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Alameda County  
Environmental Health

October 14, 2011

Mr. Mark Detterman  
Hazardous Materials Specialist  
Alameda County Environmental Health Services  
Environmental Protection, Local Oversight Program  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Subject: Letter of Transmittal for Additional Site Characterization and Interim Remedial Action Workplan, Former McGrath Steel, 6655 Hollis Street, Emeryville, California 94608, ACEH Fuel Leak Case No. R00000063, GeoTracker Global ID No. T0600102099

Dear Mr. Detterman:

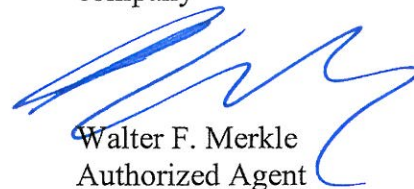
As required in your letters of November 19, 2010 and April 7, 2006 regarding the requested workplan for plume delineation and interim remediation at the above-referenced subject site, we submit this transmittal letter and accompanying *Additional Site Characterization and Interim Remedial Action Workplan*.

The current owner the subject property is MCG Investments LLC, a California limited liability company. The undersigned acts as legal counsel for such entity and is otherwise assisting resolving issues relating to the subject property given that the members of MCG Investments are for the most part elderly relatives of the undersigned.

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

Sincerely,

MCG Investments LLC,  
a California limited liability  
company



Walter F. Merkle  
Authorized Agent



**AllWest Environmental, Inc.**

Specialists in Physical Due  
Diligence and Remedial Services

530 Howard Street, Suite 300  
San Francisco, CA 94105  
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**ADDITIONAL SITE CHARACTERIZATION AND  
INTERIM REMEDIAL ACTION WORKPLAN**

*Former McGrath Steel  
6655 Hollis Street and 1471 67<sup>th</sup> Street  
Emeryville, California 94608*

*Alameda County Fuel Leak Case # RO0000063; and  
GeoTracker Facility Global ID # T0600102099*

PREPARED FOR:

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ALLWEST PROJECT 11124.23  
September 27, 2011

PREPARED BY:

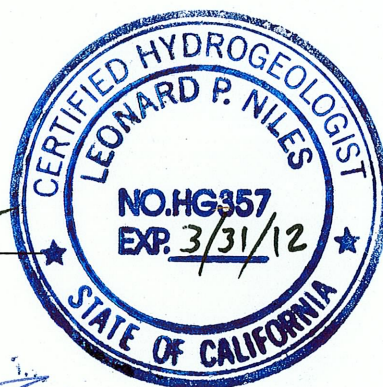
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President





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- Appendix B: Alameda County Environmental Health Department Letters dated November 19, 2010 (revised December 6, 2010) and April 7, 2007
- Appendix C: Standard Groundwater Monitoring Well Development and Sampling Procedures, and Standard Geoprobe<sup>®</sup> DPT Sampling Procedures



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**I. INTRODUCTION**

This workplan describes tasks to further characterize site conditions in the vicinity of former underground storage tanks (USTs) located at the subject site referenced above (Figure 1). This proposed work will be performed in response to a request by Alameda County Health Care Services Agency, Environmental Health Department (ACEH) in their letters of November 19, 2010 (revised December 6, 2010) and April 7, 2006 requesting additional characterization of the downgradient extent and distribution of dissolved phase petroleum hydrocarbons and residual free product, and implementation of interim remedial action, at the subject site. This work will be completed after approval and with oversight of ACEH.

The purpose of the proposed work is to further assess the lateral extent of chemicals of concern (COCs), including petroleum hydrocarbons and fuel oxygenates, in soil and groundwater downgradient of the subject site, to redevelop and sample the existing groundwater monitoring well at the subject site, and to implement an interim remedial action program for residual light non-aqueous phase liquid (LNAPL) petroleum hydrocarbons (also known as “free product”) at the subject site. The overall goal is to better define the extent of COCs in the subsurface and the impact of the chemicals on human health and the environment, and to reduce the mass of residual free product on the groundwater adjacent to the former USTs.

This work plan briefly summarizes the site setting and background including previous investigations conducted at the subject site and the adjacent Clearprint Paper Company leaking UST site at 1482 67<sup>th</sup> Street, Emeryville, California. Selected historical soil and groundwater analytical data summary tables and figures regarding previous subsurface

investigations at the subject site and the adjacent Clearprint Paper Company site are included in Appendix A from the Subsurface Environmental Corp. (SEC) document titled *Tank Removal Closure Report*, September 16, 1996, the Weiss Associates (WA) documents titled *Site Characterization Report*, dated March 2, 2006, and *Subsurface Investigation Report*, dated August 5, 1998, and the ACEH letter titled *Fuel Leak Site Case Closure, Clearprint Paper Co.*, dated June 27, 2005.

