

**RECEIVED**

**1:32 pm, Apr 09, 2012**

**Alameda County  
Environmental Health**

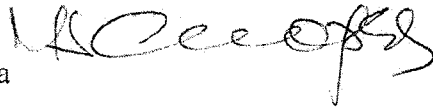
Mr. Mark Detterman  
Alameda County Environmental Health Care Services  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502

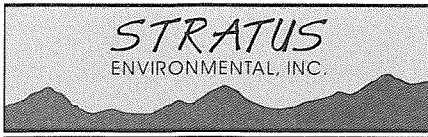
Re: Haber Oil Product  
1401 Grand Avenue, San Leandro, CA  
ACEHD Case # RO0000370, GeoTracker ID T0600101827

Dear Mr. Detterman:

I declare, under penalty of perjury, that the information and or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,  
Mohan Chopra





3330 Cameron Park Drive, Ste 550  
Cameron Park, California 95682  
(530) 676-6004 ~ Fax: (530) 676-6005

April 2, 2012  
Project No. 2120-1401-01

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

Re: Work Plan for Additional Site Assessment, former Haber Oil Products Facility,  
1401 Grand Avenue, San Leandro, California (ACEHD Case No. RO0000370)

Dear Mr. Detterman:

Stratus Environmental, Inc. (Stratus), on behalf of Mr. Mohan Chopra, is submitting this *Work Plan for Additional Site Assessment (Work Plan)* for the former Haber Oil Products Facility, located at 1401 Grand Avenue, San Leandro, California (see Figures 1 and 2). Alameda County Environmental Health Department (ACEHD) currently oversees an environmental case at the subject site relating to previously documented petroleum hydrocarbon and fuel oxygenate impact to soil and groundwater. In a letter dated June 23, 2011, ACEHD personnel requested that a Site Conceptual Model (SCM) report be prepared and submitted for the site. The June 23, 2011 letter also requested that a Data Gap Work Plan be prepared and submitted for agency review.

On January 25, 2012, Stratus prepared and submitted the requested SCM for the site. The SCM identified several data gaps based on Stratus' interpretation of the data. In early March 2012, ACEHD reviewed the SCM, and in a letter dated March 28, 2012, directed that the previously requested work plan be prepared and submitted for agency review.

This *Work Plan* proposes to conduct additional vertical and lateral assessment of petroleum hydrocarbon impact to the subsurface. Also included in this document is a proposal to destroy and replace groundwater monitoring wells with excessively lengthy well screens that could potentially function as vertical conduits for contaminant migration, identify the locations of underground utility corridors in the site vicinity, install vapor extraction wells for future remediation pilot testing, perform an onsite soil vapor survey, and update a groundwater sensitive receptor survey by evaluating water supply well locations and use near the site. A detailed description of the tasks associated with performing these proposed work activities is provided in the following subsections of this *Work Plan*.

## SITE DESCRIPTION

The former Haber Oil Products facility is an active service station facility located at the intersection of Joaquin Avenue and Grand Avenue in San Leandro, California. The property is currently developed as a mini-mart and automotive service station. The station building is situated along the southern edge of the property, and three fuel dispensers are installed along the western side of the property. Gasoline is stored in one 8,000 gallon and one 12,000 gallon underground storage tank (UST), which are installed in the center of the property adjacent to the dispenser islands (Figure 2). Except for the planters, the entire site is covered by either the station building or concrete paving.

The site is bounded to the west and northwest by Grand Avenue and to the east by Interstate 580. The property immediately to the south has been developed as an apartment complex. The property immediately to the west (across Grand Avenue) is not currently developed. Properties north of the site are developed for retail use, properties to the west and south are developed for residential use, and properties to the east (across the freeway) are developed for residential use. Except as noted above, virtually all property in the general site vicinity is developed for residential or commercial use.

## PREVIOUS ENVIRONMENTAL WORK

This section summarizes environmental activities performed at the site as part of the investigation into hydrocarbon impact to soil and groundwater due to leaking USTs. The historical summary presented below is based on documents available on the ACEHD website. Locations of soil borings and groundwater monitoring wells are shown on Figure 2. Select data available from previous environmental work, including a summary table of drilling and well construction details, tabulated results of soil and groundwater analytical data, and figures summarizing some of the soil analytical data (Figures 7 and 8) are included in Appendix A.

**April 1991** – Aegis Environmental, Inc. (Aegis) drilled four soil borings (B-1 through B-4) to 41 feet below ground surface (bgs) on April 24, 1991. Total Petroleum Hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) were reported in soil samples collected between 25.5 and 36 feet bgs. The highest TPHg (66 milligrams/kilogram [mg/kg]) and benzene concentrations (0.94 mg/kg) were reported in the sample from boring B-2 collected at 25.5 feet bgs.

**April 1992** – Aegis drilled three angled soil borings (B-5 through B-7) on April 14 and 15, 1992. These borings were angled between 26 and 28 degrees from vertical to collect soil samples beneath the USTs. These borings reached a maximum vertical depth of 49 feet bgs. The highest concentrations of TPHg (510 to 4,000 mg/kg) and benzene (0.94 to 11 mg/kg) in each of these borings was reported in samples collected at approximately 40 to 45 feet bgs.

**September 1992** – Aegis installed groundwater monitoring wells MW-1 through MW-5 to depths between 53 and 56 feet bgs on September 15 to 18, 1992. TPHg was reported only in the soil samples from boring MW-2 at 29.5 feet bgs (11 mg/kg) and boring MW-4 at 29.5 feet bgs (1.9 mg/kg). Benzene was reported in at least one soil sample from each boring (0.0062 to 0.27 mg/kg), except MW-5, with the highest benzene concentration reported in the sample collected from MW-4 at 29.5 feet bgs. Selected soil samples from below the water table were also analyzed for permeability and grain size distribution. The initial monitoring and sampling of these wells was performed on September 29, 1992. Free product (0.02 feet thick) was reported in well MW-3. TPHg concentrations in wells MW-1, MW-2, MW-4, and MW-5 ranged from 60 to 20,000 micrograms per liter ( $\mu\text{g/L}$ ), and benzene concentrations ranged from 10 to 4,600  $\mu\text{g/L}$ . The highest TPHg and benzene concentrations were reported in well MW-2.

**October 1992** – On October 7, 1992, short-duration SVE tests were performed, using wells MW-1 and MW-2 for extraction. A summary table of the feasibility test data collected during the test is included in Appendix B. Depth to water (DTW) was not measured in the well network during the SVE test; during the groundwater sampling event on September 29, 1992, DTW was measured between 41.55 and 44.60 feet bgs.

Soil vapors were extracted from well MW-1 for 2.25 hours under a vacuum of 31.5 to 33 inches water column, producing a calculated airflow of 63 to 91.6 cubic feet/minute (cfm). Influent Total Petroleum Hydrocarbon (TPH) concentrations (measured with a flame ionization detector [FID]) decreased from 11,500 parts per million (ppm) to 8,750 ppm. Calculated extraction rates started at 13.8 pounds/hour (lb/hr) and decreased to 10.6 lb/hr. Measureable vacuum influence was observed at wells MW-2 through MW-5. An influent air sample collected at the end of this test period contained 65,000 ppm TPH and 1,600 ppm benzene.

Soil vapors were extracted from well MW-2 for 2.5 hours under a vacuum of 6 to 7 inches water column, producing a calculated airflow of 48 to 51.2 cfm. Influent soil vapor concentrations (measured with a FID) decreased from 15,250 ppm to 9,250 ppm TPH. Calculated extraction rates started at 9.7 lb/hr and decreased to 6.2 lb/hr. Measureable vacuum influence was observed at wells MW-1, MW-3 and MW-4. An influent air sample collected at the end of this test period contained 60,000 ppm TPH and 2,500 ppm benzene.

Based on the data collected during the SVE test, an estimated radius of influence (ROI) of at least 38 to more than 50 feet was produced.

Rising head slug tests were also performed on October 7, 1992 using wells MW-1, MW-2, and MW-4.

**June 1995** – P&D Environmental, Inc. (P&D) installed offsite wells MW-6, MW-7, and MW-8 to 50 feet bgs. TPHg and BTEX were not reported in any of the soil samples collected from these well borings.

**May 1997** – Bernabe & Brinker, Inc. (B&B) removed one 6,000 gallon gasoline UST, two 7,500 gallon gasoline USTs, one 500 gallon waste oil UST, and associated dispensers and product piping on May 5 and 6, 1997. A 4-inch diameter hole was reported in the bottom of the waste oil UST, and a small hole was observed in the top of the 6,000 gallon gasoline UST. Six soil samples were collected from the UST pit (TP-1 through TP-6) and four soil samples (DP-1 through DP-4) were collected from beneath the dispensers. TPHg (4.5 to 3,400 mg/kg) and benzene (0.012 to 2.8 mg/kg) were reported in eight of these soil samples, and methyl tertiary butyl ether (MTBE; 0.12 to 41 mg/kg) was reported in seven of the samples. Total Petroleum Hydrocarbons as diesel (TPHd; 300 mg/kg), Total Recoverable Petroleum Hydrocarbons (TRPH; 2,600 mg/kg), tetrachloroethene (PCE, 0.029 mg/kg) 1,1,1-trichloroethane (0.026 mg/kg), naphthalene (0.60 mg/kg) and 2-methylnaphthalene (0.65 mg/kg) were reported in sample TP-6, collected beneath the waste oil UST.

To remove hydrocarbon-impacted soil, the UST pit was excavated to depths up to approximately 17.5 feet bgs, and the area beneath the dispensers was deepened to approximately 5.5 feet bgs on May 10, 1997. Ten confirmation soil samples were collected from the furthest vertical and lateral extent of the UST excavation, and two confirmation soil samples were collected from the base of the excavation beneath the dispensers. The two samples with the highest residual hydrocarbon concentrations were collected at 16.5 feet bgs (TP-10; 4,200 mg/kg TPHg) and 12 feet bgs (TP-14; 3,200 mg/kg TPHg).

Approximately 800 cubic yards (yd<sup>3</sup>) of soil and backfill material were excavated during UST removal activities. Excavated material was removed from the site for disposal. The excavations were backfilled with pea gravel as one 8,000 gallon UST and one 12,000 gallon UST and associated product piping and dispensers were installed.

**December 1998** – P&D advanced one direct push boring to 41 feet bgs on December 4, 1998. Soil samples from this boring were not submitted for chemical analysis, but one grab groundwater sample was collected from the boring. This groundwater sample did not contain reportable concentrations of TPHg or MTBE, but did contain benzene (0.54 µg/L).

## **Groundwater Monitoring and Sampling**

Groundwater monitoring and sampling was first performed at the site in September 1992. A total of 31 groundwater monitoring and sampling events were performed between 1992

and the fourth quarter 2011 (most recent groundwater sampling event). Results of well sampling have indicated that TPHg/gasoline range organics (GRO), BTEX, naphthalene, MTBE, tertiary butyl alcohol (TBA), and several VOCs (most notably n-propyl benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene) impact groundwater beneath the site. The highest concentrations of most petroleum hydrocarbons and VOCs are detected in well MW-2 samples; this location is near or immediately downgradient of the former UST areas (see Figure 2). Figures 3 through 5 illustrate the approximate extent of GRO, benzene, and MTBE impact, respectively, to groundwater using data collected during the fourth quarter 2011. Based on the available data, additional assessment of contaminant concentrations in groundwater appears necessary to the northwest (downgradient) of the site.

### Site Geology and Hydrogeology

Graymer<sup>1</sup> describes the sedimentary deposit upon which the site is situated as loose, moderately sorted to well sorted sandy or clayey silt, grading to sandy or silty clay, originating as levee deposits bordering stream channels. Other sediments in the site vicinity are described as medium dense to dense, gravely sand or sandy gravel that grades upwards to sandy or silty clay, originating as alluvial fan and fluvial deposits. Based on the Graymer map, it appears that the subject site is located immediately west of the Hayward Fault.

Based on a review of boring logs prepared during historical site work, a predominantly fine-grained sedimentary deposit overlies a coarser-grained sedimentary deposit in the shallow subsurface. The fine-grained sediments are described predominantly as silty clay, silt, clayey silt, and sandy silt from below the paved ground surface to approximately 30 to 35 feet bgs. The boring logs indicate that beneath the site these fine-grained sediments are relatively uniform, without interfingered strata of coarser-grained sediments. This appears to change off-site to the west; as seen in the logs for borings MW-6 and MW-7, the fine-grained sediments contain intervals of sand to silty sand up to 15 feet thick.

A coarse-grained sedimentary deposit, described in the boring logs as silty sand, silty sand with gravel, clayey sand with gravel, and sand with gravel, was encountered beneath the fine-grained sediments (at approximately 30 feet bgs) to the total depth explored of approximately 55 feet bgs. Sieve analyses were performed on soil samples from near the base of borings MW-2 (52 feet bgs), MW-3 (54 feet bgs), MW-4 (53 feet bgs), and MW-5 (54 feet bgs). Based on these sieve analyses, the samples were classified as silty sand, silty sand, silty sand, and silty sand with gravel (respectively). The boring logs do

---

<sup>1</sup> *Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California*: R.W. Graymer, US Geological Survey Miscellaneous Field Studies MF-2342, version 1.0, dated 2000.

not record relative percentages of materials in the samples, but in the sieve analyses, the fraction of fine-grained material (silt and clay) in the silty sand samples (borings MW-2, MW-3, and MW-4) was greater than 30%. Interpreted subsurface stratigraphic relations are illustrated in cross-sections A-A', B-B', and C-C', which are provided in Appendix C. A map illustrating the surface traces of each cross section is included in Appendix C.

The observations recorded in the boring logs and the data from the sieve analyses suggest a generally fining upward sedimentary sequence that appears similar to the Holocene-age alluvial fan and fluvial deposits described by Graymer (Qhaf-refer to Graymer, page 7).

Depth to groundwater as measured in the monitoring well network has fluctuated from approximately 31.6 to 44.6 feet bgs. At the time of the most recent groundwater monitoring event (October 13, 2011), groundwater in the well network was measured between 37.92 and 41.28 feet below top of well casing. Flow within the monitoring well network during this monitoring event was toward the west-northwest (Figure 6), which is generally consistent with the findings of historical work (see Rose Diagram on Figure 6 for reference). Groundwater elevations have generally increased at the site since initiation of monitoring in 1992.

## **EVALUATION OF WELLS MW-1 AND MW-2**

Wells MW-1 and MW-2 were installed in close proximity to the former USTs in September 1992, and were constructed with long well screens (installed from approximately 15 to 53 feet bgs). ACEHD has indicated their belief that given the well construction, these wells could potentially be conduits, and indicated that groundwater data collected from the wells may not be representative.

Given the current site conditions, it is our opinion that groundwater analytical data from these wells is representative, as the wells were constructed to similar depths as the other site monitoring wells, which range in total depth from approximately 50 to 56 feet bgs. At the time of the most recent well gauging event, depth to groundwater was measured at about 38 to 39 feet bgs in these wells, and thus the screening interval extends approximately 15 feet into the saturated zone, which is common for the construction of monitoring wells.

At this time, it is unknown as to whether the filter pack sand installed around the well screen of wells MW-1 and MW-2 above the saturated zone is functioning as a vertical conduit for contaminant migration. However, in order to minimize the risk of these potential vertical conduits, in particular at well MW-2 where the presence of fuel contaminants in the subsurface is well documented, a proposal to destroy these two monitoring wells, and install replacement wells with shorter well screens, is included in this *Work Plan*.

## SCOPE OF WORK

The objectives of the proposed work are to:

- Assess concentrations of fuel contaminants and VOC's in shallow soil vapor.
- Further investigate the lateral and vertical extent of petroleum hydrocarbon impact to groundwater.
- Destroy and replace groundwater monitoring wells with excessively long well screens which could potentially function as conduits for vertical contaminant transport.
- Additionally assess geologic conditions beneath the site, in particular below 55 feet bgs where current data is lacking.
- Identify the location of underground utility corridors near the site.
- Evaluate potential water supply well use near the site.
- Install soil vapor extraction wells for future remediation feasibility testing.

In addition to the scope of work outlined above, the SCM also recommended additional assessment south and southwest of wells MW-4 and MW-6. This work will be performed after additional funds have been allocated to the site by the Underground Storage Tank Cleanup Fund (USTCF) in fiscal year 2012/2013. Remediation feasibility testing will also be implemented in fiscal year 2012/2013, as USTCF funds allow.

To accomplish the objectives outlined above, Stratus is proposing the following activities:

- Utilize a subcontractor to identify positions of underground utility corridors located in the site vicinity. Drilling locations will be cleared for conflict with utilities during this work.
- Advance two (2) cone penetrometer test (CPT) borings (CPT-1 and CPT-2) to approximately 90 feet bgs; with one of the borings located onsite near the former UST area and the other boring located downgradient of the site.
- Collect depth discrete (Hydropunch) groundwater samples and soil samples at each CPT boring location.
- Destroy wells MW-1 and MW-2 by pressure grouting.
- Drill and install three (3) 2-inch diameter groundwater monitoring wells (MW-1R, MW-9 and MW-10) to approximately 52 feet bgs.



- Drill and install one (1) 4-inch diameter groundwater monitoring well (MW-2R) to approximately 52 feet bgs. This well may be used in the future for groundwater extraction feasibility testing.
- Drill one (1) soil boring (B-11) in the vicinity of the former waste oil UST.
- Collect soil samples from the soil borings for lithologic comparison, field screening for petroleum hydrocarbons, and chemical analysis.
- Drill and install two (2) 2-inch diameter soil vapor extraction wells (VE-1 and VE-2) to approximately 30 feet bgs for potential future soil vapor extraction feasibility testing.
- Install three (3) soil vapor sampling wells (SG-1 through SG-3) in close proximity to the foundation of the site's mini-mart building.
- Collect soil vapor samples from SG-1 through SG-3.
- Develop wells MW-1R, MW-2R, MW-9, and MW-10.
- Collect groundwater samples from MW-1R, MW-2R, MW-9, and MW-10 after developing the wells.
- Update the monitoring well survey for the site.
- Perform a records search and field reconnaissance to obtain available data regarding nearby water supply well installations and potential use.

