,200	1,200	1.1	4,900	24	2,600	NS
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Notes:

Bold type indicates analyte detected above reporting limit

Yellow highlight indicates concentration exceeds direct exposure human health risk level concentration

NA = Not analyzed

NS = No standard for detected compounds

* TPHd with silica gel cleanup

TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel

^J = Estimated value between method detection limit and practical quantitation limit.

ND = Not Detected

Table 2
Grab Groundwater Analytical Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, CA

Sample ID	Date	TPHg (µg/l)	TPHd (µg/l)	TPHd* (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	Other VOCs (µg/l)
BH6	12/26/2001	65	170	NA	<0.05	<0.05	<0.05	<0.05	NA
BH7	12/26/2001	78	98	NA	<0.05	<0.05	<0.05	<0.05	NA
BH8	12/26/2001	89	NA	NA	<0.05	0.7	<0.05	1.5	NA
BH9	12/26/2001	60	300	NA	<0.05	<0.05	<0.05	0.8	NA
SB1	4/6/2012	9,400	1,400	NA	240	22	8.8	30	NA
SB2	4/4/2012	15,000	NA	NA	1,600	52	21	50	NA
SB3	4/4/2012	12,000	NA	NA	2,000	66	22	82	NA
SB4	4/6/2012	<8.60	97	NA	<0.16	<0.17	<0.23	<0.19	NA
SB5	4/6/2012	<8.60	NA	NA	0.16^J	<0.17	<0.23	<0.19	NA
SB6	4/5/2012	<8.60	54	NA	<0.16	<0.17	<0.23	<0.19	NA
SB7	4/6/2012	<8.60	NA	NA	<0.16	<0.17	<0.23	<0.19	NA
SB8	4/6/2012	<8.60	<40.40	NA	<0.16	<0.17	<0.23	<0.19	NA
SB9	4/6/2012	<8.60	330	NA	0.24^J	<0.17	<0.23	<0.19	NA
SB10	4/4/2012	7,400	3,300	NA	40	9.6	2.8	14	NA
SB11	4/4/2012	1,700	210	NA	51	3.5	4.1	11	NA
SB12A	4/4/2012	<8.60	<40.40	NA	0.19^J	<0.17	<0.23	<0.19	NA
SB13	4/6/2012	<8.60	<40.40	NA	<0.16	<0.17	<0.23	<0.19	NA
BC-1	4/20/2015	6,100	50,000	36,000	890	27	<25	<25	Isopropylbenzene = 56 n-Propyl benzene = 160
BC-2	4/20/2015	4,100	5,700	1,700	160	15	<5.0	19	n-Butyl benzene = 58 sec-Butyl benzene = 14 Isopropylbenzene = 64 n-Propyl benzene = 180
BC-3 6'	4/24/2015	<50	99	53	<0.50	<0.50	<0.50	<0.50	t-Butyl alcohol = 2.2 cis-1,2-Dichloroethene = 0.85 Vinyl Chloride = 0.64
SB-15A	4/20/2015	<50	NA	190	<0.50	<0.50	<0.50	<0.50	Acetone = 25 2-Butanone = 5.0 t-Butyl alcohol = 3.5
SB-15B	4/20/2015	<50	<150	<150	<0.50	<0.50	<0.50	<0.50	ND
SB-16	4/20/2015	3,800	82,000	74,000	17	7.9	<5.0	14	n-Butyl benzene = 82 sec-Butyl benzene = 20 2-hexanone = 10 Isopropylbenzene = 30 n-Propyl benzene = 22
SB-17A	4/20/2015	<50	1,800	<3,000	<0.50	<0.50	<0.50	<0.50	Carbon Disulfide = 0.80
SB-17B	4/20/2015	<50	<50	<50	<0.50	<0.50	<0.50	<0.50	ND
SB-18	4/24/2015	1,300	15,000	11,000	2.4	1.5	<0.50	1.2	t-Butyl alcohol = 3.1 n-Butyl benzene = 7.4 sec-Butyl benzene = 4.9 Carbon Disulfide = 0.99 Chloroethane = 1.2 Isopropylbenzene = 10 n-Propyl benzene = 16