## **II. PROJECT BACKGROUND**

### **A. Site Location and Description**

The subject property is located at the southwest intersection of Hollis and 67<sup>th</sup> Streets in a commercial and industrial district of the City of Emeryville, Alameda County, California. A site vicinity map is attached as Figure 1.

The subject property consists of two parcels (Assessor's Parcel Numbers 049-1511-01 and 049-1511-014). Parcel 01, on the southwest corner of Hollis and 67<sup>th</sup> Streets at the 6655 Hollis Street address, is developed with an approximate 4,100 square foot two-story commercial office building constructed in 1947, and a smaller metal tool shed building. Parcel 14, to the west of Parcel 1 at the 1471 67<sup>th</sup> Street address, is developed with an approximate 15,246 square foot light industrial warehouse building constructed in circa 1946 [Stellar Environmental Solutions, Inc., (Stellar) *Phase I Environmental Site Assessment, 6655 Hollis Street, Emeryville, California*, June 2011 (Stellar, 2011)].

The subject property was last occupied by CMC Rebar. The property currently appears to be vacant, although some equipment and material is still stored in the warehouse and shop. Two underground storage tanks formerly present under the sidewalk in front of the warehouse at 1471 67<sup>th</sup> Street were removed in 1996. A site plan with former UST locations is attached as Figure 2.

### **B. Site Geology and Hydrogeology**

The subject site is located on a generally level parcel at an elevation of approximately 20 feet above mean seal level (msl) with slight slope to the west towards San Francisco Bay approximately ½ mile to the west. The subject site is located within Berkeley Sub-Area of the the East Bay Plain Groundwater Basin, an alluvial plain located along the east shore of San Francisco Bay. The subject site lies within the Emeryville Brownfields Groundwater Management Zone, and has been designated as Groundwater Management Zone B by the State of California Regional Groundwater Quality Control Board, San Francisco Bay Region (SFRWQCB), defined as a zone where groundwater is unlikely to be used as a drinking water resource [SFRWQCB, *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report*, June 1999 (SFRWQCB, 1999)].

The site is underlain by interbedded silty clay and silty sand to sandy silt to a depth of approximately 24 feet below ground surface (bgs). Depth to groundwater was encountered in previous subsurface investigations at the subject site vicinity at depths of approximately 6.5 to 12 feet bgs. Direction of groundwater flow in the site vicinity is to the west toward San Francisco Bay (Stellar, 2011).

Depth to groundwater first encountered in soil borings during subsurface investigations in 1998 and 2005 at the subject site vicinity ranged from approximately 9 to 22.5 feet bgs (WA, 1998 and 2006). Historical depth to groundwater in the Clearprint Paper Company groundwater monitoring well MW-3, located in 67<sup>th</sup> Street adjacent to the former subject property USTs at 1471 67<sup>th</sup> Street, has ranged from approximately 7 to 11 feet bgs (WA, 2006 and ACEH *Fuel Leak Site Case Closure, Clearprint Paper Co.*, June 27, 2005). During a site visit on September 14, 2011, AllWest measured depth to water in MW-3 at 11.05 feet below top-of-casing (TOC), with approximately 3 feet of floating free product on top.

### **C. Site History and Previous Investigations**

From the early 1900s until circa 1946, the subject property Parcel 01 was developed as a residence, and Parcel 14 was undeveloped. Between circa 1946 and 1950, the subject property was developed with the current office and light industrial warehouse buildings. The McGrath Steel Company operated a steel warehouse and/or the Pacific Rolling Door Company from circa 1950 until about 2007. The McGrath Steel business was sold and relocated in 2007. CMC Rebar subsequently leased the subject property, but although CMC Rebar still stores some equipment in the warehouse and shop, no fabrication is currently conducted. The current subject property owner is MCG Investments, Inc. (Stellar, 2011).