The proposed scope of work has been subdivided into tasks 1 through 4. Details are provided for the activities associated with each task. All work will be conducted under the direct supervision of a State of California Registered Geologist or Engineer, and will be conducted in accordance with standards established by the Tri-Regional Board document titled *Appendix A- Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites* (April 16, 2004), ACEHD, and Alameda County Public Works Agency (ACPWA). A California-licensed C-57 drilling contractor will perform all drilling and well construction activities. Stratus' field practices and procedures that will be utilized during hollow stem auger drilling and associated soil sampling work are described in Appendix D.

### **Task 1: Pre-field Activities**

Following approval of this *Work Plan* by ACEHD, the following activities will be completed:

- Obtain drilling permits from ACPWA,
- Retain and schedule a licensed C-57 drilling contractor,

- Update the health and safety plan for the site,
- Mark boring locations and contact Underground Service Alert to locate underground utilities in the vicinity of the work site,
- Research ACPWA records for water supply wells that may have been installed in the area, and conduct a door-to-door reconnaissance of properties within 500 feet of the site for installed supply wells, and
- Notify ACEHD, ACPWA, USA, and Mr. Chopra of the scheduled field activities.

## **Task 2: Field Activities**

### Task 2A: Underground Utility Survey

Stratus will retain the services of an underground utility locating subcontractor in order to identify the locations of underground utility trenches onsite, and in the City of San Leandro's right-of-way southwest, west, and northwest of the site. The utility locating work will be performed prior to any ground disturbance or drilling, so that information obtained during this work can be used to situate the boreholes in locations that will not result in conflicts with the underground utilities. Various geophysical instruments, including metal detector(s), radio-signal beacon tools that can be inserted and tracked through hollow pipes, and instruments that can measure ambient radio signals, active radio signals, and low frequency electrical signals, will be used to locate underground improvements. The depths of the underground utilities will also be evaluated to the extent practical, given the capabilities of the geophysical instruments and the availability of access points (i.e. manholes).

### Task 2B: Well Destruction

Wells MW-1 and MW-2 will be destroyed by pressure grouting with neat cement. A licensed well driller will pressure inject a neat cement slurry into the well casing. Pressure will then be applied to the well head in order to force neat cement into the existing filter pack surrounding these two wells through the screened interval of the wells. After completing pressure grouting, the upper 5 feet of the well casings for well MW-2 will be overdrilled using a 10-inch diameter hollow stem auger (Well MW-1 appears to be installed in the existing UST pit and cannot be overdrilled). The ground surface will then be patched to match the surrounding area.

### Task 2C: Soil Borings

A licensed well driller will advance soil borings MW-1R, MW-2R, MW-9, MW-10, VE-1, VE-2, and B-11 using a truck mounted or limited access drill rig equipped with 8-inch diameter hollow stem augers (MW-1R, MW-9, MW-10, VE-1, VE-2 and B-11) or

10-inch diameter hollow stem augers (MW-2R). Borings MW-1R, MW-2R, MW-9, and MW-10 will be completed as groundwater monitoring wells, and boring VE-1 and VE-2 will be completed as soil vapor extraction wells, as described below (Task 2D). Boring B-11 will be backfilled with neat cement. The locations of the proposed borings are depicted on Figure 2.

The initial 5 feet of each boring will be advanced with hand tools, or an air knife, to reduce the possibility of damaging underground utilities. Soil samples will be collected at 5-foot intervals using a California-type, split-spoon sampler equipped with three pre-cleaned brass tubes. The ends of the bottom-most, intact tube from each sample interval will be lined with Teflon™ sheets, capped, and sealed. Each sample will then be labeled, placed in a resealable plastic bag, and stored in an ice-chilled cooler. Soil contained in the remaining brass tubes will be screened for VOCs using a photoionization detector (PID). Stratus will record PID readings, soil types, and other pertinent geologic data on a borehole log.

The number of soil samples submitted for chemical analysis will be determined at the time of the investigation. Given the offsite locations of well borings MW-9 and MW-10, Stratus anticipates that approximately 2 to 3 soil samples will be submitted from each drilling location.

#### Task 2D: Well Construction Details

Groundwater monitoring wells MW-1R, MW-9, and MW-10 will be constructed through 8-inch diameter augers using 2-inch diameter schedule 40 PVC casing, and well MW-2R will be constructed through 10-inch diameter hollow stem augers using 4-inch diameter schedule 40 PVC casing. The wells will be constructed using 20 feet of 0.02-inch diameter factory slotted well screen, extending from approximately 32 to 52 feet bgs.

Soil vapor extraction wells VE-1 and VE-2 will be constructed through 8-inch diameter augers using 2-inch diameter schedule 40 PVC casing. The wells will be constructed using 15 feet of 0.02-inch diameter factory slotted well screen, extending from approximately 15 to 30 feet bgs.

In all wells, a filter pack of #3 Lonestar™ sand will be placed in the annular space around the well casing from the bottom of the well screen to approximately two feet above the top of the well screen. Approximately two feet of bentonite chips will be placed on top of the filter pack and hydrated with clean water to provide a transition seal for the well. Neat cement will be used to backfill the remaining annular space around the well casing. A watertight locking cap will be placed over the top of the well casing, and a traffic rated vault box will be installed around the top of the well. The actual well construction may be modified in the field based on conditions encountered at the time of the investigation.

### Task 2E: CPT Soil Borings and Soil/Groundwater Sampling

Stratus will oversee a California licensed drilling contractor advance two CPT borings to an approximate depth of 90 feet bgs. The proposed locations of the borings are shown on Figure 2. The actual locations of the borings will be based on accessibility and the location of underground utilities, as determined by the geologist in the field and approved by the licensed geologist or engineer overseeing the project. CPT consists of advancing a cone-tipped cylindrical probe (1.7 inches in diameter) into the ground while simultaneously measuring the resulting resistance to penetration. A computer generated CPT log is plotted in the field, providing a continuous log of site lithology. Upon completion of CPT profiling, the boreholes will be pressure grouted from the bottom of the borehole up to surface grade.

Following the CPT work, soil and groundwater samples will be collected from separate borings, located approximately 2 feet from the initial CPT borings. The number of soil and groundwater samples, and the depth of sampling, will be determined at the time of the investigation; soil lithologies encountered during the CPT profiling work will be used to select sampling intervals. We anticipate that approximately four groundwater samples will be collected from each of the direct push borings. Groundwater sampling depths will be determined at the time of the investigation and will preferentially target coarser-grained saturated strata. Soil sampling will target finer grained strata where groundwater analytical data will likely not be available.

Hydropunch<sup>TM</sup> sampling equipment will be used to collect the groundwater samples at the desired depth intervals. The Hydropunch<sup>TM</sup> sampler will be pushed to the bottom of the sampling interval using 2-inch diameter steel rods. The steel rods are then subsequently retracted approximately four feet, exposing the screen, allowing for the collection of depth-discrete groundwater samples. The groundwater samples will be collected using a clean bailer, transferred to laboratory-supplied glass vials, properly labeled, and placed in an ice-chilled cooler. Soil samples will be collected by pushing a piston sampler equipped with two brass or stainless steel sleeves into native soil at the base of the sampling borehole. The soil and groundwater samples will be transported under strict chain-of-custody protocol to a California-certified analytical laboratory for analysis. Upon completion of soil and groundwater sampling, the respective boreholes will be pressure grouted from the bottom of the borehole up to surface grade.

### Task 2F: Well Development and Sampling

The newly installed monitoring wells will be allowed to stand a minimum of 72 hours before development. Stratus will develop newly installed monitoring wells MW-1R, MW-2R, MW-9, and MW-10 by surging and bailing, followed by groundwater pumping. We anticipate removing a minimum of 10 well casing volumes during development;

however, development will continue until the extracted water runs clear and appears free of suspended sediment.

A minimum of 24 hours after completing well development, Stratus will collect purge groundwater samples from wells MW-1R, MW-2R, MW-9 and MW-10. Prior to sampling, approximately 3 well casing volumes will be purged from each well. The groundwater samples will be collected using a clean bailer, transferred to laboratory-supplied glass vials, properly labeled, identified on a chain-of-custody form, and placed in an ice-chilled cooler.

#### Task 2G: Soil Vapor Sampling Point Installation

Three shallow soil vapor sampling points (SG-1 through SG-3) will be installed at the approximate locations shown on Figure 2. The soil vapor sampling points will be installed in borings advanced to approximately 5 feet bgs using a 4-inch diameter hand auger. Each vapor point will be constructed by first placing 6 inches of sand in the base of the boring. A vapor implant (0.5-inch OD x 1.75-inch, 50 micron porous stainless steel, or equivalent) connected to 0.25-inch OD (0.17-inch ID) Teflon® tubing will then be placed in the boring, with the implant placed at approximately 4.5 feet bgs. Additional sand will then be placed in the annular space around the implant and tubing to a depth of 4 feet bgs. A 4-foot thick bentonite seal (hydrated with water) will be placed over the filter-pack. A traffic rated vault box, installed flush with the ground surface, will protect the top of the sample point. A Swagelock™ valve, or equivalent, will be installed on the tubing to prevent vapor exchange with the atmosphere or surface water entry into the sampling point, and to facilitate collection of vapor samples.

#### Task 2H: Soil Vapor Sampling

Once the soil vapor implants have been installed, Stratus will wait a minimum of 7 days before collecting soil vapor samples. Prior to the proposed sampling event, weather reports will be referenced to verify that a significant rain event (e.g.  $\geq 0.5$ -inch) has not occurred within 48 hours before the sampling event. If rain is forecasted during the scheduled sampling event, the sampling will be rescheduled. Sampling during, or just after, a rain event can reduce the effective diffusion coefficient and decreases the relative vapor saturation in the unsaturated zone, thereby potentially affecting sampling results.

Prior to sampling, the approximate air volume inside the Teflon tubing and filter pack surrounding the vapor implant will be calculated. Stratus will use an expendable Summa™ canister to purge at least two times the calculated volume of ambient air. Following purging of the ambient air, a separate Summa™ canister will be used to collect each soil vapor sample. During filling of the canisters, the flowrate will be regulated to fill at a rate between 100 and 200 milliliters per minute (ml/min). A leak check tracer gas

will be used to assess potential leakage by spraying 1,1-difluoroethane (1,1-DFA) near the sampling trains.

#### Task 2I: Waste Management

Drill cuttings and wastewater generated during the field activities will be contained in DOT-approved 55-gallon steel drums. The drums will be appropriately labeled and stored at the site pending proper disposal. A licensed contractor will transport the soil and wastewater to an appropriate facility for disposal.

#### Task 2J: Surveying

A California licensed land surveyor will be retained to survey the horizontal coordinates and elevations of the newly installed monitoring wells and soil vapor points, as required by AB 2886 (GeoTracker). The locations of the CPT borings will also be surveyed. Data collected during the survey work will subsequently be uploaded to the GeoTracker database.

### **Task 3: Laboratory Analysis**

Strict chain-of-custody procedures will be followed from the time each sample is collected until the time it is relinquished to the laboratory. All soil, groundwater, and soil vapor samples selected for chemical analysis will be forwarded to a state-certified laboratory for chemical analysis.

Soil samples selected for chemical analysis will be analyzed for GRO using USEPA Method SW8015M, and for BTEX, fuel oxygenates [MTBE, tert amyl methyl ether (TAME), di-isopropyl ether (DIPE), ethyl tert butyl ether (ETBE), and TBA], 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) by USEPA Method SW8260B. Soil samples from boring B-11 may also be analyzed for diesel range organics (DRO) and oil range organics (ORO) by USEPA Method 8015M, and an extended suite of VOCs and chlorinated hydrocarbon compounds by USEPA Method 8260B to evaluate the vertical extent of waste oil impact.

Groundwater samples from the newly installed wells will be analyzed for the suite of analytes currently in place for the semiannual monitoring and sampling program, including GRO by USEPA Method SW8015M, and BTEX, fuel oxygenates, 1,2-DCA, EDB, naphthalene, and other VOCs by USEPA Method SW8260B.

Soil vapor samples will be analyzed for GRO, VOCs, and 1,1-DFA using USEPA Method TO-15.

#### **Task 4: Site Assessment Report Preparation**

Following completion of the site investigation activities, a report will be submitted to document the work activities performed and to present the findings associated with this work. The report will include, but not be limited to, a scaled site plan, soil boring logs, well details, tabulated analytical data, certified analytical results, and documentation of Geotracker data uploading. Stratus will also include information pertaining to the location and depth of underground utility trenches near the site, and available data regarding water supply well location and use, in this report.

#### **SCHEDULE**

Following approval of this scope of work, Stratus will retain a C-57 licensed contractor and forward a well installation package to ACPWA for approval. After receiving approval of ACPWA permits, Stratus will forward an encroachment permit application to the City of San Leandro for approval. Approximately 3 to 4 weeks will likely be necessary for the contractor to become available and for the permits to be approved. A report documenting the site assessment and well installation work will be submitted within about 6 weeks of receiving all analytical results for samples collected during drilling work.

#### **LIMITATIONS**

This document was prepared in general accordance with accepted standards of care that existed at the time this work was performed. No other warranty, expressed or implied, is made. Conclusions and recommendations are based on field observations and data obtained from this work and previous investigations. It should be recognized that definition and evaluation of geologic conditions is a difficult and somewhat inexact science. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies may be performed to reduce uncertainties. This report is solely for the use and information of our client unless otherwise noted.

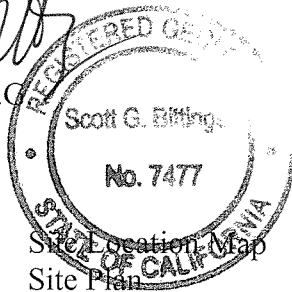
If you have any questions regarding this document, or the project in general, please contact Steve Carter by telephone at (530) 676-6008, or by email at [scarter@stratusinc.net](mailto:scarter@stratusinc.net).

Sincerely,

STRATUS ENVIRONMENTAL, INC.



Scott G. Bittinger, P.G.  
Project Geologist



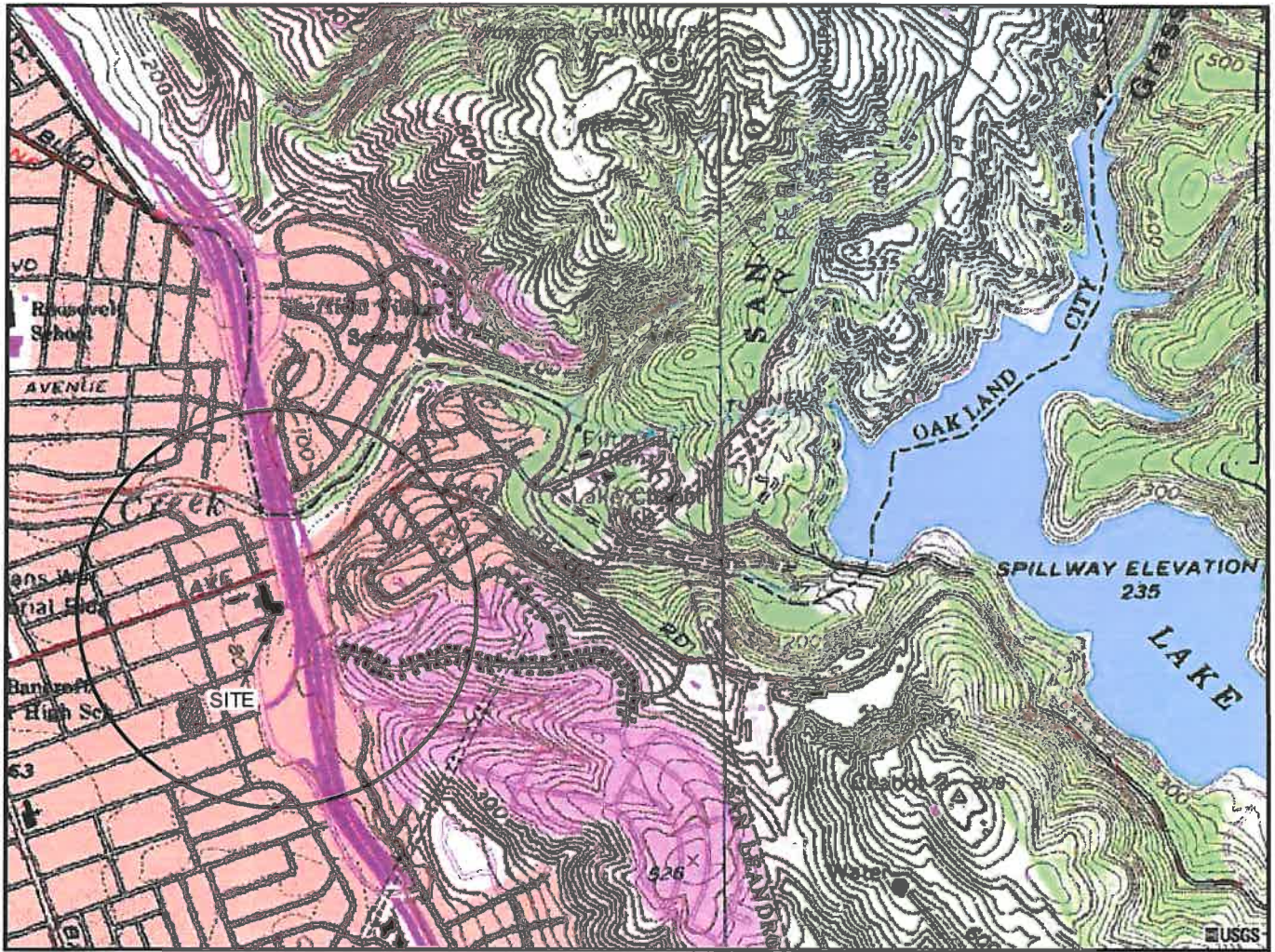
Stephen J. Carter, P.G.  
Project Manager

Attachments:

- Figure 1 Site Location Map
- Figure 2 Site Plan
- Figure 3 GRO Iso-Concentration Contour Map, Fourth Quarter 2011
- Figure 4 Benzene Iso-Concentration Contour Map, Fourth Quarter 2011
- Figure 5 MTBE Iso-Concentration Contour Map, Fourth Quarter 2011
- Figure 6 Groundwater Elevation Contour Map, Fourth Quarter 2011
- Appendix A Select Data from Historical Site Investigation and Sampling Work
- Appendix B Remediation Pilot Test Data Summary
- Appendix C Geologic Cross Sections
- Appendix D Field Practices and Procedures

cc: Mr. Mohan Chopra





GENERAL NOTES:  
 BASE MAP FROM U.S.G.S.  
 SAN LEANDRO, CA.  
 7.5 MINUTE TOPOGRAPHIC  
 PHOTOREVISED 1978



QUADRANGLE LOCATION



APPROXIMATE SCALE

*STRATUS*  
 ENVIRONMENTAL, INC.