RWQCB ESLs

Groundwater Vapor Intrusion Human Health Risk Levels (Shallow Groundwater - Commercial) (Feb 2016)

NS NS NS 9.7 30,000 110 11,000

1,1-Dichloroethane = 180
1,1-Dichloroethene = 1,400
cis-1,2-Dichloroethene = 950
Vinyl Chloride = 0.53

Notes:

Bold type indicates analyte detected above reporting limit

* TPHd with silica gel cleanup

µg/l = micrograms per liter

TPHg = Total petroleum hydrocarbons as gasoline range organics

TPHd = Total petroleum hydrocarbons as diesel range organics

Yellow highlight indicates concentration exceeds GW vapor intrusion human health risk level concentration

^J = Estimated value between method detection limit and practical quantitation limit.

NS = No standard

< = value less than method detection limit

ND = Not Detected

NA = Not analyzed

TABLE 3
Depth to Water and Groundwater Sample Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, California

Monitoring Well	Sample Date	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Change in Elevation (ft)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	DIPE (µg/l)	ETBE (µg/l)	MTBE (µg/l)	TAME (µg/l)	TBA (µg/l)
MW-1	10/11/95	13.31	6.55	6.76	--	720	<50	660	13	4.7	2.8	--	--	--	--	--	--	--
	1/17/96	13.31	5.64	7.67	0.91	4,400	<50	1,000	30	21	17	--	--	--	--	--	--	--
	4/16/96	13.31	5.46	7.85	0.18	6,050	7,450	914	34.7	34.4	15.8	--	--	--	--	--	--	--
	8/26/96	13.31	5.91	7.40	-0.45	3,800	430	780	23	21	20	--	--	--	--	--	--	--
	11/14/96	13.31	6.16	7.15	-0.25	2,600	270	500	18	14	8.9	--	--	--	--	--	--	--
	2/18/98	13.31	3.82	9.49	2.34	3,100	800	240	18	7.8	11	--	--	--	--	20	--	--
	3/30/01	13.31	6.19	7.12	-2.37	3,600	480	150	13	0.7	10.8	--	--	--	--	<0.5	--	--
	12/26/01	13.31	4.08	9.23	2.11	3,000	1,100	86	11	3.4	10.5	--	--	--	--	∪	--	--
	9/30/02	13.31	5.79	7.52	-1.71	590	<50	12	2.7	<0.5	1.6	--	--	--	--	<0.5	--	--
	2/20/03	13.31	4.49	8.82	1.3	2,660	--	36.9	10.6	7	18.1	--	--	--	--	∪	--	--
	1/12/04	13.31	4.41	8.90	0.08	1,610	--	6.8	1.8	1.8	1.4	--	--	--	--	--	--	--
	5/12/05	13.31	4.45	8.86	-0.04	1,200	--	20	<5	<5	<5	--	--	--	--	--	--	--
	9/29/11	13.31	5.57	7.74	-1.12	950	530	14	6.5	0.36 ^J	6.9	<0.14	<0.20	<0.16	<0.19	<0.19	<0.14	<10.00
	3/30/12	13.31	3.50	9.81	2.07	630	280	14	4.4	0.36 ^J	4.9	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	9/11/12	13.31	6.15	7.16	-2.65	600	470	5.5	4.7	0.30 ^J	6.0	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	3/20/13	13.31	5.48	7.83	0.67	1,200	130	7.2	4.0	0.35 ^J	4.8	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	8/28/13	13.31	6.13	7.18	-0.65	700	580	5.8	4.6	0.31 ^J	6.0	0.17 ^J	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
3/31/14	13.31	4.10	9.21	2.03	620	570	5.7	2.3	<0.50	2.91	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	
MW-2	10/11/95	13.10	6.88	6.22	--	<50	<50	<0.3	<0.3	<0.3	<0.5	--	--	--	--	--	--	--
	1/17/96	13.10	5.32	7.78	1.56	4,900	<50	2,100	<1.5	<15	<15	--	--	--	--	--	--	--
	4/16/96	13.10	5.81	7.29	-0.49	<50	<50	1.0	<0.5	<0.5	<0.5	--	--	--	--	--	--	--
	8/26/96	13.10	5.98	7.12	-0.17	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--
	11/14/96	13.10	6.72	6.38	-0.74	<50	56	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--
	2/18/98	13.10	5.01	8.09	1.71	<50	260	<0.5	<0.5	<0.5	<0.5	--	--	--	--	<0.5	--	--
	3/30/01	13.10	6.54	6.56	-1.53	<200	370	2.7	0.8	<0.5	0.8	--	--	--	--	<0.5	--	--
	12/26/01	13.10	5.53	7.57	1.01	86	140	<0.5	<0.5	<0.5	<0.5	--	--	--	--	<0.5	--	--
	9/30/02	13.10	6.48	6.62	-0.95	<50	<50	<0.5	<5	<0.5	<1.5	--	--	--	--	<0.5	--	--
	2/20/03	13.10	5.98	7.12	0.5	110	--	6.6	<0.5	<0.5	<1	--	--	--	--	<0.5	--	--
	1/12/04	13.10	5.69	7.41	0.29	67	--	<0.5	<0.5	<0.5	<1	--	--	--	--	--	--	--
	5/12/05	13.10	5.55	7.55	0.14	330	--	<1	<1	<1	<1	--	--	--	--	--	--	--