Two 2,000-gallon single-wall steel USTs were formerly located beneath the 67<sup>th</sup> street sidewalk in front of the warehouse building. The diesel and gasoline USTs were installed in 1979 and 1981, respectively. The USTs were removed in July 1996 by Subsurface Environmental Corp. (SEC). No holes were noted in the USTs, but obvious discoloration and petroleum hydrocarbon odor were noted in the surrounding soil. Elevated concentrations of petroleum hydrocarbons were detected in confirmatory soil samples following the UST removal. Additional soil was over-excavated to a depth of approximately 12 feet bgs, for a total of approximately 70 cubic yards of soil removed. Confirmatory soil samples collected following over-excavation contained a maximum of 15 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline (TPH-g) and 870 mg/kg total petroleum hydrocarbons as diesel (TPH-d) [SEC, *Tank Removal Closure Report*, September 16, 1996 (SEC, 1996)].



Weiss Associates (WA) conducted a subsurface investigation at the subject property in May 1998. Three soil borings (B-1, B-2 and B-5) were advanced to depths ranging from 16.5 to 24 feet bgs in the vicinity of the former USTs along the north and south sides of 67<sup>th</sup> Street. Additional borings B-6 and B-7 were attempted but encountered refusal in gravel base rock material at approximately 2 feet bgs and were not sampled. Proposed borings B-3 and B-4 were not attempted.

Petroleum hydrocarbons were detected in soil samples collected only from boring B-5 at 12 feet bgs, at concentrations of 68 mg/kg TPH-g, 120 mg/kg TPH-d, 0.28 mg/L benzene, 0.6 mg/L toluene, 0.49 mg/L xylenes and 3.8 mg/L methyl tert-butyl ether (MTBE). Petroleum hydrocarbons were detected in grab groundwater samples from all three borings, with elevated concentrations of 270,000 micrograms per liter ( $\mu\text{g/L}$ ) TPH-g, 1,600  $\mu\text{g/L}$  TPH-d, 21,000  $\mu\text{g/L}$  benzene, 34,000  $\mu\text{g/L}$  toluene, 6,000  $\mu\text{g/L}$  ethylbenzene, 36,000  $\mu\text{g/L}$  total xylenes and 59,000  $\mu\text{g/L}$  MTBE detected in boring B-5 (WA, 1998).

WA conducted an additional subsurface investigation in December 2005. Six soil borings (B-8 through B-14) were advanced to a maximum depth of approximately 22 feet bgs in the vicinity of the former USTs and downgradient to the west, along the north and south sides of 67<sup>th</sup> Street and within the sidewalk on the south side of 67<sup>th</sup> Street. Low to moderate concentrations of petroleum hydrocarbons were detected in soil samples from all six borings, with maximum concentrations of 500 mg/kg TPH-g, 1.7 mg/kg benzene, 19 mg/kg toluene, 12 mg/kg ethylbenzene and 73 mg/kg total xylenes detected at 15 feet bgs in boring B-13; and 11 mg/kg MTBE detected at 5 feet bgs in boring B-14. Maximum concentrations of 340 mg/kg TPH-d were detected in B-8 at 10 feet bgs, and 6.2 mg/kg total petroleum hydrocarbons as mineral spirits (TPH-ms) were detected at 6.2 mg/kg in B-12 at 5 feet bgs.

Elevated concentrations of dissolved phase petroleum hydrocarbons were detected in groundwater samples from all six soil borings and monitoring well MW-3. Maximum concentrations of 290,000  $\mu\text{g/L}$  TPH-g and 37,000  $\mu\text{g/L}$  total xylenes were detected in boring B-13. Maximum concentrations of 180,000  $\mu\text{g/L}$  TPH-ms, 24,000  $\mu\text{g/L}$  benzene, 39,000  $\mu\text{g/L}$  toluene and 6,500  $\mu\text{g/L}$  ethylbenzene were detected in boring B-12. Maximum concentrations of 12,000  $\mu\text{g/L}$  MTBE were detected in boring B-14 and well MW-3. Maximum concentrations of 100,000  $\mu\text{g/L}$  TPH-d were detected in boring B-11.

Petroleum hydrocarbon concentrations in soil and groundwater exceeded corresponding SFRWQCB Environmental ESLs for commercial/industrial land use where groundwater is not a potential drinking water resource (SFRWQCB, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater*, Tables B and D, Interim Final November 2007, revised May 2008).



Groundwater sampling of monitoring well MW-3 was attempted by Stellar Environmental Solutions, Inc. in May 2011; however a sample was not collected due to the presence of free product in the bailer. During a site visit on September 14, 2011, AllWest measured a floating free product thickness of approximately 3 feet in MW-3, using a standard electric water level probe and observing product thickness on the tape. A precise product thickness measurement could not be made since an oil/water interface probe was not available. The free product was almost clear in appearance, emitted a gasoline-like odor, and rapidly volatilized from the probe.