FORMER HABER OIL PRODUCT  
 1401 GRAND AVENUE  
 SAN LEANDRO, CALIFORNIA

FIGURE

1

PROJECT NO.  
 2120-1401-01

SITE LOCATION MAP

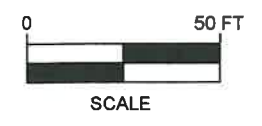


- LEGEND**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - B-1 SOIL BORING LOCATION
  - ⊗ SG-1 PROPOSED SOIL VAPOR SAMPLING POINT LOCATION
  - ⊗ CPT-1 PROPOSED CPT BORING LOCATION
  - ⊗ MW-9 PROPOSED GROUNDWATER MONITORING WELL LOCATION
  - ⊕ MW-1 WELL PROPOSED FOR DESTRUCTION
  - ⊕ B-11 PROPOSED SOIL BORING LOCATION
  - ⊕ VE-1 PROPOSED SOIL VAPOR EXTRACTION WELL LOCATION

**NOTES:**  
 1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE  
 2. BASE MAP PROVIDED BY MORROW SURVEYING

HABER OIL PRODUCT SAN LEANDRO VICINITY MAP  
 REV. 03/26/12  
 JMP

**STRATUS**  
 ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
 1401 GRAND AVENUE  
 SAN LEANDRO, CALIFORNIA

SITE PLAN

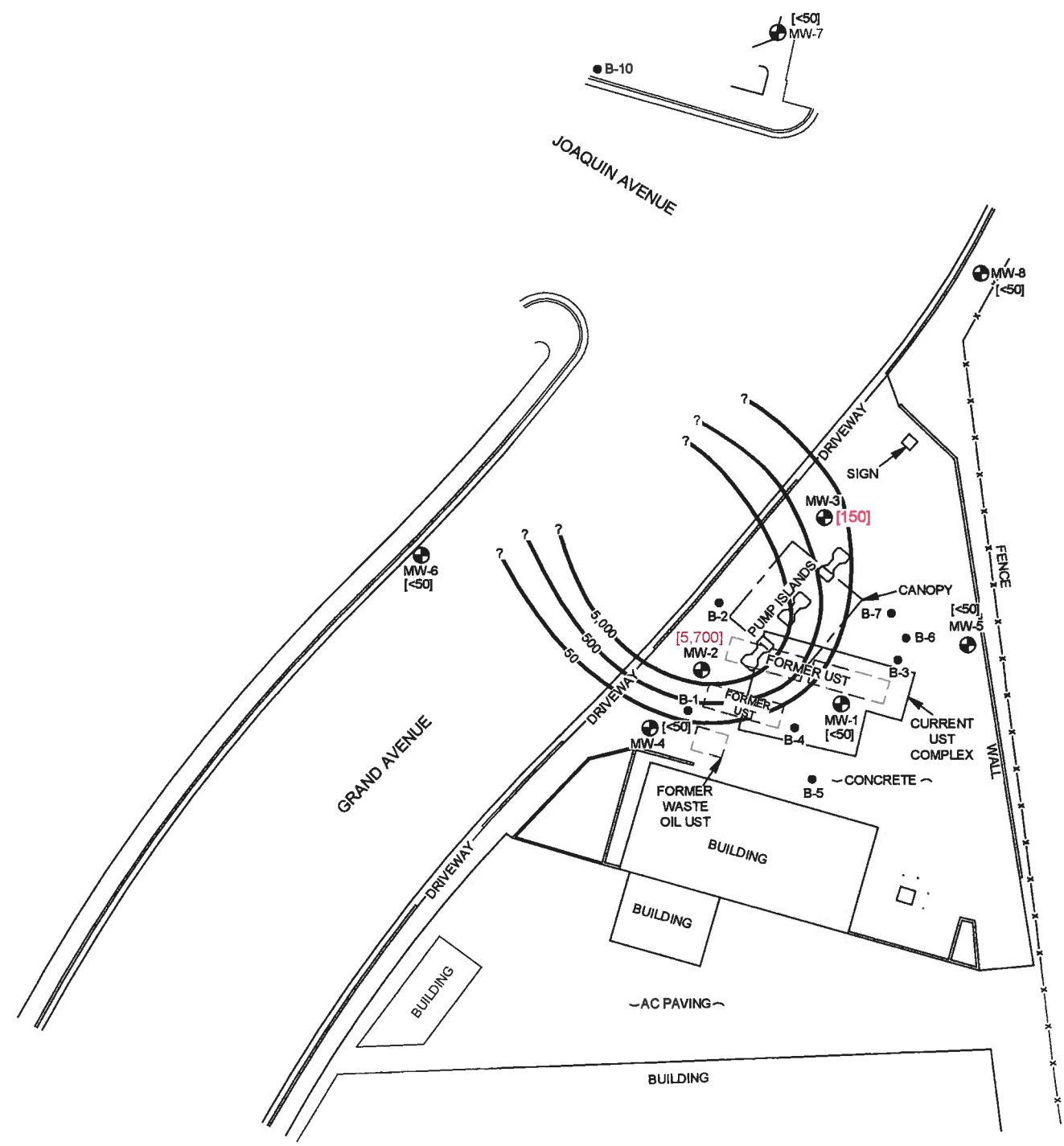
FIGURE  
**2**  
 PROJECT NO.  
 2120-1401-01



LEGEND

- ⊕ MW-1 GROUNDWATER MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION
- [<50] GASOLINE RANGE ORGANICS (GRO) IN  $\mu\text{g/L}$
- 50— ISO-CONCENTRATION CONTOUR LINE

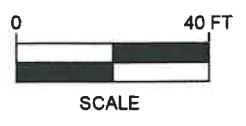
WELLS SAMPLED ON 10/13/11  
GRO ANALYZED BY EPA METHOD 8015B



NOTES:  
1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE  
2. BASE MAP PROVIDED BY MORROW SURVEYING

JMP  
 REV. March 19, 2012  
 Haber Oil Quarterly Figures

**STRATUS**  
ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA

GRO ISO-CONCENTRATION CONTOUR MAP  
4th QUARTER 2011

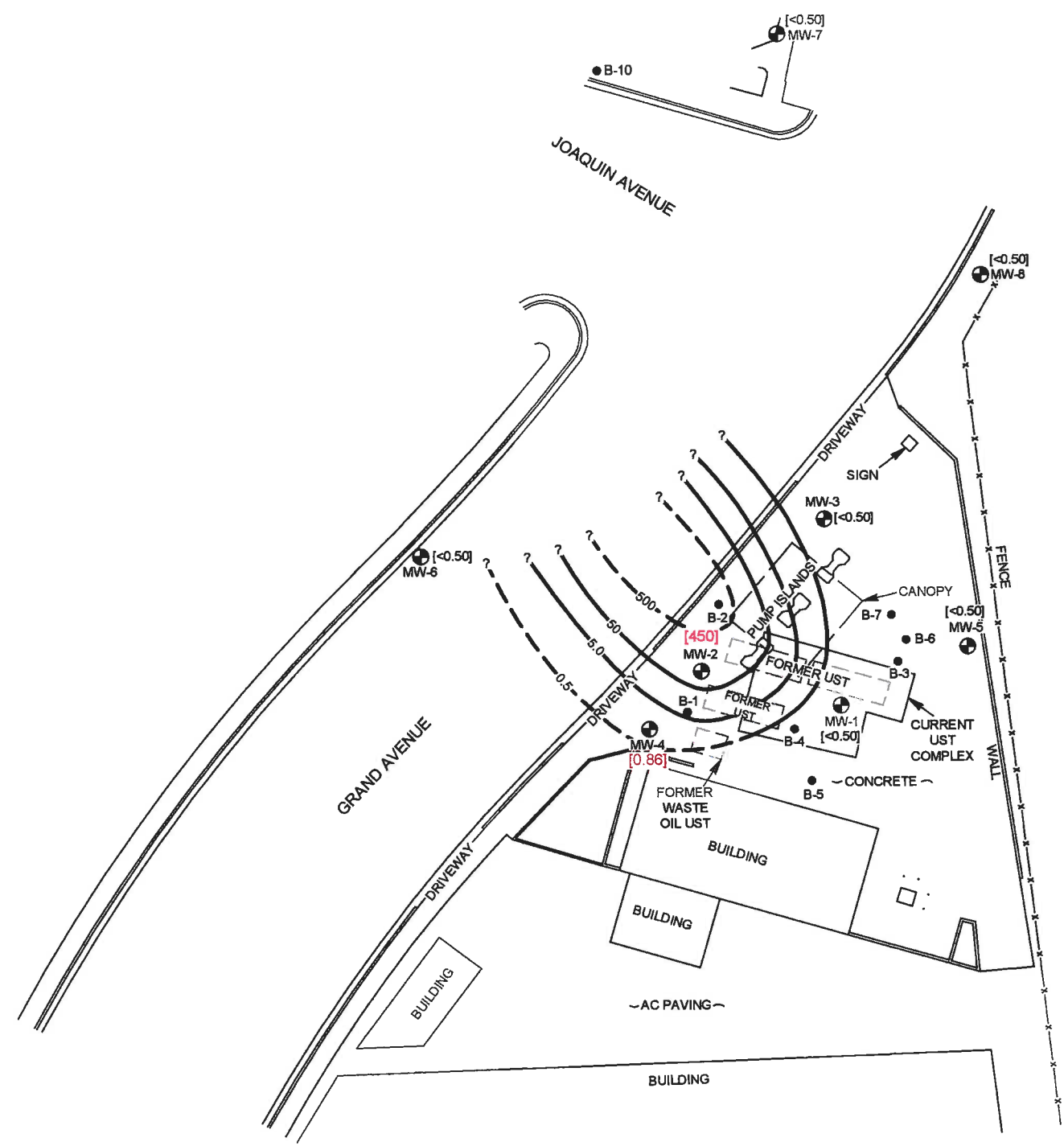
FIGURE  
**3**  
PROJECT NO.  
2120-1401-01



LEGEND

- MW-1 GROUNDWATER MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION
- [<0.50] BENZENE CONCENTRATION IN µg/L
- 5.0— ISO-CONCENTRATION CONTOUR LINE

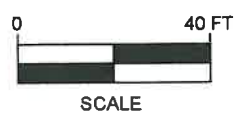
WELLS SAMPLED ON 10/13/11  
 BENZENE ANALYZED BY EPA METHOD 8260B



NOTES:  
 1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE  
 2. BASE MAP PROVIDED BY MORROW SURVEYING

Haber Oil Quarterly Engine  
 REV March 19, 2012  
 JNP

**STRATUS**  
 ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
 1401 GRAND AVENUE  
 SAN LEANDRO, CALIFORNIA

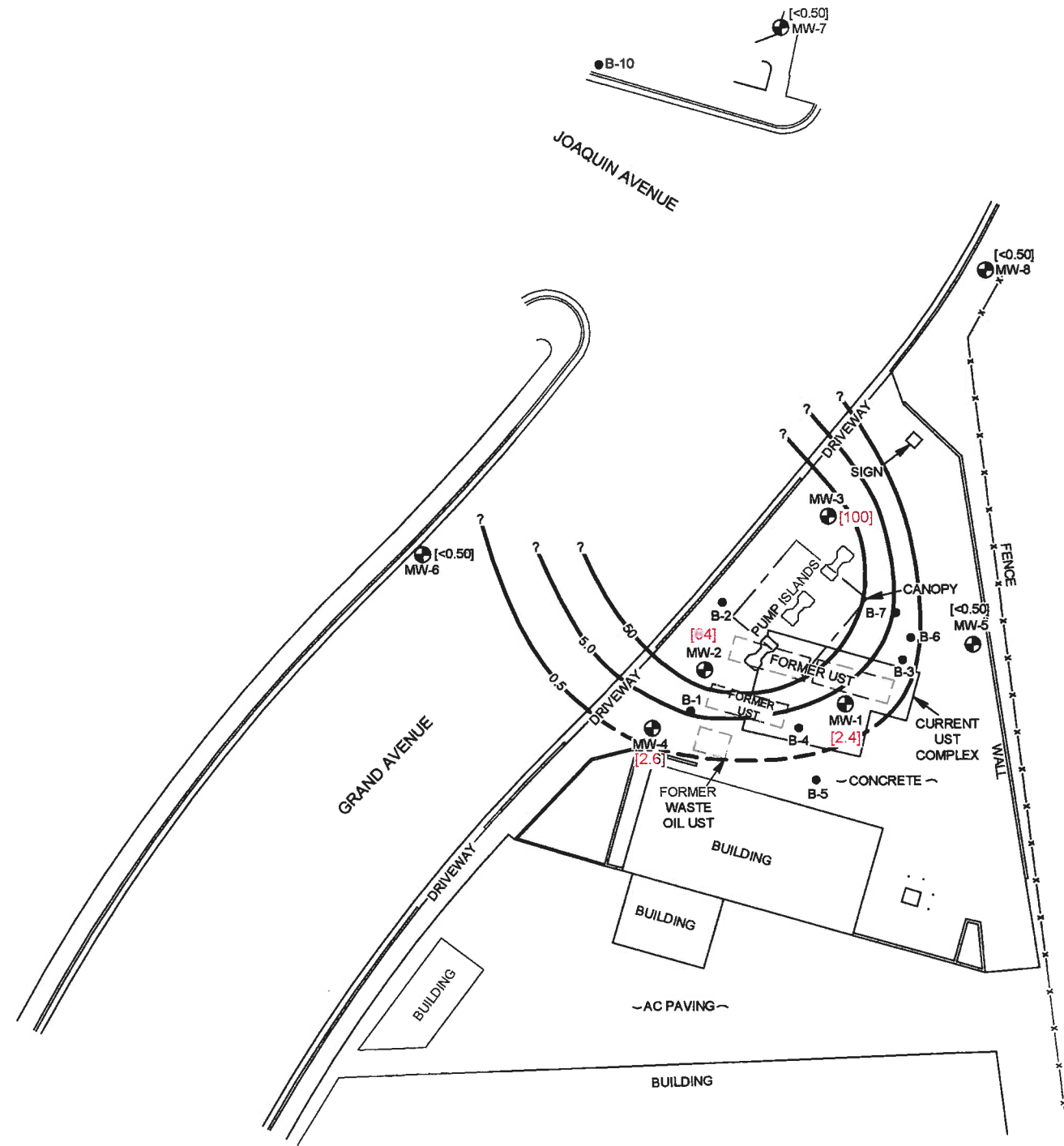
BENZENE ISO-CONCENTRATION CONTOUR MAP  
 4th QUARTER 2011

FIGURE  
**4**  
 PROJECT NO.  
 2120-1401-01



LEGEND

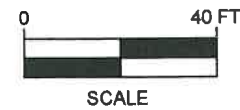
- ⊕ MW-1 GROUNDWATER MONITORING WELL LOCATION
  - B-1 SOIL BORING LOCATION
  - [<0.50] METHYL TERTIARY BUTYL ETHER (MTBE) IN  $\mu\text{g/L}$
  - 5.0— ISO-CONCENTRATION CONTOUR LINE
- WELLS SAMPLED ON 10/13/11  
MTBE ANALYZED BY EPA METHOD 8260B



- NOTES:
1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE
  2. BASE MAP PROVIDED BY MORROW SURVEYING

Haber Oil Quarterly Figures  
 REV  
 March 19, 2012  
 JMP  
 Haber Oil Workshop

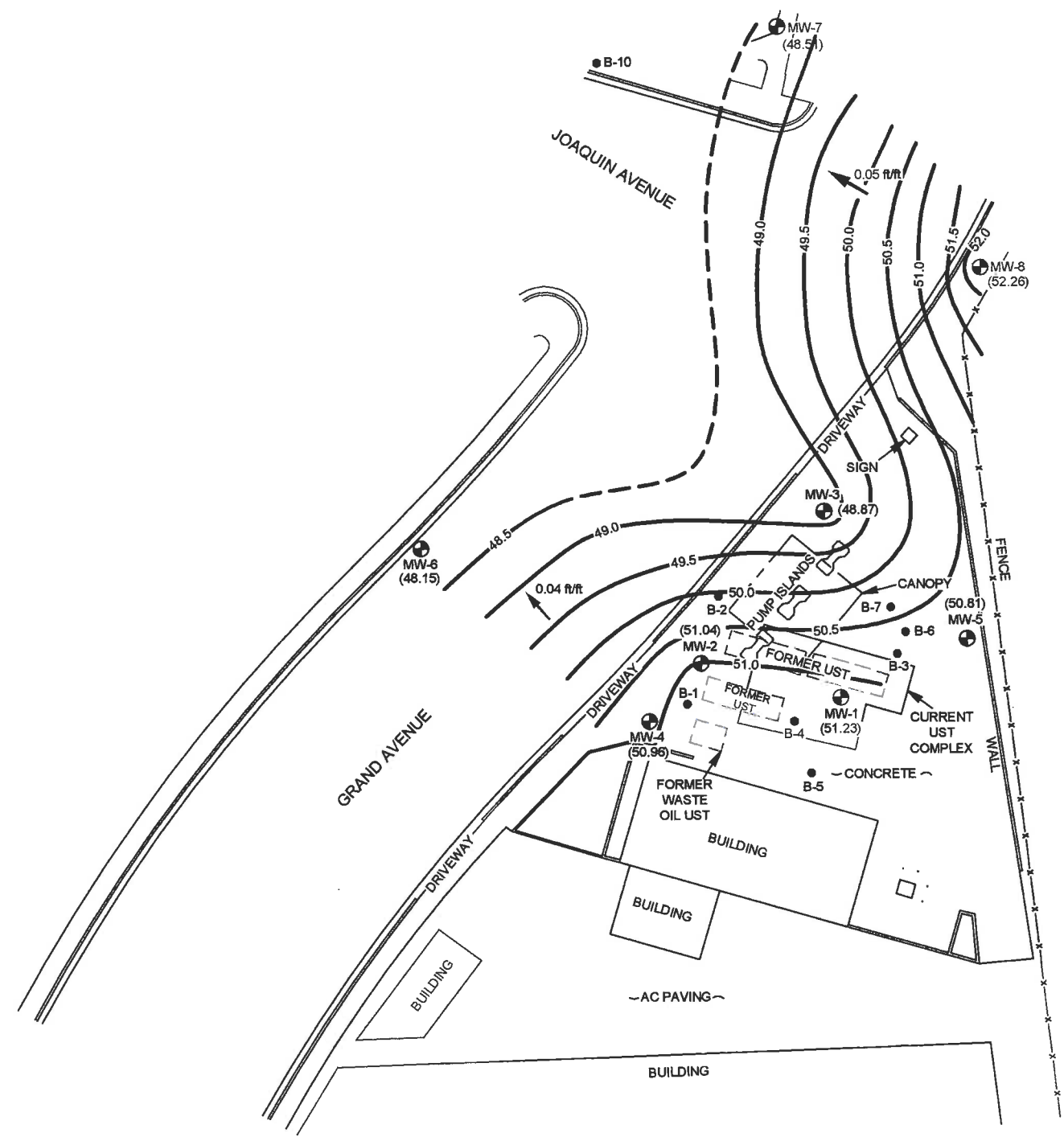
**STRATUS**  
ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA

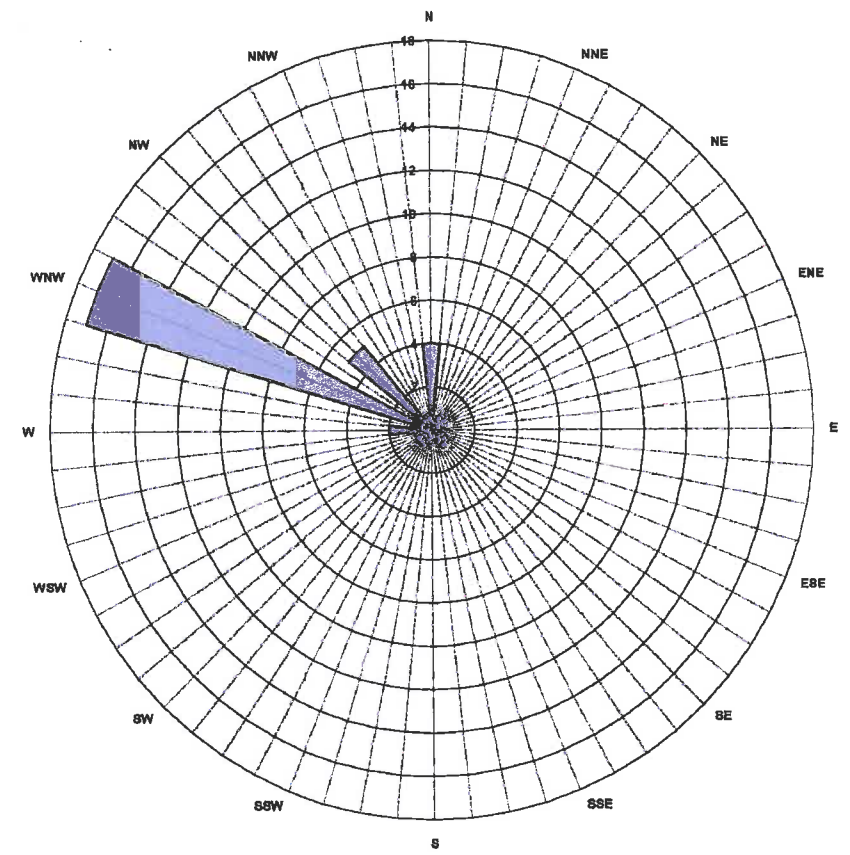
MTBE ISO-CONCENTRATION CONTOUR MAP  
4th QUARTER 2011

FIGURE  
**5**  
PROJECT NO.  
2120-1401-01



LEGEND

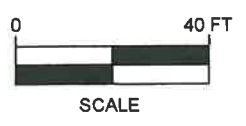
- ⊕ MW-1 GROUNDWATER MONITORING WELL LOCATION
  - B-1 SOIL BORING LOCATION
  - (51.23) GROUNDWATER ELEVATION IN FEET RELATIVE TO MSL
  - 51.0— GROUNDWATER ELEVATION CONTOUR IN FEET RELATIVE TO MSL
  - ➔ INFERRED GROUNDWATER FLOW DIRECTION
- WELLS MEASURED ON 10/13/11  
MSL = MEAN SEA LEVEL



- NOTES:
1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE
  2. BASE MAP PROVIDED BY MORROW SURVEYING

Haber Oil Quarterly Figures  
 REV  
 March 19, 2012  
 JNP  
 Haber Oil Workshop

**STRATUS**  
ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP  
4th QUARTER 2011

FIGURE  
**6**  
PROJECT NO.  
2120-1401-01

## **APPENDIX A**

### **SELECT DATA FROM HISTORICAL SITE INVESTIGATION AND SAMPLING WORK**

**Table 1 - Summary of Drilling and Well Construction Details**

Haber Oil Products, 1401 Grand Avenue, San Leandro, CA

Well/ Boring ID	Date	Boring Diameter (in)	Boring Depth (ft bgs)	Casing Diameter (in)	Casing Depth (ft bgs)	Screen Interval (ft bgs)	Slot size (in)	Drilling Method	Consultant
<i>Groundwater Monitoring Wells</i>									
MW-1	9/15/92	10	53	4	53	15 - 53	0.02	HSA	Aegis
MW-2	9/15/92	10	53	4	53	15 - 53	0.02	HSA	Aegis
MW-3	9/16/92	10	56	4	56	36 - 56	0.02	HSA	Aegis
MW-4	9/18/92	10	53.5	4	53.5	33 - 53.5	0.02	HSA	Aegis
MW-5	9/17/92	10	56	4	56	36 - 56	0.02	HSA	Aegis
MW-6	6/15/95	8	50	2	50	35 - 50	0.01	HSA	P&D
MW-7	6/16/95	8	50	2	50	35 - 50	0.01	HSA	P&D
MW-8	6/15/95	8	50	2	50	35 - 50	0.01	HSA	P&D
<i>Exploratory Soil Borings</i>									
B-1	4/24/91	8	41					HSA	Aegis
B-2	4/24/91	8	41					HSA	Aegis
B-3	4/24/91	8	41					HSA	Aegis
B-4	4/24/91	8	41					HSA	Aegis
B-5	4/14/92	6	48.8		(Angle boring: 55.5 feet long at 28° from vertical.)			HSA	Aegis
B-6	4/15/92	6	48.4		(Angle boring: 55 feet long at 28° from vertical.)			HSA	Aegis
B-7	4/15/92	6	49.4		(Angle boring: 55 feet long at 26° from vertical.)			HSA	Aegis
B-10	12/4/98	1.5	41					GeoProbe®	P&D
<i>Explanation:</i>									
in = inches									
ft bgs = feet below ground surface									
HSA = Hollow-stem augers									
Aegis = Aegis Environmental, Inc.									
P&D = P&D Environmental, Inc.									



**Table 2 - Summary of Soil Analytical and Grab Groundwater Sample Data**

Haber Oil Products, 1401 Grand Avenue, San Leandro, CA

Sample Location	Sample Date	Sample Depth (ft bgs)	TPHd (mg/Kg)	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	MTBE (mg/Kg)	EDB (mg/Kg)	1,2-DCA (mg/Kg)	Lead (mg/Kg)
<i>Aegis Environmental, Inc. - Soil Borings<sup>1</sup></i>												
B-1	4/24/91	16	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--
		35.5	<0.1	<b>0.2</b>	<b>0.076</b>	<b>0.003</b>	<b>0.004</b>	<b>0.015</b>	--	<0.001	<0.001	<1.0
B-2	4/24/91	11	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--
		25.5	<5.0	<b>66</b>	<b>0.94</b>	<b>3.8</b>	<b>1.3</b>	<b>8.7</b>	--	<0.05	<0.05	3.0
		40.5	<0.1	<b>2.0</b>	<b>0.46</b>	<b>0.30</b>	<b>0.049</b>	<b>0.24</b>	--	<0.001	<0.001	<1.0
B-3	4/24/91	16	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--
		36	<0.1	<b>0.2</b>	<b>0.022</b>	<b>0.004</b>	<b>0.004</b>	<b>0.033</b>	--	<0.001	<0.001	<1.0
B-4	4/24/91	21	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	--
		35.5	<0.1	<b>1.4</b>	<b>0.48</b>	<b>0.003</b>	<b>0.021</b>	<b>0.007</b>	--	<0.001	<0.001	<1.0
<i>Aegis Environmental, Inc. - Soil Borings<sup>2</sup></i>												
B-5	4/14/92	10	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		20	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		25	--	<b>2.6</b>	<b>0.17</b>	<0.0025	<b>0.075</b>	<b>0.059</b>	--	--	--	--
		30	--	<b>3.5</b>	<b>0.19</b>	<b>0.0037</b>	<b>0.099</b>	<b>0.12</b>	--	--	--	--
		35	--	<b>1.0</b>	<b>0.17</b>	<b>0.067</b>	<b>0.021</b>	<b>0.067</b>	--	--	--	--
		40	--	<1.0	<b>0.076</b>	<b>0.040</b>	<b>0.0046</b>	<b>0.018</b>	--	--	--	--
		45	--	<b>900</b>	<b>2.4</b>	<b>18</b>	<b>8.9</b>	<b>53</b>	--	--	--	<0.2
		50	--	<b>2.6</b>	<b>0.24</b>	<b>0.32</b>	<b>0.039</b>	<b>0.17</b>	--	--	--	--
		55	--	<b>760</b>	<b>5.7</b>	<b>24</b>	<b>10</b>	<b>53</b>	--	--	--	<0.2
B-6	4/15/92	5	--	<1.0	<0.0025	<b>0.006</b>	<0.0025	<b>0.0078</b>	--	--	--	--
		15	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		25	--	<b>1.4</b>	<b>0.081</b>	<b>0.0024</b>	<b>0.0055</b>	<b>0.0087</b>	--	--	--	--
		35	--	<b>1.7</b>	<b>0.16</b>	<b>0.022</b>	<b>0.0065</b>	<b>0.020</b>	--	--	--	--
		45	--	<b>510</b>	<b>0.94</b>	<b>0.47</b>	<b>2.2</b>	<b>8.6</b>	--	--	--	--
		55	--	<1.0	<b>0.023</b>	<b>0.0083</b>	<b>0.0084</b>	<b>0.029</b>	--	--	--	--

**Table 2 - Summary of Soil Analytical and Grab Groundwater Sample Data**

Haber Oil Products, 1401 Grand Avenue, San Leandro, CA

Sample Location	Sample Date	Sample Depth (ft bgs)	TPHd (mg/Kg)	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	MTBE (mg/Kg)	EDB (mg/Kg)	1,2-DCA (mg/Kg)	Lead (mg/Kg)	
B-7	4/15/92	10	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		20	--	<1.0	<b>0.14</b>	<0.0025	<0.0025	<0.0025	--	--	--	--	
		30	--	<1.0	<b>0.091</b>	<b>0.0051</b>	<b>0.0078</b>	<0.0025	--	--	--	--	
		40	--	<b>4,000</b>	<b>11</b>	<b>3</b>	<b>25</b>	<b>140</b>	--	--	--	--	
		50	--	<1.0	<b>0.016</b>	<0.0025	<0.0025	<0.0025	--	--	--	--	
<i>Aegis Environmental, Inc. - Monitoring Wells<sup>3</sup></i>													
MW-1	9/15/92	4	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		9	--	<1.0	<0.0025	<b>0.0029</b>	<0.0025	<b>0.0068</b>	--	--	--	--	
		14.5	--	<1.0	<0.0025	<0.0025	<0.0025	<b>0.0028</b>	--	--	--	--	
		19	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		24.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		29.5	--	<1.0	<0.0025	<0.0025	<0.0025	<b>0.003</b>	--	--	--	--	
		33.5	--	<1.0	<0.0025	<0.0025	<0.0025	<b>0.0025</b>	--	--	--	--	
		39	--	<1.0	<b>0.0083</b>	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		44	--	<1.0	<b>0.026</b>	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		49.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		53	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
MW-2	9/15/92	19.5	--	<1.0	<b>0.0062</b>	<0.0025	<0.0025	<0.0025	--	--	--	--	
		29.5	--	<b>11</b>	<b>0.160</b>	<b>0.550</b>	<b>0.180</b>	<b>1.7</b>	--	--	--	4.3 <sup>9</sup>	
		39	--	<1.0	<b>0.078</b>	<b>0.058</b>	<b>0.0054</b>	<b>0.021</b>	--	--	--	--	
		49.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
MW-3	9/18/92	19.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		29	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		40	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--	
		44.5	--	<1.0	<b>0.012</b>	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		50	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--

**Table 2 - Summary of Soil Analytical and Grab Groundwater Sample Data**

Haber Oil Products, 1401 Grand Avenue, San Leandro, CA

Sample Location	Sample Date	Sample Depth (ft bgs)	TPHd (mg/Kg)	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	MTBE (mg/Kg)	EDB (mg/Kg)	1,2-DCA (mg/Kg)	Lead (mg/Kg)
MW-4	9/18/92	9.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		14.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		19.5	--	<1.0	<0.0025	<b>0.0028</b>	<0.0025	<b>0.0035</b>	--	--	--	--
		29.5	--	<b>1.9</b>	<b>0.27</b>	<b>0.210</b>	<b>0.044</b>	<b>0.370</b>	--	--	--	4.4 <sup>10</sup>
		38.5	--	<1.0	<b>0.027</b>	<0.0025	<0.0025	<b>0.0078</b>	--	--	--	--
		44	--	<1.0	<0.0025	<0.0025	<0.0025	<b>0.0025</b>	--	--	--	--
MW-5	9/17/92	4.5	--	<1.0	<0.0025	<0.0025	<0.0025	<b>0.0028</b>	--	--	--	--
		18.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		29.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		44.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
		48.5	--	<1.0	<0.0025	<0.0025	<0.0025	<0.0025	--	--	--	--
<i>P&amp;D Environmental - Monitoring Wells <sup>4</sup></i>												
MW-6	6/15/95	10	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		20	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		30	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		40	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
MW-7	6/16/95	10	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		20	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		30	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		40	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
MW-8	6/15/95	10	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		20	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		30	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--
		40	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.02	--	--	--

**Table 2 - Summary of Soil Analytical and Grab Groundwater Sample Data**

Haber Oil Products, 1401 Grand Avenue, San Leandro, CA

Sample Location	Sample Date	Sample Depth (ft bgs)	TPHd (mg/Kg)	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	MTBE (mg/Kg)	EDB (mg/Kg)	1,2-DCA (mg/Kg)	Lead (mg/Kg)
<i>Bernabe &amp; Brinker - UST Removal Sampling (initial compliance samples)<sup>5</sup></i>												
TP-1	5/6/97	13	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	7.3
TP-2	5/6/97	14.5	--	3400[a,b]	1.3	120	100	590	<3.3	--	--	7.2
TP-3	5/6/97	12.5	--	8.7[a]	0.024	0.014	0.074	0.17	1.4	--	--	11
TP-4	5/6/97	16	--	4.5[a]	0.076	0.009	0.019	0.055	5.5	--	--	6.8
TP-5	5/6/97	14	--	790	2.2	3.9	20	130	41	--	--	97
TP-6	5/6/97	7	300 <sup>7</sup>	170	0.9	8.4	3.5	20	<0.2	--	<0.05	3.6 <sup>8</sup>
DP-1	5/6/97	2	--	24	0.076	0.99	0.11	4.3	7.4	--	--	5.9
DP-2	5/6/97	2	--	17	0.012	0.28	0.38	3.1	1.6	--	--	6.8
DP-3	5/6/97	2.5	--	<1.0	<0.005	0.008	<0.005	0.026	0.12	--	--	3.2
DP-4	5/6/97	3	--	2200[a]	2.8	37	48	260	8.5	--	--	16
<i>Bernabe &amp; Brinker - UST Removal Sampling (excavation confirmation samples)<sup>5</sup></i>												
TP-7	5/10/97	15	--	<1.0	<0.005	0.010	0.005	0.019	<0.05	--	--	6.8
TP-8	5/10/97	17	--	<1.0	<0.005	0.016	0.006	0.035	<0.05	--	--	5.4
TP-9	5/10/97	17.5	--	4.2	0.017	0.029	0.028	0.17	6.0	--	--	6.2
TP-10	5/10/97	16.5	--	4,200	6.3	130	78	600	87	--	--	9.2
TP-11	5/10/97	13.5	--	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05	--	--	--
TP-12	5/10/97	12	--	4.4	<0.005	0.049	0.037	0.28	<0.05	--	--	6.6
TP-13	5/10/97	12	--	1,000	1.9	37	22	130	10	--	--	6.5
TP-14	5/10/97	12	--	3,200	<0.044	0.35	1.0	2.7	<0.75	--	--	10
TP-15	5/10/97	13	--	1.7	<0.005	0.012	0.005	0.020	0.23	--	--	6.8
TP-16	5/10/97	13.5	--	<1.0	<0.005	0.008	<0.005	0.012	3.1	--	--	6.7
TP-17	5/10/97	12	--	<1.0	<0.005	0.037	0.006	0.038	<0.05	--	--	5.7
DP-5	5/10/97	5.5	--	4.8	0.012	0.13	0.064	0.49	0.30	--	--	3.1
DP-6	5/10/97	5.5	--	73	<0.02	0.14	0.11	3.2	8.0	--	--	11

**Table 2 - Summary of Soil Analytical and Grab Groundwater Sample Data**

Haber Oil Products, 1401 Grand Avenue, San Leandro, CA

Sample Location	Sample Date	Sample Depth (ft bgs)	TPHd (mg/Kg)	TPHg (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	MTBE (mg/Kg)	EDB (mg/Kg)	1,2-DCA (mg/Kg)	Lead (mg/Kg)
-----------------	-------------	-----------------------	--------------	--------------	-----------------	-----------------	----------------------	-----------------	--------------	-------------	-----------------	--------------

**Grab Groundwater Sample**

*P&D Environmental - Soil Boring*<sup>6</sup>

**B-10**      12/4/98      No soil samples from this boring were submitted for chemical analysis.  
 Grab groundwater sample analyzed for TPHg (<50 micrograms/liter [µg/L]), benzene (0.54 µg/L), toluene (0.73 µg/L), ethylbenzene (<0.005 µg/L), xylenes (0.52 µg/L) and MTBE (<0.05 µg/L).