TABLE 3
Depth to Water and Groundwater Sample Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, California

Monitoring Well	Sample Date	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Change in Elevation (ft)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	DIPE (µg/l)	ETBE (µg/l)	MTBE (µg/l)	TAME (µg/l)	TBA (µg/l)
MW-2 (cont.)	9/29/11	13.10	6.21	6.89	-0.66	130	<40.40	<0.16	<0.17	<0.23	<0.19	<0.14	<0.20	<0.16	<0.19	<0.19	<0.14	<10.00
	3/30/12	13.10	5.00	8.10	1.21	120	<40.40	0.32 ^J	0.24 ^J	<0.23	0.44 ^J	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	9/11/12	13.10	6.29	6.81	-1.29	13 ^J	<40.40	<0.16	<0.17	<0.23	<0.19	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	3/20/13	13.10	6.20	6.90	0.09	110	<40.40	1.2	0.59 ^J	<0.23	0.77	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	8/28/13	13.10	6.32	6.78	-0.12	14 ^J	<40.40	<0.16	<0.17	<0.23	<0.19	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	3/31/14	13.10	--	--	--	Not Sampled - Inaccessible												
MW-3	10/11/95	12.34	6.42	5.92	--	1,300	<50	1.0	<0.3	<0.3	<0.3	--	--	--	--	--	--	--
	1/17/96	12.34	5.82	6.52	0.6	171	<50	64	<0.3	1	<0.3	--	--	--	--	--	--	--
	4/16/96	12.34	5.85	6.49	-0.03	6,740	565	2,770	31	13.9	21.9	--	--	--	--	--	--	--
	8/26/96	12.34	5.72	6.62	0.13	700	700	180	4.2	1	4.6	--	--	--	--	--	--	--
	11/14/96	12.34	6.28	6.06	-0.56	300	120	6.2	1.2	0.7	1.4	--	--	--	--	--	--	--
	2/18/98	12.34	4.65	7.69	1.63	11,000	2,500	3,070	50	54	19	--	--	--	--	25	--	--
	3/30/01	12.34	5.62	6.72	-0.97	9,900	490	2,000	48	39	39	--	--	--	--	<0.5	--	--
	12/26/01	12.34	4.66	7.68	0.96	9,400	1,700	1,500	45	33	28	--	--	--	--	12	--	--
	9/30/02	12.34	5.84	6.50	-1.18	2,020	570	775	17.2	1	8.4	--	--	--	--	<0.5	--	--
	2/20/03	12.34	5.55	6.79	0.29	4,010	--	1,120	<50	<50	<100	--	--	--	--	<50	--	--
	1/12/04	12.34	4.77	7.57	0.78	3,520	--	632	26.9	<25	<50	--	--	--	--	--	--	--
	5/12/05	12.34	4.63	7.71	0.14	5,200	--	1,000	30	20	10	--	--	--	--	--	--	--
	9/29/11	12.34	5.50	6.84	-0.87	3,800	900	390	16	1.1	14	<0.14	<0.20	<0.16	<0.19	<0.14	<0.14	<10.00
	3/30/12	12.34	2.75	9.59	2.75	5,400	780	640	29	10	24	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	9/11/12	12.34	5.55	6.79	-2.8	2,000	210	22	7.4	<0.23	5.8	<0.14	<0.20	0.27 ^J	<0.19	<0.26	<0.14	<10.00
	3/20/13	12.34	4.20	8.14	1.35	4,900	1,000	930	32	5.9	19	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
	8/28/13	12.34	5.54	6.80	-1.34	920	660	39	9.5	0.53 ^J	8.9	<0.14	<0.20	<0.16	<0.19	<0.26	<0.14	<10.00
3/31/14	12.34	3.48	8.86	2.06	3,600	1,400	660	18	6.1	11.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<20