Four USTs containing mineral spirits and other petroleum-based solvents (including 2,2,4-trimethylpentane) were removed in 1994 at the adjacent Clearprint Paper Company (Clearprint) site at 1482 67<sup>th</sup> Street, located to the northwest across 67<sup>th</sup> Street from the subject site and in the downgradient direction. The USTs were located in the sidewalk along the north side of 67<sup>th</sup> Street (Figure 2). Remedial activities including soil excavation and groundwater removal were conducted.

A subsequent subsurface investigation conducted in 1995 consisted of three soil borings (SB-1, SB-2 and SB-3) and the installation of three groundwater monitoring wells (MW-1, MW-2 and MW-3). Monitoring well locations are shown in Figure 2. Although elevated concentrations of petroleum hydrocarbons including TPH-g, TPH-d, oil and grease, and benzene, toluene, ethylbenzene and xylenes (BTEX) were detected in confirmatory excavation soil samples and groundwater samples from the borings and wells, these COCs were considered by ACEH to have originated from the upgradient subject (McGrath Steel) site, since these COCs were never used in the Clearprint USTs. Petroleum hydrocarbon and BTEX concentrations in groundwater samples from monitoring wells MW-1 and MW-2 had declined to below detection limits by the final sampling events in 2004. The ACEH issued case closure for the Clearprint site in June 2005 (ACEH *Fuel Leak Site Case Closure, Clearprint Paper Co.*, June 27, 2005).

The Clearprint groundwater monitoring wells MW-1 and MW-2 were destroyed and properly abandoned by Environmental Strategies Consulting, Inc. (ESC) in June 2005 following case closure (ESC, *Groundwater Well Destruction at Former Clearprint Paper Company, Inc. Located at 1482 67<sup>th</sup> Street in Emeryville, California*, June 23, 2005). Well MW-3 was left in place for monitoring of the subject (McGrath Steel) site.

A summary of data from past investigations is included in Appendix A, including tables and figures from the SE document titled *Tank Removal Closure Report*, September 16, 1996, the WA documents titled *Site Characterization Report*, dated March 2, 2006, and *Subsurface Investigation Report*, dated August 5, 1998, and the ACEH letter titled *Fuel Leak Site Case Closure, Clearprint Paper Co.*, dated June 27, 2005.

The ACEH, in their letters of November 19, 2010 (revised December 6, 2010) and April 7, 2006, requested additional characterization of the downgradient extent and distribution of dissolved phase petroleum hydrocarbons and residual free product, and implementation of interim remedial action, at the subject site. Copies of the ACEH letters are included in Appendix B.

### **III. PURPOSE AND SCOPE OF WORK**

The purpose of this investigation is to further evaluate the extent of LNAPL, adsorbed and dissolved-phase petroleum hydrocarbons in soil and groundwater in the hydraulically downgradient and cross-gradient directions from the former UST locations at the subject property. AllWest also proposes to implement interim remedial action of free product in the vicinity of the former USTs at the subject site. This proposed work will be performed in response to a request by ACEH in their letters of November 19, 2010 (revised December 6, 2010) and April 7, 2006. The scope of work, as proposed, consists of the following tasks:

- 1) Prepare a written workplan for conducting a subsurface investigation at the site. Submit the workplan to the ACEH for review and concurrence;
- 2) Prepare a site specific health and safety plan and traffic control plan, if lane closures are necessary;
- 3) Obtain property access agreements for offsite locations if possible, drilling permits from the Alameda County Public Works Agency (ACPWA), and street and/or sidewalk encroachment permits from the City of Emeryville Public Works Department (EPWD);
- 4) Measure free product thickness in monitoring well MW-3, skim or bail free product to the extent practicable, and re-develop the monitoring well using surging and bailing methods to remove potential bio-fouling and sediment;
- 5) Following at least 48 hours of recovery, again measure free product thickness in monitoring well MW-3, skim or bail free product to the extent practicable if necessary, purge at least 3 well casing volumes, and collect groundwater samples;
- 6) Engage the service of Underground Service Alert (USA) and a private underground utility locator to locate and clear underground utilities within the proposed investigation area so that the potential of accidental damage to underground utilities will be reduced during proposed subsurface investigation. Notify the ACEH, ACPWA and facility owners and tenants prior to the start of field work;
- 7) Retain the service of a C-57 licensed drilling contractor for the advancement of five Direct Push Technology (DPT) borings downgradient and crossgradient of the former USTs to approximate depths of 20 feet bgs;