Explanation:

TPHd = Total Petroleum Hydrocarbons as diesel	ft bgs = feet below ground surface
TPHg = Total Petroleum Hydrocarbons as gasoline	mg/Kg = milligrams/kilograms
MTBE = methyl tert-butyl ether	-- = not analyzed/not applicable
EDB = ethylene dibromide (1,2-dibromoethane)	Refer to original report for analytical methods.
1,2-DCA = 1,2-dichloroethane	

Notes:

*a = heavier gasoline range compounds are significant (aged gasoline?)*

*b = no recognizable pattern*

<sup>1</sup> *Soil Boring Results Report (Draft)*, Aegis Environmental, Inc., dated June 10, 1991.

<sup>2</sup> *Initial Subsurface Investigation Results Report*, Aegis Environmental, Inc., dated June 23, 1992.

<sup>3</sup> *Problem Assessment Report*, Aegis Environmental, Inc., dated December 16, 1992.

<sup>4</sup> *Monitoring Well Installation Report*, P&D Environmental, dated August 23, 1995.

<sup>5</sup> *Tank Closure Report*, Bernabe & Brinker, Inc., dated July 7, 1997.

<sup>6</sup> *Subsurface Investigation Report*, P&D Environmental, dated December 31, 1998.

<sup>7</sup> Also analyzed for Total Recoverable Petroleum Hydrocarbons (2,600 mg/kg), volatile organics (tetrachloroethene [0.029 mg/kg], 1,1,1 trichloroethane [0.026 mg/kg], all other compounds ND), and semivolatile organics (naphthalene [0.60 mg/kg], 2 methyl naphthalene [0.65 mg/kg], all other compounds ND).

<sup>8</sup> Also analyzed for cadmium (<0.5 mg/kg), chromium (71 mg/kg), nickel (44 mg/kg) and zinc (39 mg/kg).

<sup>9</sup> Also analyzed for antimony (<10 mg/kg), arsenic (3.8 mg/kg), beryllium (<2.0 mg/kg), cadmium (<2.0 mg/kg), chromium (45 mg/kg), copper (38 mg/kg), mercury (0.1 mg/kg), nickel (49 mg/kg), selenium (<0.5 mg/kg), silver (<2.0 mg/kg), thallium (<20 mg/kg) and zinc (39 mg/kg).

<sup>10</sup> Also analyzed for cadmium (2.9 mg/kg), chromium (24 mg/kg) and zinc (33 mg/kg).

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
MW-1	09/29/92	42.77	87.96	45.21	--	3,100	160	<5.0	<5.0	6.0	--	--	--	--	--	--	--
	02/18/94	41.02		46.96	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	41.36		46.62	--	3,000[b,c]	1,300	3.8	35	2.5	--	--	--	--	--	--	--
	10/12/94	42.01		45.97	--	2500[b,c]	820	3.9	100	20	--	--	--	--	--	--	--
	02/01/95	38.46		49.52	--	4600[b,c]	1,800	9.9	230	30	--	--	--	--	--	--	--
	05/04/95	37.65		50.33	--	2400[b,c]	670	2.8	76	6.0	--	--	--	--	--	--	--
	06/23/95	38.54	87.98	49.44	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	40.16		47.82	--	500	87	1.5	11	3.5	8.1	--	--	--	--	--	--
	03/28/96	37.10		50.88	--	1300[b,c]	320	2.3	34	4.6	22	--	--	--	--	--	--
	06/21/96	38.56		49.42	--	1,400	300	8.7	33	9.8	19	--	--	--	--	--	--
	03/11/97	36.90		51.08	--	600[b,c]	53	0.95	3.0	1.5	14	--	--	--	--	--	--
	07/14/97 <sup>1</sup>	39.45		--	--	200[c]	20	0.55	1.2	2.3	35	--	--	--	--	--	--
	01/25/98	33.70		--	--	300[b,c]	21	0.73	0.76	1.0	<14	--	--	--	--	--	--
	02/17/99	34.58		--	--	970	67	120	9.3	58	290	--	--	--	--	--	--
	01/20/03	38.21		--	--	170	<5.0	<5.0	<5.0	<5.0	85	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	04/17/03	38.91		--	--	52	1.1	<1.0	<1.0	<1.0	56	<1.0	<1.0	<1.0	<1.0	<1.0	13
	07/15/03	39.60		--	--	60	<1.0	<1.0	<1.0	<1.0	53	<1.0	<1.0	<1.0	<1.0	<1.0	12
	11/25/03	40.00		--	--	140	2.5	<0.5	<0.5	<0.5	32	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/20/04	38.45		--	--	220	8.5	<5.0	<5.0	9.8	180	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	06/03/04	39.59		--	--	59	<2.5	<2.5	<2.5	<2.5	130	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
	08/31/04	40.35		--	--	<50	<0.5	<0.5	<0.5	<0.5	31	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	38.02		--	--	130	<10	<10	<10	<10	790	<10	<10	<10	<10	<10	<100
	06/22/05	37.91		--	--	<50	<5.0	<5.0	<5.0	<5.0	320	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	08/31/05	39.27		--	--	<50	<2.5	<2.5	<2.5	<2.5	140	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
	11/14/05	39.77		--	--	<50	<0.5	<0.5	<0.5	<0.5	49	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/15/06	36.88		--	--	95[a]	<5.0	<5.0	<5.0	<5.0	180	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	06/15/06	36.37		--	--	<50	<5.0	<5.0	<5.0	<5.0	280	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	01/11/07	38.87		--	--	<50	<2.5	<2.5	<2.5	<2.5	92	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
	05/23/07	39.35		--	--	<50	<1.0	<1.0	<1.0	<1.0	72	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	04/11/11	36.18	90.70	54.52	--	<50	<0.50	<0.50	<0.50	<0.50	7.3	<1.0	<1.0	<1.0	<1.0	<2.0	<10
	10/13/11	39.47		51.23	<500	<50	<0.50	<0.50	<0.50	<0.50	2.4	<1.0	<1.0	<1.0	<1.0	<2.0	<10

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
MW-2	09/29/92	41.55	86.60	45.06	--	20,000	4,600	3,800	260	3,300	--	--	--	--	--	--	--
	02/18/94	39.81		46.80	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	40.13		46.48	--	46,000	9,100	7,000	1,400	7,300	--	--	--	--	--	--	--
	10/12/94	40.77		45.84	--	24,000	4,400	2,800	730	3,500	--	--	--	--	--	--	--
	02/01/95	37.27		49.34	--	45,000	7,000	5,100	1,200	6,100	--	--	--	--	--	--	--
	05/04/95	36.54	86.61	50.07	--	63,000	10,000	11,000	1,600	8,800	--	--	--	--	--	--	--
	06/23/95	37.40		49.21	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	38.80		47.81	--	25,000	5,200	3,800	860	3,800	450	--	--	--	--	--	--
	03/28/96	35.97		50.64	--	38,000	5,800	4,700	1,100	5,100	450	--	--	--	--	--	--
	06/21/96	37.90		49.31	--	49,000	6,600	6,300	1,400	6,200	530	--	--	--	--	--	--
	03/11/97	35.71		50.90	--	28,000	4,000	4,500	990	4,300	710	--	--	--	--	--	--
	07/14/97	38.46		48.15	--	43,000	6,200	8,900	1,500	7,400	1,600	--	--	--	--	--	--
	01/25/98	32.80		53.81	--	24,000	2,700	4,900	700	4,000	2,700	--	--	--	--	--	--
	02/17/99	33.51		53.10	--	7,300	67	120	9.3	58	560	--	--	--	--	--	--
	01/20/03	37.04		49.57	--	48,000	2,900	3,000	2,000	11,000	3,800	<50	<50	<50	<50	<50	<500
	04/17/03	37.50		49.11	--	57,000	3,400	5,100	2,800	10,000	5,600	<120	<120	<120	<120	<120	<1,200
	07/15/03	38.15		48.46	--	78,000	3,300	4,400	1,800	9,300	4,100	<120	<120	<120	<120	<120	<1,200
	11/25/03	38.68		47.93	--	65,000	6,800	8,800	2,900	16,000	2,700	<250	<250	<250	<250	<250	<2,500
	02/20/04	37.27		49.34	--	61,000	5,900	3,500	2,400	10,000	2,700	<100	<100	<100	<100	<100	<1,000
	06/03/04	38.32		48.29	--	50,000	5,400	4,200	2,200	8,800	3,900	<100	<100	<100	<100	<100	<1,000
	08/31/04	39.07		47.54	--	43,000	4,400	2,300	2,300	8,200	2,700	<50	<50	<50	<50	<50	<500
	02/10/05	37.15		49.46	--	46,000	5,800	3,600	1,800	7,900	5,600	<100	<100	<100	<100	<100	<1,000
	06/22/05	36.76		49.85	--	37,000	5,500	1,400	2,500	8,600	3,900	<100	<100	<100	<100	<100	<1,000
	08/31/05	38.00		48.61	--	43,000	5,800	2,300	2,300	8,300	3,600	<100	<100	<100	<100	<100	<1,000
	11/14/05	38.50		48.11	--	42,000	4,500	2,100	1,500	6,300	2,000	<50	<50	<50	<50	<50	<500
	02/15/06	35.78		50.83	--	38,000	3,700	2,700	2,000	6,600	2,000	<100	<100	<100	<100	<100	<1,000
	06/15/06	35.22		51.39	--	12,000	1,100	1,100	740	2,600	260	<50	<50	<50	<50	<50	<500
	01/11/07	37.51		49.10	--	18,000	1,300	790	790	3,000	400	<50	<50	<50	<50	<50	<500
	05/23/07	38.11		48.50	--	22,000	1,700	690	1,100	3,200	670	<50	<50	<50	<50	<50	<500
	04/11/11	34.97	89.29	54.32	--	25,000	1,600	1,900	1,600	6,100	210	<40[1]	<40[1]	<40[1]	<40[1]	<80[1]	<400[1]
	10/13/11	38.25		51.04	<500	5,700	450	190	350	980	64	<10[1]	<10[1]	<10[1]	<10[1]	<20[1]	<100[1]

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	Groundwater														
					ORO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)		
MW-3	09/29/92	44.60	87.50	42.88	--	Free product (0.02 feet thick)													
	02/18/94	43.09		44.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	07/05/94	43.32		44.16	--	3,600[b,c]	1,600	8.3	76	47	--	--	--	--	--	--	--	--	
	10/12/94	43.92		43.56	--	1,700[b,c]	390	0.90	18	5.7	--	--	--	--	--	--	--	--	
	02/01/95	40.13		47.35	--	11,000[b,c]	4,200	31	330	290	--	--	--	--	--	--	--	--	
	05/04/95	39.61		47.87	--	7,200[b,c]	3,100	38	200	62	--	--	--	--	--	--	--	--	
	06/23/95	40.65	87.48	46.83	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	12/19/95	42.20		45.28	--	950	160	2.3	15	1.6	120	--	--	--	--	--	--	--	
	03/28/96	38.75		48.73	--	4,600	1,400	12	170	20	1,100	--	--	--	--	--	--	--	
	06/21/96	40.61		46.87	--	1,300	94	2.1	39	2.0	300	--	--	--	--	--	--	--	
	03/11/97	38.71		48.77	--	1,100	53	13	63	17	680	--	--	--	--	--	--	--	
	07/14/97	40.61		46.87	--	400[a,b]	0.93	1.0	1.3	0.68	110	--	--	--	--	--	--	--	
	01/25/98	33.91		53.57	--	490	7.9	6.1	5.3	29	710	--	--	--	--	--	--	--	
	02/17/99	34.91		52.57	--	<50	<0.50	<0.50	<0.50	<0.50	21	--	--	--	--	--	--	--	
	01/20/03	39.81		47.67	--	120	<5.0	<5.0	<5.0	5.2	250	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50	
	04/17/03	40.60		46.88	--	180	<6.7	<6.7	<6.7	<6.7	340	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<67	
	07/15/03	41.34		46.14	--	160	<12	<12	<12	<12	660	<12	<12	<12	<12	<12	<12	<120	
	11/25/03	41.70		45.78	--	110	<5.0	<5.0	<5.0	<5.0	330	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50	
	02/20/04	40.23		47.25	--	90	<10	<10	<10	<10	730	<10	<10	<10	<10	<10	<10	<100	
	06/03/04	41.34		46.14	--	110[a]	<50	<50	<50	<50	1,400	<50	<50	<50	<50	<50	<50	<500	
	08/31/04	42.03		45.45	--	110[a]	<10	<10	<10	<10	860	<10	<10	<10	<10	<10	<10	<100	
	02/10/05	40.11		47.37	--	1,000	<50	<50	<50	270	2,700	<50	<50	<50	<50	<50	<50	830	
	06/22/05	39.78		47.70	--	3,900	<100	<100	<100	690	5,600	<100	<100	<100	<100	<100	<100	<1,000	
	08/31/05	41.12		46.36	--	490[a,b]	<50	<50	<50	<50	2,500	<50	<50	<50	<50	<50	<50	<500	
	11/14/05	41.51		45.97	--	210[a]	<25	<25	<25	<25	1,500	<25	<25	<25	<25	<25	<25	<250	
	02/15/06	38.56		48.92	--	560[a,b]	<50	<50	<50	<50	2,600	<50	<50	<50	<50	<50	<50	<500	
	06/15/06	38.12		49.36	--	2,700	<100	<100	120	610	4,300	<100	<100	<100	<100	<100	<100	<1,000	
	01/11/07	40.68		46.80	--	240[b]	<10	<10	<10	<10	860	<10	<10	<10	<10	<10	<10	<100	
	05/23/07	41.27		46.21	--	160[a,e]	<25	<25	<25	<25	1,000	<25	<25	<25	<25	<25	<25	<250	
	04/11/11	37.35	90.15	52.80	--	390	<0.50	<0.50	<0.50	<0.50	600	<1.0	<1.0	1.1	<1.0	<2.0	<2.0	120	
	10/13/11	41.28		48.87	<500	150	<0.50	<0.50	0.71	1.4	100	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	110	



**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to	Well	Groundwater		TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
		Water (feet)	Elevation (ft msl)	Elevation (ft msl)														
MW-4	09/29/92	44.29	86.20	41.92	--	630	170	60	7.3	65	--	--	--	--	--	--	--	--
	02/18/94	39.36		46.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	39.69		46.52	--	2,600[b,c]	470	45	84	250	--	--	--	--	--	--	--	--
	10/12/94	40.48		45.73	--	680	140	8.7	14	52	--	--	--	--	--	--	--	--
	02/01/95	36.96		49.25	--	1,400	390	55	49	180	--	--	--	--	--	--	--	--
	05/04/95	36.33		49.88	--	3,300	890	68	150	300	--	--	--	--	--	--	--	--
	06/23/95	37.40	86.21	48.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	38.45		47.76	--	2,000	700	29	89	150	210	--	--	--	--	--	--	--
	03/28/96	35.00		51.21	--	5,600	1,400	38	310	300	640	--	--	--	--	--	--	--
	06/21/96	37.12		49.04	--	11,000	2,400	83	530	910	1,200	--	--	--	--	--	--	--
	03/11/97	33.24		52.97	--	3,800	1,100	53	240	260	1,100	--	--	--	--	--	--	--
	07/14/97	38.10		48.11	--	980	210	1.7	90	46	400	--	--	--	--	--	--	--
	01/25/98	32.96		53.25	--	910	150	19	31	140	230	--	--	--	--	--	--	--
	02/17/99	33.43		52.78	--	230	65	2.2	9.6	33	200	--	--	--	--	--	--	--
	01/20/03	36.70		49.51	--	210	<50	<50	<50	<50	3,000	<50	<50	<50	<50	<50	<50	<500
	04/17/03	37.32		48.89	--	380	<120	<120	<120	<120	5,400	<120	<120	<120	<120	<120	<120	<1,200
	07/15/03	38.04		48.17	--	440	<120	<120	<120	<120	6,800	<120	<120	<120	<120	<120	<120	<1,200
	11/25/03	38.43		47.78	--	<1,000[d]	<250	<250	<250	<250	8,800	<250	<250	<250	<250	<250	<250	<2,500
	02/20/04	36.91		49.30	--	<250[d]	<100	<100	<100	<100	6,600	<100	<100	<100	<100	<100	<100	<1,000
	06/03/04	38.01		48.20	--	320	<100	<100	<100	<100	6,200	<100	<100	<100	<100	<100	<100	<1,000
	08/31/04	38.68		47.53	--	<250[d]	<50	<50	<50	<50	3,900	<50	<50	<50	<50	<50	<50	<500
	02/10/05	36.99		49.22	--	390	<100	<100	<100	<100	6,600	<100	<100	<100	<100	<100	<100	<1,000
	06/22/05	36.54		49.67	--	59	<25	<25	<25	<25	1,000	<25	<25	<25	<25	<25	<25	<250
	08/31/05	37.81		48.40	--	64	<25	<25	<25	<25	1,500	<25	<25	<25	<25	<25	<25	<250
	11/14/05	38.26		47.95	--	130	<50	<50	<50	<50	1,700	<50	<50	<50	<50	<50	<50	<500
	02/15/06	35.57		50.64	--	220	<17	<17	<17	<17	1,100	<17	<17	<17	<17	<17	<17	<170
	06/15/06	35.17		51.04	--	75	<25	<25	<25	<25	550	<25	<25	<25	<25	<25	<25	<250
01/11/07	37.38		48.83	--	69	<10	<10	<10	<10	780	<10	<10	<10	<10	<10	<10	<100	
05/23/07	38.05		48.16	--	<50	<5	<5	<5	<5	280	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50	
04/11/11	34.85	88.88	54.03	--	<50	<0.50	<0.50	0.68	0.96	16	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	76	
10/13/11	37.92		50.96	<500	<50	0.86	<0.50	<0.50	<0.50	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	69	