TABLE 3
Depth to Water and Groundwater Sample Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, California

Monitoring Well	Sample Date	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Change in Elevation (ft)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	DIPE (µg/l)	ETBE (µg/l)	MTBE (µg/l)	TAME (µg/l)	TBA (µg/l)	
MW-4	10/11/95	12.85	6.63	6.22	--	500	<50	17	1.1	<0.3	0.5			--	--	--	--	--	
	1/17/96	12.85	5.77	7.08	0.86	460	<50	72	4.1	<0.3	1.7			--	--	--	--	--	
	4/16/96	12.85	5.89	6.96	-0.12	2,200	<50	851	7.7	1.4	5.7			--	--	--	--	--	
	8/26/96	12.85	6.14	6.71	-0.25	300	110	55	4.9	1.2	<0.5			--	--	--	--	--	
	11/14/96	12.85	6.72	6.13	-0.58	200	200	3.4	<0.5	--	<0.5			--	--	--	--	--	
	2/18/98	12.85	5.02	7.83	1.7	1,500	260	320	9.1	1	0.6			--	--	1.7	--	--	
	3/30/01	12.85	6.21	6.64	-1.19	2,700	350	320	16	5.3	13.6			--	--	<0.5	--	--	
	12/26/01	12.85	5.37	7.48	0.84	600	200	33	3	<0.5	1.7			--	--	0.8	--	--	
	9/30/02	12.85	6.40	6.45	-1.03	67	<50	<0.5	<0.5	<0.5	<1.5			--	--	<0.5	--	--	
	2/20/03	12.85	5.83	7.02	0.57	570	--	107	<10	<10	<2.0			--	--	<10	--	--	
	1/12/04	12.85	5.41	7.44	0.42	700	--	122	13.5	0.6	8.8			--	--	--	--	--	
	5/12/05	12.85	5.59	7.26	-0.18	760	--	14	5.7	<5	<5			--	--	--	--	--	
	9/29/11	12.85	6.23	6.62	-0.64	14 ^J	<40.40	<0.16	<0.17	<0.23	<0.19	<0.20	<0.14	<0.16	<0.19	<0.19	<0.14	<10.00	
	3/30/12	12.85	3.30	9.55	2.93	2,200	340	340	23	2.8	19	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00	
	9/11/12	12.85	5.86	6.99	-2.56	2,500	310	92	16	1.3	16	<0.40	<0.28	<0.32	<0.38	<0.52	<0.28	<20.00	
	3/20/13	12.85	5.23	7.62	0.63	4,800	680	200	21	3.7	21	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00	
	8/28/13	12.85	5.86	6.99	-0.63	2,300	500	60	17	1.7	18	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00	
	3/31/14	12.85	3.85	9.00	2.01	6,100	1,000	250	21	3.6	21.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<10
	MW-5	10/11/95	13.33	6.68	6.65	--	1,000	<50	45	15	1.9	6.1	--	--	--	--	--	--	--
1/17/96		13.33	5.74	7.59	0.94	<50	<50	2	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	
4/16/96		13.33	5.85	7.48	-0.11	1,740	855	157	20.1	3.9	22.4	--	--	--	--	--	--	--	
8/26/96		13.33	5.99	7.34	-0.14	900	270	55	6.4	0.9	3.7	--	--	--	--	--	--	--	
11/14/96		13.33	6.70	6.63	-0.71	700	320	31	5.7	0.7	0.38	--	--	--	--	--	--	--	
2/18/98		13.33	5.74	7.59	0.96	1,200	580	14	5.2	0.8	5.5	--	--	--	--	9.5	--	--	
3/30/01		13.33	6.73	6.60	-0.99	1,500	480	7.2	6.5	<0.5	10.7	--	--	--	--	<0.5	--	--	
12/26/01		13.33	5.23	8.10	1.5	5,000	7,200	0.8	10.5	3.8	10.5	--	--	--	--	3.6	--	--	
9/30/02		13.33	6.18	7.15	-0.95	560	430	1.8	5.2	<0.5	6.5	--	--	--	--	<0.5	--	--	
2/20/03		13.33	5.80	7.53	0.38	1,040	--	<2.5	8.6	<2.5	11.3	--	--	--	--	<2.5	--	--	
1/12/04		13.33	5.60	7.73	0.2	1,820	--	4.2	8	0.6	12.8	--	--	--	--	--	--	--	
5/12/05		13.33	6.18	7.15	-0.58	1,300	--	<5	<5	<5	<5	--	--	--	--	--	--	--	
9/29/11		13.33	6.37	6.96	-0.19	960	440	0.34 ^J	0.52 ^J	<0.23	1.8	<0.20	<0.14	<0.16	<0.19	<0.19	<0.14	<10.00	