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)		Groundwater												
					TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
MW-5	09/29/92	44.53	89.06	44.57	--	60	10	7.1	<0.5	6.9	--	--	--	--	--	--	--
	02/18/94	42.88		46.22	--	--	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	43.08		46.02	--	<50[b]	<0.5	<0.5	<0.5	1.0	--	--	--	--	--	--	--
	10/12/94	43.81		45.29	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--
	02/01/95	39.94		49.16	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--
	05/04/95	38.94		50.16	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--
	06/23/95	39.87	89.10	49.23	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	41.79		47.31	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	03/28/96	38.30		50.80	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	06/21/96	40.03		49.07	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	03/11/97	38.02		51.08	--	<50	<0.5	<0.5	<0.5	0.77	<5.0	--	--	--	--	--	--
	07/14/97	41.20		47.90	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/25/98	34.08		55.02	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	02/17/99	35.08		54.02	--	170[a]	<0.5	0.74	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/20/03	39.50		49.60	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<10
	04/17/03	39.92		49.18	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	07/15/03	41.06		48.04	--	<50	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/25/03	41.41		47.69	--	<50	<0.5	<0.5	<0.5	<0.5	0.84	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/20/04	39.69		49.41	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	40.95		48.15	--	<50	<0.5	<0.5	<0.5	<0.5	7.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	41.75		47.35	--	<50	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	39.49		49.61	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/22/05	39.28		49.82	--	<50	<0.5	<0.5	<0.5	<0.5	2.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/05	40.68		48.42	--	<50	<0.5	<0.5	<0.5	<0.5	2.7	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/14/05	41.11		47.99	--	<50	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/15/06	38.08		51.02	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	37.46		51.64	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	01/11/07	40.55		48.55	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	05/23/07	40.86		48.24	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/11/11	37.25	91.79	54.54	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10
	10/13/11	40.98		50.81	<500	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
MW-6	06/23/95	38.17	84.02	45.85	--	<50	<0.5	<0.5	<0.5	<0.5	3.0	--	--	--	--	--	--
	12/19/95	39.25		44.77	--	<50	<0.5	<0.5	<0.5	<0.5	10	--	--	--	--	--	--
	03/28/96	36.18		47.84	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	06/21/96	38.00		46.02	--	<50	<0.5	<0.5	<0.5	<0.5	8.0	--	--	--	--	--	--
	03/11/97	36.32		47.70	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	07/14/97	39.04		44.98	--	<50	<0.5	<0.5	<0.5	<0.5	19	--	--	--	--	--	--
	01/25/98	31.64		52.38	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	02/17/99	32.82		51.20	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/20/03	37.21		46.81	--	<50	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/17/03	38.00		46.02	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	07/15/03	38.61		45.41	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/25/03	38.97		45.05	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/20/04	37.61		46.41	--	<50	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	38.64		45.38	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	39.27		44.75	--	<50	<0.5	<0.5	<0.5	<0.5	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	37.51		46.51	--	<50	<0.5	<0.5	<0.5	<0.5	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/22/05	37.30		46.72	--	<50	<0.5	<0.5	<0.5	<0.5	0.80	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/05	38.51		45.51	--	<50	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/14/05	38.83		45.19	--	<50	<0.5	<0.5	<0.5	<0.5	0.73	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/15/06	36.13		47.89	--	<50	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	35.86		48.16	--	<50	<1.0	<1.0	<1.0	<1.0	72	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	01/11/07	39.74		44.28	--	<50	<0.5	<0.5	<0.5	<0.5	7.7	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	05/24/07	38.80		45.22	--	<50	<0.5	<0.5	<0.5	<0.5	4.7	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/11/11	34.93	86.73	51.80	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10
	10/13/11	38.58		48.15	<500	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
MW-7	06/23/95	41.00	87.11	46.11	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	12/19/95	42.26		44.85	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	03/28/96	38.94		48.17	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	06/21/96	40.80		46.31	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	03/11/97	38.96		48.15	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	07/14/97	41.97		45.14	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/25/98	33.47		53.64	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	02/17/99	34.59		52.52	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/20/03	39.77		47.34	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/17/03	40.63		46.48	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	07/15/03	41.30		45.81	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/25/03	41.68		45.43	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/20/04	40.21		46.90	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	41.33		45.78	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	41.94		45.17	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	40.03		47.08	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/22/05	39.85		47.26	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/05	41.16		45.95	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/14/05	41.48		45.93	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/15/06	38.59		48.52	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	38.59		48.52	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	01/11/07	40.73		46.38	--	<50	<0.5	9.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	05/24/07	41.18		45.93	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/11/11	37.08	89.69	52.61	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10
	10/13/11	41.18		48.51	<500	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
MW-8	06/23/95	38.36	89.70	51.34	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	12/19/95	40.35		49.35	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	03/28/96	36.98		52.72	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	06/21/96	38.69		51.01	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	03/11/97	36.74		52.96	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	07/14/97	39.98		49.72	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/25/98	32.73		56.97	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	02/17/99	33.92		55.78	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--
	01/20/03	38.94		50.76	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/17/03	39.52		50.18	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	07/15/03	40.50		49.20	--	<50	<0.5	<0.5	<0.5	0.66	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/25/03	40.92		48.78	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/20/04	39.15		50.55	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	40.36		49.34	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	41.19		48.51	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	38.93		50.77	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/22/05	38.43		51.27	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/05	39.95		49.75	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	11/14/05	40.40		49.30	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/15/06	37.44		52.26	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	36.53		53.17	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	01/11/07	38.00		51.70	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	05/23/07	40.23		49.47	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	04/11/11	36.35	92.41	56.06	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10
	10/13/11	40.15		52.26	<500	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<2.0	<10

**TABLE 3**  
**GROUNDWATER ELEVATION AND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	Depth to Water (feet)	Well Elevation (ft msl)	Groundwater Elevation (ft msl)	TPHmo (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl- benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	TBA (µg/L)
<i>Note:</i>																	
GRO = Gasoline Range Organics C4-C13.				msl = Mean sea level				-- = Not aampled/not available									
MTBE = Methyl tert-butyl ether.				µg/L = micrograms per liter													
<sup>1</sup> = Top of casing modified and not re-surveyed. a = No recognizable pattern. b = Heavier gasoline range compounds are significant (aged gasoline?) c = Lighter gasoline range compounds (the most notable fraction) are significant. d = Laboratory report note: reporting limit raised due to high MTBE content. e = Laboratory report note: Lighter than water immiscible sheen/product present. [1] = Reporting limits were increased due to high concentration of target analytes.  Data prior to April 11, 2011, taken from reoprts prepared by P&D Environmental.																	

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-1	09/29/92	--	--	--	--	--	--	--	--	--	--	--
	02/18/94	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	--	--	--	--	--	--	--	--	--	--	--
	10/12/94	--	--	--	--	--	--	--	--	--	--	--
	02/01/95	--	--	--	--	--	--	--	--	--	--	--
	05/04/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--
	04/17/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
	07/15/03	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--
	11/25/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
	02/20/04	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50
	06/03/04	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<25
	08/31/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100
	06/22/05	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50
	08/31/05	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<25
	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/15/06	16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50
	06/15/06	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50
	01/11/07	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<25
	05/23/07	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-2	09/29/92	--	--	--	--	--	--	--	--	--	--	--
	02/18/94	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	--	--	--	--	--	--	--	--	--	--	--
	10/12/94	--	--	--	--	--	--	--	--	--	--	--
	02/01/95	--	--	--	--	--	--	--	--	--	--	--
	05/04/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<50	350	160	1,400	320	<50	69	<50	<50	<50	--
	04/17/03	<120	430	260	2,200	550	<120	<120	<120	<120	<120	--
	07/15/03	<120	290	150	1,300	320	<120	<120	<120	<120	<120	--
	11/25/03	<250	540	<250	1,800	420	<250	<250	<250	<250	<250	--
	02/20/04	<100	230	150	1,300	330	150	<100	<100	<100	<100	<1,000
	06/03/04	<100	360	140	1,300	300	<100	<100	<100	<100	<100	<1,000
	08/31/04	<50	570	200	1,900	400	<50	61	<50	<50	<50	<500
	02/10/05	<100	300	130	1,300	290	<100	<100	<100	<100	<100	<1,000
	06/22/05	<100	330	220	1,500	320	<100	<100	<100	<100	<100	<1,000
	08/31/05	<100	650	260	1,900	430	<100	<100	<100	<100	<100	<1,000
	11/14/05	<50	290	130	1,100	220	<50	51	<50	<50	<50	<500
	02/15/06	240	240	<100	1,800	360	<100	<100	<100	<100	<100	<1,000
	06/15/06	<50	100	64	560	120	<50	<50	<50	<50	<50	<500
	01/11/07	<50	77	56	440	91	<50	<50	<50	<50	<50	<500
	05/23/07	<50	210	130	760	170	<50	<50	<50	<50	<50	<500
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<10	60	47	170	56	<10	19	<10	<60	<10	--



**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-3	09/29/92	--	--	--	--	--	--	--	--	--	--	--
	02/18/94	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	--	--	--	--	--	--	--	--	--	--	--
	10/12/94	--	--	--	--	--	--	--	--	--	--	--
	02/01/95	--	--	--	--	--	--	--	--	--	--	--
	05/04/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--
	04/17/03	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	<6.7	--
	07/15/03	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	--
	11/25/03	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--
	02/20/04	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100
	06/03/04	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<500
	08/31/04	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100
	02/10/05	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<500
	06/22/05	<100	<100	<100	360	<100	<100	<100	<100	<100	<100	<1,000
	08/31/05	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<500
	11/14/05	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<250
	02/15/06	100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<500
	06/15/06	<100	<100	<100	340	<100	<100	<100	<100	<100	<100	<1,000
	01/11/07	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100
	05/23/07	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<250
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-4	09/29/92	--	--	--	--	--	--	--	--	--	--	--
	02/18/94	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	--	--	--	--	--	--	--	--	--	--	--
	10/12/94	--	--	--	--	--	--	--	--	--	--	--
	02/01/95	--	--	--	--	--	--	--	--	--	--	--
	05/04/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	--
	04/17/03	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	--
	07/15/03	<120	<120	<120	<120	<120	<120	<120	<120	<120	<120	--
	11/25/03	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	--
	02/20/04	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1,000
	06/03/04	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1,000
	08/31/04	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<500
	02/10/05	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<1,000
	06/22/05	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<250
	08/31/05	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<250
	11/14/05	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<500
	02/15/06	24	<17	<17	<17	<17	<17	<17	<17	<17	<17	<170
	06/15/06	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<250
	01/11/07	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100
	05/23/07	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<50
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-5	09/29/92	--	--	--	--	--	--	--	--	--	--	--
	02/18/94	--	--	--	--	--	--	--	--	--	--	--
	07/05/94	--	--	--	--	--	--	--	--	--	--	--
	10/12/94	--	--	--	--	--	--	--	--	--	--	--
	02/01/95	--	--	--	--	--	--	--	--	--	--	--
	05/04/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
	04/17/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
	07/15/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
	11/25/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
	02/20/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/22/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.52	<0.5	<0.5	<5.0
	08/31/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<5.0
	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<5.0
	02/15/06	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	01/11/07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	05/23/07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.55	<0.5	<0.5	<5.0
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-6	06/21/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	--
	04/17/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	--
	07/15/03	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.84	0.66	<0.5	--
	11/25/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.89	<0.5	<0.5	--
	02/20/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	0.51	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.84	<0.5	<0.5	<5.0
	02/09/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.59	<0.5	<0.5	<5.0
	06/22/05	0.53	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/05	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.62	<0.5	<0.5	<5.0
	11/14/05	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.67	<0.5	<0.5	<5.0
	02/15/06	0.75	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10
	01/11/07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.58	<0.5	<0.5	<5.0
	05/24/07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.67	<0.5	<0.5	<5.0
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-7	06/21/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.56	<0.5	<0.5	--
	04/17/03	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.75	<0.5	<0.5	--
	07/15/03	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.61	0.64	<0.5	--
	11/25/03	0.78	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.76	<0.5	<0.5	--
	02/20/04	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/03/04	0.98	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/04	0.73	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	02/09/05	2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.64	<0.5	<0.5	<5.0
	06/22/05	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	08/31/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<5.0
	11/14/05	0.68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.82	<0.5	<0.5	<5.0
	02/15/06	4.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	06/14/06	2.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	01/11/07	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.86	<0.5	1.6	37
	05/24/07	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.79	<0.5	<0.5	<5.0
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
MW-8	06/21/95	--	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	--	--	--	--
	12/19/95	--	--	--	--	--	--	--	--	--	--	--
	03/28/96	--	--	--	--	--	--	--	--	--	--	--
	06/21/96	--	--	--	--	--	--	--	--	--	--	--
	03/11/97	--	--	--	--	--	--	--	--	--	--	--
	07/14/97	--	--	--	--	--	--	--	--	--	--	--
	01/25/98	--	--	--	--	--	--	--	--	--	--	--
	02/17/99	--	--	--	--	--	--	--	--	--	--	--
	01/20/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	--
	04/17/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	--
	07/15/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	0.52	<0.5	--
	11/25/03	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	--
	02/20/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.78	<0.5	<0.5	<5.0
	06/03/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5	<5.0
	08/31/04	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<5.0
	02/09/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<5.0
	06/22/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.93	<0.5	<0.5	<5.0
	08/31/05	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.67	<0.5	<0.5	<5.0
	11/14/05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.94	<0.5	<0.5	<5.0
	02/15/06	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.98	<0.5	<0.5	<5.0
	06/14/06	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.62	<0.5	<0.5	<5.0
	01/11/07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.68	<0.5	<0.5	<5.0
	05/23/07	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.80	<0.5	<0.5	<5.0
	04/11/11	--	--	--	--	--	--	--	--	--	--	--
	10/13/11	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<3.0	<1.0	--

**TABLE 4**  
**VOLATILE ORGANIC COMPOUND ANALYTICAL SUMMARY**  
**Haber Oil Product**  
**1401 Grand Avenue, San Leandro, California**

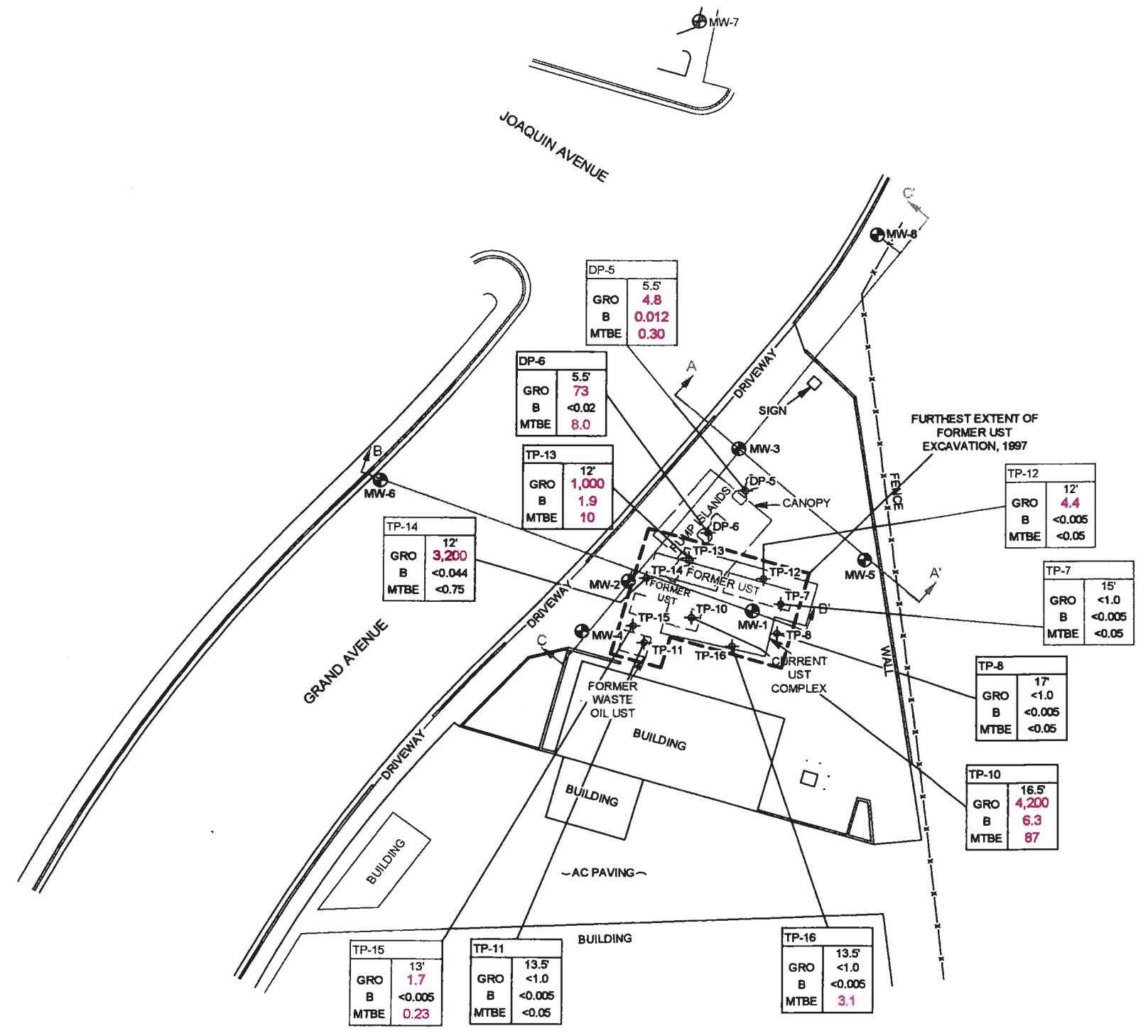
Well Number	Date Collected	PCE (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	1,3,5-Trimethyl benzene (µg/L)	Tert-butyl benzene (µg/L)	Isopropyl benzene (µg/L)	Chloroform (µg/L)	DBCP (µg/L)	Styrene (µg/L)	Propenal (µg/L)
<p>Note:  µg/L = micrograms per liter                      DBCP = 1,2-dibromo-3-chloropropane  PCE = Tetrachloroethene                      -- = Samples not analyzed for this compound.</p> <p>All samples analyzed by USEPA Method 8260B against a target list of 76 volatile organic compounds. Compounds from the target list not listed above were below reporting limits for all samples analyzed.  Refer to original laboratory report. Data prior to April 11, 2011, taken from reports prepared by P&amp;D Environmental, Inc.</p>												