TABLE 3
Depth to Water and Groundwater Sample Results
Former Caltrans Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, Alameda County, California

Monitoring Well	Sample Date	TOC Elevation (ft)	Depth to Groundwater (ft)	Groundwater Elevation (ft)	Change in Elevation (ft)	TPHg (µg/l)	TPHd (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	1,2-DCA (µg/l)	EDB (µg/l)	DIPE (µg/l)	ETBE (µg/l)	MTBE (µg/l)	TAME (µg/l)	TBA (µg/l)
MW-5 (cont.)	3/30/12	13.33	4.61	8.72	1.76	200	270	1.5	2.4	<0.23	5.2	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00
	9/11/12	13.33	6.40	6.93	-1.79	550	200	1.0	1.6	<0.23	3.2	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00
	3/20/13	13.33	5.73	7.60	0.67	900	230	0.86	1.3	<0.23	3.3	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00
	8/28/13	13.33	6.17	7.16	-0.44	760	250	0.27 ^J	0.26 ^J	<0.23	1.4	<0.20	<0.14	<0.16	<0.19	<0.26	<0.14	<10.00
	3/31/14	13.33	--	--	--	Not Sampled - Inaccessible												
Groundwater Vapor Intrusion Human Health Risk Levels (Shallow Groundwater - Commercial) (Feb 2016)						NS	NS	9.7	30,000	110	11,000	53	7.4	NS	NS	11,000	NS	NS

Notes:

TOC = top of casing

TPHg = total petroleum hydrocarbons as gasoline

TPHd = total petroleum hydrocarbons as diesel

^J = Concentration is above the detection limit and below the practical quantitation limit

EDB = ethylene dibromide or 1,2-dibromethane

1,2-DCA = 1,2-dichloroethane

Yellow highlight indicates concentration exceeds GW vapor intrusion human health risk level concentration

DIPE = Di-isopropyl ether

ETBE = Ethyl tert-butyl ether

MTBE = methyl tertiary butyl ether

TAME = tert-Amyl methyl ether

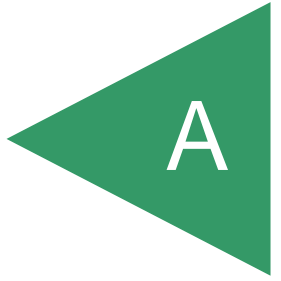
TBA = tert-Butanol

TABLE 4
Monitoring Well Construction Details
Former Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, California

Well No.	Date Constructed	Total Depth (feet)	Casing Diameter (inches)	Screened Interval (feet)	Blank PVC Interval (feet)
MW-1	10/95	19.5	4	4.5-19.5	0-4.5
MW-2	10/95	20	4	5-20	0-5
MW-3	10/95	19.5	4	4.5-19.5	0-4.5
MW-4	10/95	19	4	4-19	0-4
MW-5	10/95	20	4	5-20	0-5

APPENDIX

A



ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

REBECCA GEBHART, Acting Director



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

June 13, 2016

Caltrans
111 Grand Avenue
Oakland, CA 94612
Attn: Mr. Ray Boyer
(Sent via electronic mail to: ray.boyer@dot.ca.gov)

Subject: Request for Work Plan, Fuel Leak Case No. RO0000225 and GeoTracker Global ID T0600101696, Caltrans Oakland Maintenance Station, 555 Hegenberger Road, Oakland, CA 94621

Dear Mr. Boyer:

Alameda County Environmental Health (ACEH) staff has reviewed the case file including the recently submitted document entitled *Additional Soil and Groundwater Investigation Report (SWI)* dated June 10, 2015, and prepared by Geocon Consultants, Inc. (Geocon) for the subject site. The review was performed in conjunction with the State Water Resources Control Board's (SWRCBs) Low Threat Underground Storage Tank Case Closure Policy (LTCP).

The SWI was performed to address data gaps discussed in our meeting held on November 18, 2014. The data gaps discussed include whether more than one groundwater-bearing zone exists beneath the investigation area in order to address the LTCP Media Specific Petroleum Vapor Intrusion to Indoor Air criteria and assess potential impacts to sensitive receptors. Soils samples were also collected in the 0- to 5-foot and 5- to 10-foot zones for evaluation with the LTCP Media Specific Direct Contact and Outdoor Air Exposure criteria.

The SWI presents Geocon's findings, based on data collected through the advancement of 21 soil bores and the collection of soil and/or grab-groundwater (GGW) samples submitted for laboratory analysis. Based on the findings of the SWI, Geocon recommends the physical removal of impacted soil and groundwater in the vicinity of SB1, SB2, SB3, SB-16, BC-1, BC-2, MW-3 and MW-4.

Geocon also concluded results of groundwater samples collected from the area between the site and the tidal channel, indicate that petroleum hydrocarbons released from the former Caltrans USTs do not pose a threat to aquatic habitat in the abutting tidal channel.

ACEH generally concurs with the proposed scope of work and requests that you address the following technical comments, and send us the technical reports described below.

TECHNICAL COMMENTS

- 1. Water Bearing Zones** – The SWI identified a shallow unconfined groundwater zone at the site with depth to water typically ranging from 4 to 6.5 feet below the ground surface (bgs). Depth to water (DTW) appears to be locally influenced by the presence of sand gravelly fill material. Discontinuous sand and gravel layers up to 4 feet thick were observed in the soil bores. These coarse grain layers may result in localized confined or semiconfined

conditions. Based on the data collected with the SWI in addition to the groundwater monitoring well data, which reports DTW as shallow as 2.75 feet bgs, there does not appear to be a bioattenuation zone to meet the LTCP Media Specific Petroleum Vapor Intrusion to Indoor Air criteria for Scenarios 1, 2, 3, or 4b.

- 2. Soil Removal** - Direct evidence of free phase product (FP) was observed in soil bores BC-1, BC-2, SB-16, BH-2, BH-3, and BH-6. Indirect evidence of FP has been reported for SB-16, MW-1 and MW-3. Additionally, the GGW concentration of total petroleum hydrocarbons (TPH) as gasoline (TPHg) for SB1 are reported at 9,400 micrograms per liter ($\mu\text{g/L}$); and at 15,000 $\mu\text{g/L}$ TPHg and 1,600 $\mu\text{g/L}$ benzene for SB2; and 12,000 $\mu\text{g/L}$ TPHg and 2,000 $\mu\text{g/L}$ benzene for SB3. These concentrations exceed the Direct Exposure Environmental Screening Levels (ESLs). In addition, the reported benzene concentrations exceed Scenarios 1, 2, and 3 of the LTCP Media Specific Petroleum Vapor Intrusion to Indoor Air and the Commercial / Industrial ESL for Groundwater Vapor Intrusion for Shallow Groundwater.

Therefore, ACEH requests the preparation of an interim remedial action work plan to address the removal of soil defined by the afore-mentioned soil bores by the date specified below.