- LEGEND**
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - TP-8 SOIL SAMPLE LOCATION
  - CROSS SECTION TRACE

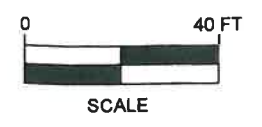
TP-8		SAMPLE ID
	17'	SAMPLING DEPTH IN FEET BGS
GRO	<1.0	GASOLINE RANGE ORGANICS IN mg/Kg
B	<0.005	BENZENE IN mg/Kg
MTBE	<0.05	METHYL TERTIARY BUTYL ETHER IN mg/Kg

SAMPLES COLLECTED ON 5/10/97



- NOTES:**
1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE
  2. BASE MAP PROVIDED BY MURROW SURVEYING

**STRATUS**  
ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA  
UST SOIL SAMPLING ANALYTICAL DATA

FIGURE  
**7**  
PROJECT NO.  
2120-1401-01

Haber Oil Soil Sampling November 15, 2011 REV JMP



Haber Oil SCM  
REV. November 15, 2011  
JMP



MW-7		6/16/95			
GRO		10'	20'	30'	40'
B		<1.0	<1.0	<1.0	<1.0
MTBE		<0.005	<0.005	<0.005	<0.005

MW-8		6/15/95			
GRO		10'	20'	30'	40'
B		<1.0	<1.0	<1.0	<1.0
MTBE		<0.005	<0.005	<0.005	<0.005

MW-3		9/18/92				
GRO		19.5'	29'	40'	44.5'	50'
B		<1.0	<1.0	<1.0	0.012	<1.0
MTBE		NA	NA	NA	NA	NA

B-2		4/24/91		
GRO		11'	25.5'	40.5'
B		<0.1	66	2.0
MTBE		NA	NA	NA

MW-6		6/15/95			
GRO		10'	20'	30'	40'
B		<1.0	<1.0	<1.0	<1.0
MTBE		<0.005	<0.005	<0.005	<0.005

MW-2		9/15/92			
GRO		19.5'	29.5'	39'	49.5'
B		0.0062	0.160	0.078	<0.0025
MTBE		NA	NA	NA	NA

B-1		4/24/91	
GRO		16'	35.5'
B		<0.1	0.2
MTBE		NA	NA

B-7*		4/15/92				
GRO		10'	20'	30'	40'	50'
B		<1.0	<1.0	<1.0	4,000	<1.0
MTBE		NA	NA	NA	NA	NA

B-6*		4/15/92					
GRO		5'	15'	25'	35'	45'	55'
B		<1.0	<1.0	1.4	1.7	510	<1.0
MTBE		<0.0025	<0.0025	0.081	0.16	0.94	0.023

MW-5		9/17/92				
GRO		4.5'	18.5'	29'	44.5'	48.5'
B		<1.0	<1.0	<1.0	<1.0	<1.0
MTBE		<0.0025	<0.0025	<0.0025	<0.0025	<0.0025

B-3		4/24/91	
GRO		16'	36'
B		<0.1	0.2
MTBE		NA	NA

MW-1		9/15/92										
GRO		4'	9'	14.5'	19'	24.5'	29.5'	33.5'	39'	44'	49.5'	53'
B		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.0083	0.026	<1.0
MTBE		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.0025

B-4		4/24/91	
GRO		21'	35.5'
B		<0.1	1.4
MTBE		<0.001	0.48

B-5*		4/14/92								
GRO		10'	20'	25'	30'	35'	40'	45'	50'	55'
B		<1.0	<1.0	2.6	3.5	1.0	<1.0	900	2.6	760
MTBE		<0.0025	<0.0025	0.17	0.19	0.17	0.076	2.4	0.24	5.7

MW-4		9/18/92					
GRO		9.5'	14.5'	19.5'	29.5'	38.5'	44'
B		<1.0	<1.0	<1.0	1.9	<1.0	<1.0
MTBE		<0.0025	<0.0025	<0.0025	0.27	0.027	<0.0025

**LEGEND**

- MW-1 GROUNDWATER MONITORING WELL LOCATION
- B-1 SOIL BORING LOCATION
- B-5 ANGLED SOIL BORING LOCATION
- A — CROSS SECTION TRACE

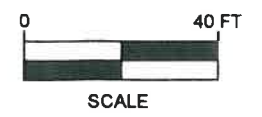
**B-1 4/24/91** WELL/BORING ID & DATE  
**16'** SAMPLING DEPTH IN FEET BGS  
**<0.1** GASOLINE RANGE ORGANICS IN mg/Kg  
**<0.001** BENZENE IN mg/Kg  
**NA** METHYL TERTIARY BUTYL ETHER IN mg/Kg

NA NOT ANALYZED/NOT AVAILABLE  
 NS NO SAMPLES COLLECTED

\* ANGLED BORINGS DRILLED BETWEEN 26° AND 28° FROM VERTICAL. INDICATED DEPTHS REFER TO DOWNHOLE DISTANCE, NOT VERTICAL DEPTH BELOW GROUND SURFACE.

**NOTES:**  
 1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE  
 2. BASE MAP PROVIDED BY MURROW SURVEYING

**STRATUS**  
 ENVIRONMENTAL, INC.



FORMER HABER OIL PRODUCT  
 1401 GRAND AVENUE  
 SAN LEANDRO, CALIFORNIA  
 SOIL ANALYTICAL SUMMARY MAP

FIGURE  
**8**  
 PROJECT NO.  
 2120-1401-01

## **APPENDIX B**

### **REMEDICATION PILOT TEST DATA SUMMARY**

TABLE 6

VAPOR EXTRACTION PILOT TEST DATA AND SUMMARY  
OCTOBER 7, 1992

1401 GRAND AVENUE, SAN LEANDRO, CALIFORNIA

TEST 1: WELL MW-2  
DURATION OF TEST: 2.5 HOURS

*MW-1?*

DATE	TIME	INFLUENT	WELL	WELL	CONCENTRATION (PPMV)			EXTRACTION RATES			VACUUM MEASUREMENTS (IN. H2O)				COMMENTS
		VACUUM	TEMP.	AIRFLOW	TPH	TPH	BENZENE	TPH	TPH	BENZENE	MW-2	MW-3	MW-4	MW-5	
		(IN. H2O)	(DEG. F)	(CFM)	FID	LAB	LAB	FID	LAB	LAB	DISTANCE FROM MW-1				
							(LB/HR)	(LB/HR)	(LB/HR)	38 ft	50 ft	50 ft	38 ft		
10/7/92	12:30 PM	-8	72	48	15250			9.7							
	1:00 PM							0							Start test.
	1:30 PM	-7	73	51.2	10000			6.8			-0.1	-0.05	-0.25	0	
	1:45 PM	-6.75	73	51.2	10000			6.8							
	2:00 PM	-7	73	51.2	10000			6.8			-0.09	-0.06	-0.23	0	
	2:15 PM	-6.75	73	50.7	10000			6.7							
	2:30 PM	-6.75	73	50.7	9250			6.2							
	2:45 PM	-6.75	73	50.7	9250			6.2			-0.1	-0.07	-0.25	0	
	3:00 PM	-6.75	73	50.7	9250	60000	2500	6.2	40.4	1.5	-0.11	-0.08	-0.25	0	Collected soil gas sample End of Test

TEST 2: WELL MW-1  
DURATION OF TEST: 2 HOURS

DATE	TIME	INFLUENT	WELL	WELL	CONCENTRATION (PPMV)			EXTRACTION RATES			VACUUM MEASUREMENTS (IN. H2O)				COMMENTS
		VACUUM	TEMP.	AIRFLOW	TPH	TPH	BENZENE	TPH	TPH	BENZENE	MW-2	MW-3	MW-4	MW-5	
		(IN. H2O)	(DEG. F)	(CFM)	FID	LAB	LAB	FID	LAB	LAB	DISTANCE FROM MW-1				
							(LB/HR)	(LB/HR)	(LB/HR)	38 ft	50 ft	50 ft	38 ft		
10/7/92	3:15 PM	-31.5	79	91.6	11500			13.8							
	3:30 PM	-31.5	81	90.5	10000			11.8							Start test.
	3:45 PM	-32	80	90.5	9500			11.3			-0.08	-0.08	-0.02	-0.14	
	4:00 PM	-31.5	80	91.6	9250			11.1							
	4:15 PM	-32	79	91.6	9000			10.8			-0.09	-0.08	-0.02	-0.17	
	4:30 PM	-32.25	73	83	8750			10.5							
	4:45 PM	-32.5	74	83	8750			10.5			-0.09	-0.07	-0.01	-0.17	
	5:00 PM	-32.5	77	87	8750			10.5							
	5:15 PM	-33	78	91.6	8750	85000	1800	10.5			-0.09	-0.07	-0.02	-0.2	
	5:30 PM							10.6	78.5	1.7	-0.09	-0.07	-0.01	-0.17	Collected soil gas sample End test.

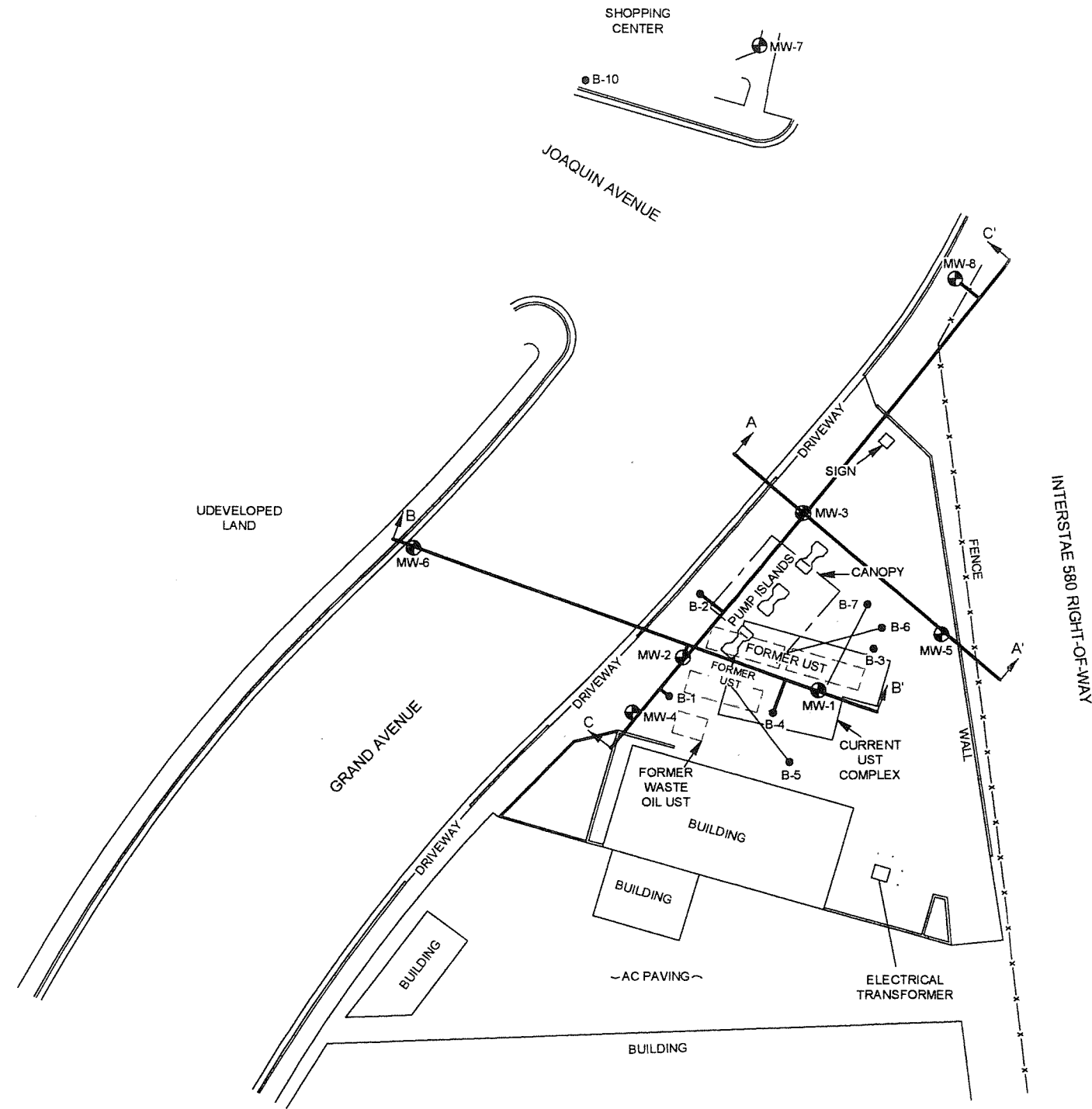
Notes:

- Airflow approximated from anemometer measurements.
- Extraction rate = Airflow X Concentration of constituent
- Molecular weight of gasoline assumed as 88 lb/lb mole.
- Molecular weight of benzene assumed as 78.12 lb/lb mole.
- CONSTRUCTION: 4 IN. DIA., TOTAL DEPTH - 63 FT. SCREENED INTERVAL: 38 FT (15 TO 53 FT BELOW GRADE)

**APPENDIX C**  
**GEOLOGIC CROSS SECTIONS**

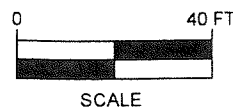


- LEGEND
- MW-1 GROUNDWATER MONITORING WELL LOCATION
  - B-1 SOIL BORING LOCATION
  - B-5 ANGLED SOIL BORING LOCATION
  - CROSS SECTION TRACE



- NOTES:
1. SOIL BORING AND FORMER UST LOCATIONS ARE APPROXIMATE
  2. BASE MAP PROVIDED BY MURROW SURVEYING

**STRATUS**  
ENVIRONMENTAL, INC.



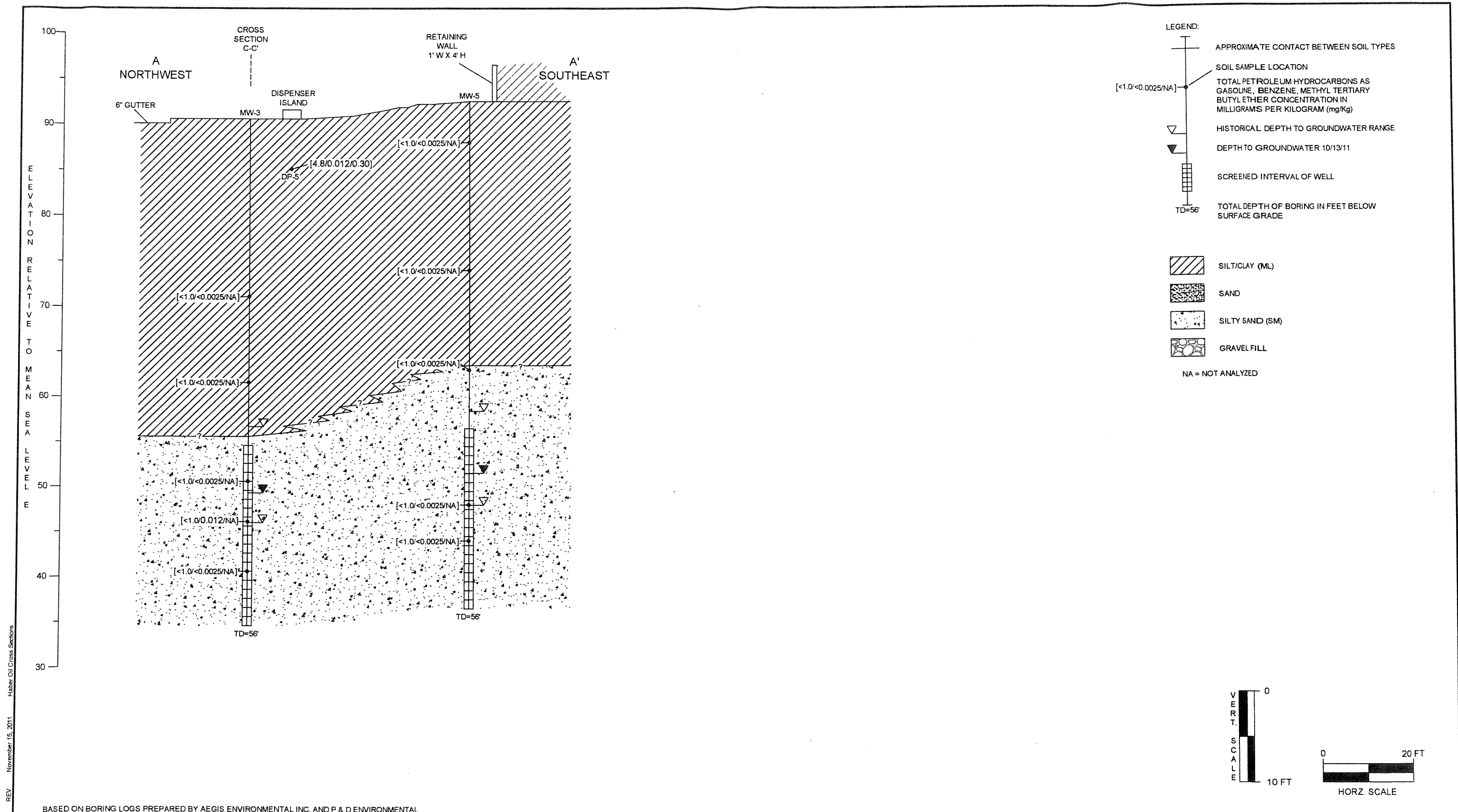
FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA

SITE PLAN

FIGURE

2

PROJECT NO.  
2120-1401-01



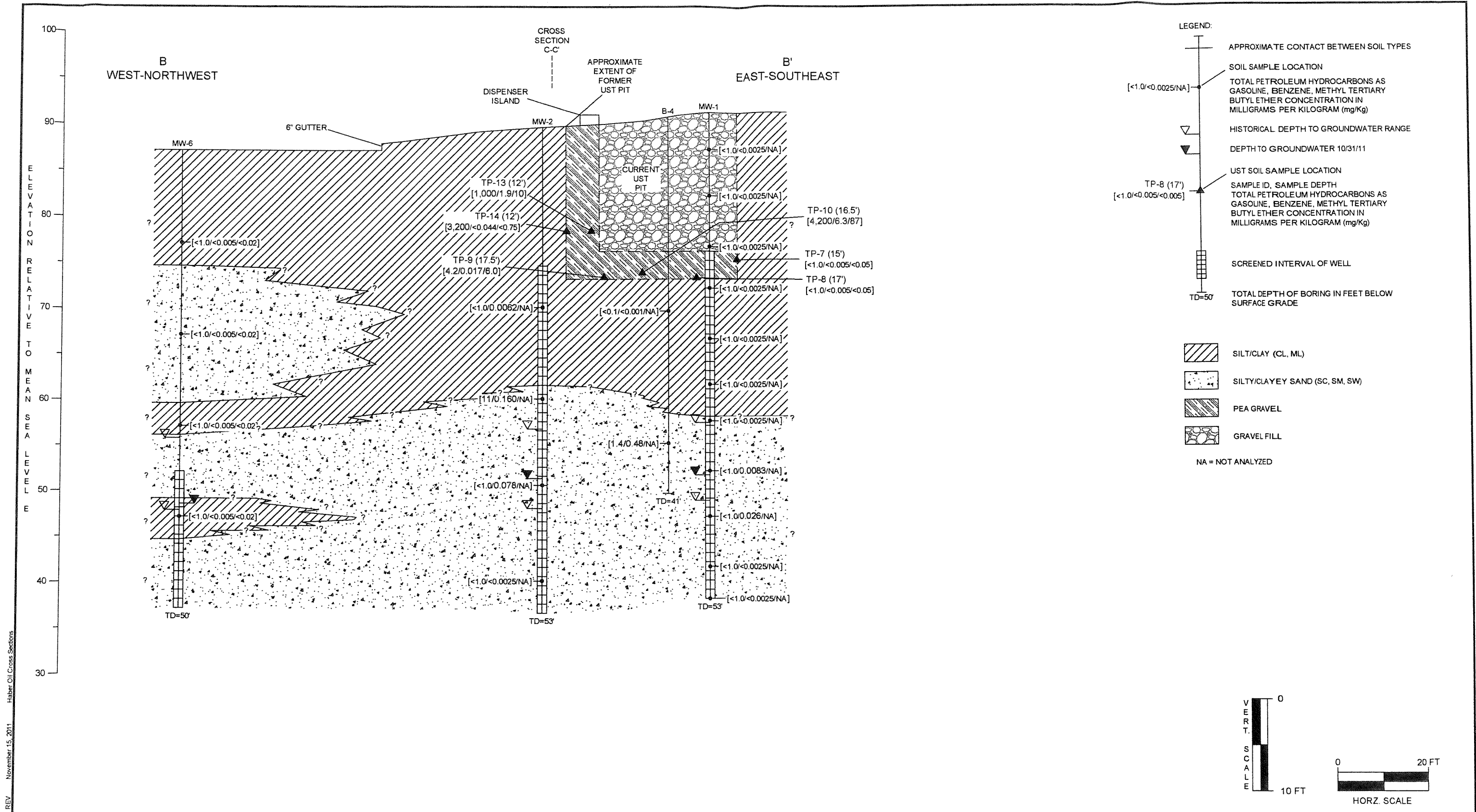
BASED ON BORING LOGS PREPARED BY AEGIS ENVIRONMENTAL INC. AND P & D ENVIRONMENTAL

Haber Oil Cross Sections  
 November 15, 2011  
 REV  
 JMP  
 Haber Oil/ISSCM



FORMER HABER OIL PRODUCT  
 1401 GRAND AVENUE  
 SAN LEANDRO, CALIFORNIA  
 GEOLOGIC CROSS SECTION A-A'

FIGURE  
**3**  
 PROJECT NO.  
 2120-1401-01



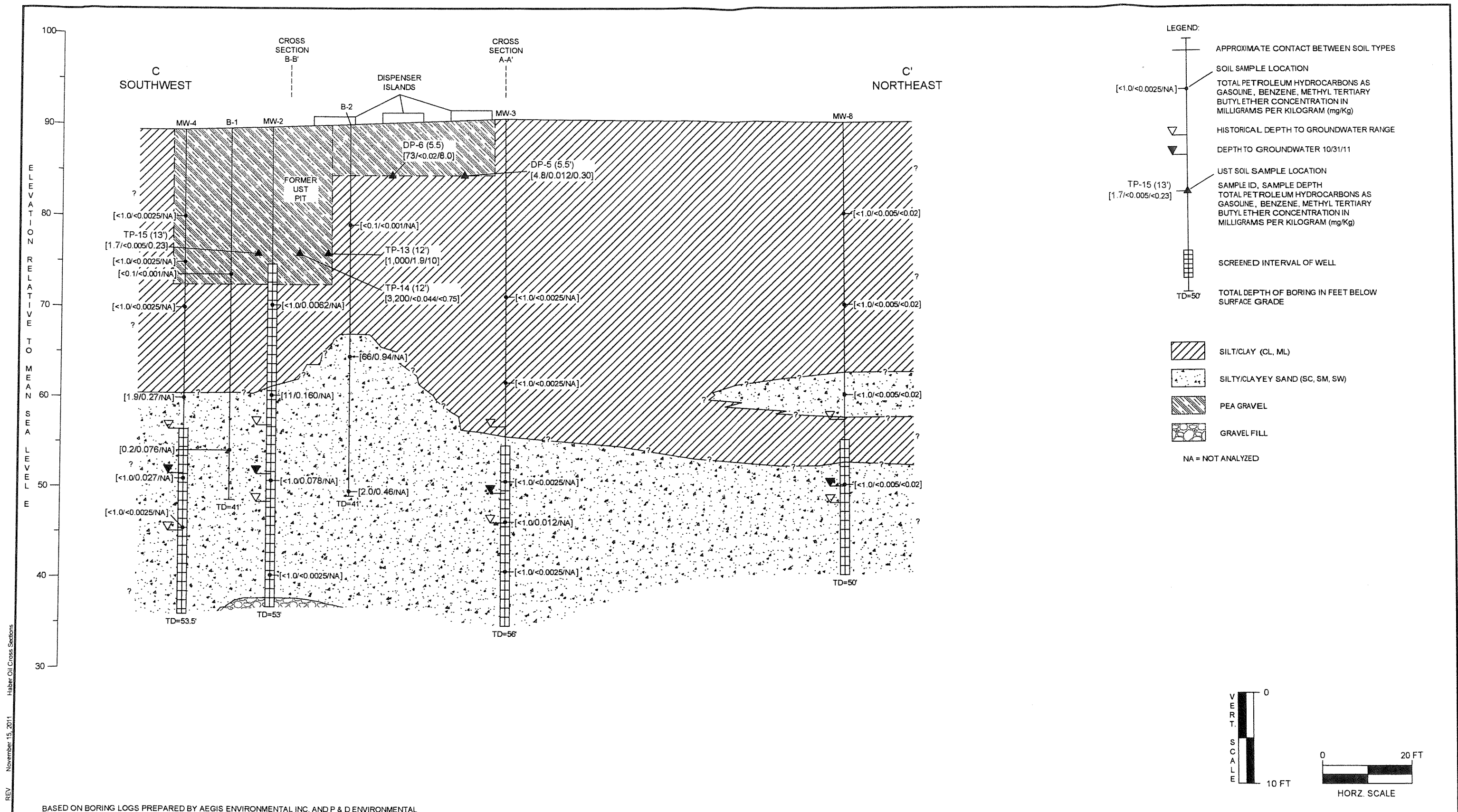
BASED ON BORING LOGS PREPARED BY AEGIS ENVIRONMENTAL INC. AND P & D ENVIRONMENTAL

JPM  
 Haber Oil/SCM  
 REV  
 November 15, 2011  
 Haber Oil Cross Sections

**STRATUS**  
ENVIRONMENTAL, INC.

FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA  
GEOLOGIC CROSS SECTION B-B'

FIGURE  
**4**  
PROJECT NO.  
2120-1401-01



BASED ON BORING LOGS PREPARED BY AEGIS ENVIRONMENTAL INC. AND P & D ENVIRONMENTAL

Haber Oil Cross Sections  
November 15, 2011  
REV  
JMP  
Haber Oil/SCM

**STRATUS**  
ENVIRONMENTAL, INC.

FORMER HABER OIL PRODUCT  
1401 GRAND AVENUE  
SAN LEANDRO, CALIFORNIA

GEOLOGIC CROSS SECTION C-C'

FIGURE

**5**

PROJECT NO.  
2120-1401-01



## **APPENDIX D**

### **FIELD PRACTICES AND PROCEDURES**

## **FIELD PRACTICES AND PROCEDURES**

---

General procedures used by Stratus in site assessments for drilling exploratory borings, collecting samples, and installing monitoring wells are described herein. These general procedures are used to provide consistent and reproducible results; however, some procedure may be modified based on site conditions. A California state-registered geologist supervises the following procedures.

### **PRE-FIELD WORK ACTIVITIES**

#### **Health and Safety Plan**

Field work performed by Stratus at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document which describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

#### **Locating Underground Utilities**

Prior to commencement of any work that is to be below surface grade, the location of the excavation, boring, etc., is marked with white paint as required by law. An underground locating service such as Underground Service Alert (USA) is contacted. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Any invasive work is preceded by hand augering to a minimum depth of five feet below surface grade to avoid contact with underground utilities.

### **FIELD METHODS AND PROCEDURES**

#### **Exploratory Soil Borings**

Soil borings will be drilled using a truck-mounted, hollow stem auger drill rig. Soil samples for logging will be obtained from auger-return materials and by advancing a modified California split-spoon sampler equipped with brass or stainless steel liners into undisturbed soil beyond the tip of the auger. Soils will be logged by a geologist according to the Unified Soil Classification System and standard geological techniques. Drill cuttings will be screened using a portable photoionization detector (PID) or a flame ionization detector (FID). Exploratory soil borings not used for monitoring well installation will be backfilled to the surface with a bentonite-cement slurry pumped into the boring through a tremie pipe.

Soil sampling equipment will be cleaned with a detergent water solution, rinsed with clean water, and equipped with clean liners between sampling intervals. Augers and

samplers will be steam cleaned between each boring to reduce the possibility of cross contamination. Steam cleaning effluent will be contained in 55-gallon drums and temporarily stored on site. The disposal of the effluent will be the responsibility of the client.

Drill cuttings generated during the drilling procedure will be stockpiled on site. Stockpiled drill cuttings will be placed on and covered with plastic sheeting. The stockpiled soil is typically characterized by collecting and analyzing composite samples from the stockpile. Stratus Environmental will recommend an appropriate method for disposition of the cuttings based on the analytical results. The client will be responsible for disposal of the drill cuttings.

### **Soil Sample Collection**

During drilling, soil samples will be collected in cleaned brass, two by six inch tubes. The tubes will be set in an 18-inch-long split-barrel sampler. The sampler will be conveyed to bottom of the borehole attached to a wire-line hammer device on the drill rig. When possible, the split-barrel sampler will be driven its entire length, either hydraulically or by repeated pounding a 140-pound hammer using a 30-inch drop. The number of drops (blows) used to drive the sampler will be recorded on the boring log. The sampler will be extracted from the borehole, and the tubes containing the soil samples will be removed. Upon removal, the ends of the lowermost tube will be sealed with Teflon sheets and plastic caps. Soil samples for chemical analysis will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

### **Soil Classification**

As the samples are obtained in the field, they will be classified by the field geologist in accordance with the Unified Soil Classification System. Representative portions of the samples will be retained for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata and pertinent information regarding the method of maintaining and advancing the borehole will be prepared.

### **Soil Sample Screening**

Soil samples selected for chemical analysis will be determined from a head-space analysis using a PID or an FID. The soil will be placed in a Ziploc<sup>®</sup> bag, sealed, and allowed to reach ambient temperature, at which time the PID probe will be inserted into the Ziploc<sup>®</sup> bag. The total volatile hydrocarbons present are detected by the PID and reported in parts per million by volume (ppmv). The PID will be calibrated to an isobutylene standard.

Generally two soil samples from each soil boring will be submitted for chemical analysis unless otherwise specified in the scope of work. Soil samples selected for analysis typically represent the highest PID reading recorded for each soil boring and the sample just above first-encountered groundwater.

### **Stockpiled Drill Cuttings and Soil Sampling**

Soil generated during drilling operations will be stockpiled on-site. The stockpile will be set on and covered by plastic sheeting in a manner to prevent rain water from coming in contact with the soil. Prior to collecting soil samples, Stratus personnel will calculate the approximate volume of soil in the stockpile. The stockpile will then be divided into sections, if warranted, containing the predetermined volume sampling interval. Soil samples will be collected at 0.5 to 2 feet below the surface of the stockpile. Four soil samples will be collected from the stockpile and composited into one sample by the laboratory prior to analysis. The soil samples will be collected in cleaned brass, two by six inch tubes using a hand driven sampling device. To reduce the potential for cross-contamination between samples, the sampler will be cleaned between each sampling event. Upon recovery, the sample container will be sealed at each end with Teflon sheeting and plastic caps to minimize the potential of volatilization and cross-contamination prior to chemical analysis. The soil sample will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

### **Direct Push Technology, Soil Sampling**

GeoProbe™ is a drilling method of advancing small diameter borings without generating soil cuttings. The GeoProbe™ system consists of a 2-inch diameter, 5-foot long, stainless steel soil sampling tool that is hydraulically advanced into subsurface soils by a small, truck-mounted rig. The sampling tool is designed similar to a California-modified split-spoon sampler, and lined with a 5-foot long, clear acrylic sample tube that enables continuous core sampling.

To collect soil samples, the sampler is advanced to the desired sampling depth. The mouth of the sampling tool is plugged to prevent soil from entering the sampler. Upon reaching the desired sampling depth, the plug at the mouth of the sample tool is disengaged and retracted, the sampler is advanced, and the sampler is filled with soil. The sample tool is then retrieved from the boring, and the acrylic sample tube removed. The sample tool is then cleaned, a new acrylic tube is placed inside and the sampling equipment is advanced back down the borehole to the next sample interval.

The Stratus geologist describes the entire interval of soil visible in the acrylic tube. The bottom-most 6-inch long section is cut off and retained for possible chemical analysis. The ends of the chemical sample are lined with Teflon™ sheets, capped, labeled, and placed in an ice-chilled cooler for transport to California Department of Health Services-certified analytical laboratory under chain-of-custody.

## **Direct Push Technology, Water Sampling**

A well known example of direct push technology for water sampling is the Hydropunch<sup>®</sup>. For the purpose of this field method the term hydropunch will be used instead of direct push technology for water sampling.

The hydropunch is typically used with a drill rig. A boring is drilled with hollow stem-augers to just above the sampling zone. In some soil conditions the drill rig can push directly from the surface to the sampling interval. The hydropunch is conveyed to the bottom of the boring using drill rods. Once on bottom the hydropunch is driven a maximum of five feet. The tool is then opened by lifting up the drill rod no more than four feet. Once the tool is opened, water enters and a sample can be collected with a bailer or tubing utilizing a peristaltic pump. Soil particles larger than silt are prevented from entering the tool by a screen within the tool. The water sample is collected, labeled, and handled according to the Quality Assurance Plan.

## **Monitoring Well Installation**

Monitoring wells will be completed by installing 2 to 6 inch-diameter Schedule 40 polyvinyl chloride (PVC) casing. The borehole diameter for a monitoring well will be a minimum of four inches larger than the outside diameter of the casing. The 2-inch-diameter flush-threaded casing is generally used for wells dedicated for groundwater monitoring purposes.

A monitoring well is typically cased with threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, generally with 0.01 or 0.02 inch-wide by 1.5-inch-long slots, with 42 slots per foot. The screened sections of casing are factory machine slotted and will be installed approximately 5 feet above and 10 feet below first-encountered water level. The screened interval will allow for seasonal fluctuation in water level and for monitoring floating product. A threaded or slip PVC cap is secured to the bottom of the casing. The slip cap can be secured with stainless steel screws or friction; no solvents or cements are used. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to completion.

A filter pack of graded sand will be placed in the annular space between the PVC casing and the borehole wall. Sand will be added to the borehole through the hollow stem of the augers to provide a uniform filter pack around the casing and to stabilize the borehole. The sand pack will be placed to a maximum of 2 feet above the screens, followed by a minimum 1-foot seal consisting of bentonite pellets.

Cement grout containing 5 percent bentonite or concrete will be placed above the bentonite seal to the ground surface. A concrete traffic-rated vault box will be installed over the monitoring well(s). A watertight locking cap will be installed over the top of the

well casing. Reference elevations for each monitoring well will be surveyed when more than two wells will be located on site. Monitoring well elevations will be surveyed by a California licensed surveyor to the nearest 0.01-foot relative to mean sea level (MSL). Horizontal coordinates of the wells will be measured at the same time.

Exploratory boring logs and well construction details will be prepared for the final written report.