- 3. Potential Impacts to Sensitive Receptors** - It is unclear to ACEH that the assessment to the adjacent tidal wetland is complete. TPHd was reported at concentrations of 620 $\mu\text{g/L}$ (with silica gel clean up- SGC) and 1,300 $\mu\text{g/L}$ in SB-25 GGW without SGC. The Aquatic Habitat Goal ESL is 640 $\mu\text{g/L}$.

The San Francisco Bay Region, Regional Water Quality Control Board (SFBR-RWQCB) does not utilize SGC when evaluating concentrations of TPHd and TPHmo with the ESLs. For consistency, ACEH follows the SFBR-RWQCB lead when evaluating cases having TPHd and TPHmo concentrations with regard to the ESLs.

Therefore, ACEH requests additional evaluation of impacts to the tidal wet land. Please prepare a work plan to evaluate ecological risks to the wetland by the date specified below.

TECHNICAL REPORT REQUEST

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

- **August 12, 2016** – Ecological Risk Evaluation Work Plan (file name: RO0000225_WP_R_yyyy-mm-dd)
- **August 12, 2016** – Interim Remedial Action Work Plan (file name: RO0000225_IRAP_WP_R_yyyy-mm-dd)

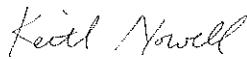
These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance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

Caltrans – Attn: Mr. Ray Boyer
RO0000225
June 13, 2016, Page 3

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

Thank you for your cooperation. ACEH looks forward to working with you and your consultants to advance the case toward closure. Should you have any questions regarding this correspondence or your case, please call me at (510) 567-6764 or send an electronic mail message at keith.nowell@acgov.org.

Respectfully,



Digitally signed by Keith Nowell
DN: cn=Keith Nowell, o, ou,
email=keith.nowell@acgov.org,
c=US
Date: 2016.06.11 10:54:54 -07'00'

Keith Nowell
Hazardous Materials Specialist

Enclosure: Responsible Party(ies) Legal Requirements/Obligations
ACEH Electronic Report Upload (ftp) Instructions

cc: Ramin Behani, Caltrans, 111 Grand Avenue, Oakland, CA 94612
(Sent via electronic mail to: ramin.behani@dot.ca.gov)

John Love, Geocon Consultants, Inc., 6671 Brisa Street, Livermore, CA 94550-2505
(Sent via electronic mail to: love@geoconinc.com)

Dilan Roe, ACEH (Sent via electronic mail to: dilan.roe@acgov.org)
Keith Nowell, ACEH (Sent via electronic mail to: keith.nowelli@acgov.org)
GeoTracker
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

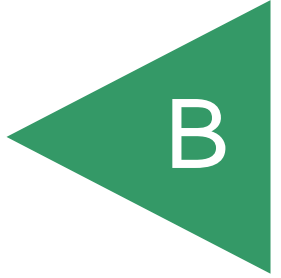
- Please **do not** submit reports as attachments to electronic mail.
- Entire report including cover letter must be submitted to the ftp site as a **single portable document format (PDF) with no password protection**.
- It is **preferable** that reports be converted to PDF format from their original 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.

APPENDIX



August 5, 2015

Mr. Keith Nowell
Alameda County Health Care Services
Environmental Protection Division
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Reference: Interim Remedial Action Workplan
Former Hegenberger Maintenance Station
555 Hegenberger Road
Oakland, California

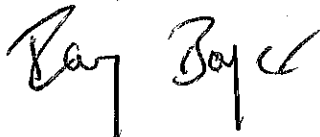
Dear Mr. Nowell:

Attached for your review is the *Interim Remedial Action Workplan* for the Former Hegenberger Maintenance Station located at 555 Hegenberger Road in Oakland, California. This workplan was prepared for the Alameda County Health Care Services Environmental Protection Division by Geocon Consultants, Inc.

I declare under penalty of perjury, that the information and/or recommendations contained in the referenced report is true and correct, to the best of my knowledge.

If you have any questions, please don't hesitate to contact me or Geocon project manager John Love at (925) 371-5900 extension 407.

Sincerely,

A handwritten signature in black ink that reads "Ray Boyer". The signature is written in a cursive style with a checkmark at the end.

Ray Boyer, P.E.
Office of Environmental Engineering
Division of Planning & Engineering
Caltrans District 4