- 8) Collect soil samples at continuous intervals from each of the ten proposed DPT borings. Retain soil samples from each boring for possible chemical analysis. Install temporary PVC well casings and allow water levels to recover before monitoring potential free product. Collect and retain one “grab” groundwater sample from each DPT boring for analytical testing;
- 9) Maintain samples of all media under chain-of-custody and transport to a Department of Health Services (DHS) certified analytical laboratory for chemical analyses. Analyze one groundwater sample from each boring for TPH-d and TPH-mo per EPA Method 8015 with silica gel cleanup, and TPH-g and VOCs (full scan) per EPA method 8260;
- 10) Analyze two soil samples and one groundwater sample from each boring , one groundwater sample from monitoring well MW-3, and one composite soil drum sample for TPH-d and TPH-ms per EPA Method 8015 with silica gel cleanup, and TPH-g, BTEX, fuel oxygenates, ethylene dibromide (EDB) and ethylene dichloride (EDC) per EPA Method 8260. Analyze one composite soil drum sample for disposal profiling for LUFT 5 metals (cadmium, chromium, nickel, lead and zinc) per EPA Method 6010. Archive additional soil samples for possible analysis based on headspace screening and previous analytical results;
- 11) At the completion of drilling remove temporary casings and backfill the DPT borings with a “neat” cement grout slurry, and restore concrete slabs with concrete slurry;
- 12) Arrange for profiling, transport and disposal of investigative derived waste soil and groundwater at an appropriate disposal facility;
- 13) Prepare a written report describing the field activities, summarizing the laboratory data, presenting investigation findings, and providing conclusions and recommendations. Upload the report to the ACEH FTP site and GeoTracker database.

#### **IV. INVESTIGATIVE ACTIVITIES**

##### **A. Permitting and Offsite Property Access**

AllWest will attempt to locate owners of two offsite properties and obtain access agreements for the advancement of proposed borings B-18 and B-19. The proposed locations are in two storage yards located on the north side of 67<sup>th</sup> Street and the south side of Folger Avenue, downgradient to cross-gradient from the subject property (Figures 2 and 3). If AllWest is unsuccessful in gaining access to these properties, the proposed borings B-18 and B-19 will be located in the

sidewalk along the north side of 67<sup>th</sup> Street, and/or in Folger Avenue. Proposed boring locations are shown on Figure 3.

AllWest will prepare and submit a drilling permit application to ACPWA for review and approval. AllWest will prepare and submit an encroachment permit application for street and/or sidewalk drilling along 67<sup>th</sup> Street (and Folger Avenue if necessary) to the EPWD for review and approval. AllWest will also prepare and submit lane closure permit applications to EPWD if necessary. Upon permit approval, AllWest will notify the ACEH, ACPWA, EPWD, and the subject and adjacent property owners and tenants of the drilling schedule a minimum of 72 working hours in advance to allow scheduling of drilling and grouting inspection.

**B. Health and Safety and Traffic Control Plans**

AllWest will update the existing site specific health and safety plan prior to mobilizing to the site. A tailgate safety meeting will be given prior to commencing work. All site personnel will be required to review the health and safety plan. If required by EPWD, a traffic control and sidewalk closure plan will be prepared to ensure safety of workers, pedestrians and motorists in the event of traffic lane or sidewalk closures along 76<sup>th</sup> Street.

**C. Groundwater Monitoring Well Free Product Measurement, Removal and Redevelopment**

Prior to conducting groundwater monitoring of the existing monitoring well MW-3, AllWest intends to remove as much of the accumulated floating free product (LNAPL) layer as possible. Also, due to the extended period of time elapsed since the last groundwater monitoring event in 2005, AllWest proposes to redevelop monitoring well MW-3 in order to remove accumulated fine sediment from the casing and potential biological growth fouling the screened interval, and to enhance hydraulic conductivity with the surrounding formation.

Prior to performing redevelopment of groundwater monitoring well MW-3, an electric oil/water interface sounding probe will be lowered into the well casing to measure the depth to the water, depth to well bottom, and thickness of any potential floating free product to the nearest 0.01 feet below TOC. Based on observations made during our site visit on September 14, 2011, depth to groundwater is expected to be approximately 11 feet below TOC, and free product thickness is expected to be approximately 3 feet.

Prior to redeveloping, free product will be skimmed and removed from the well to the extent practicable until only a thin film or sheen remains, using either bailing, vacuum or positive displacement air skimming pump, or passive skimming device methods. When the free product has been removed until only a thin film or sheen remains, well development will be conducted. The monitoring well will be

developed by surging and bailing. Groundwater characteristics, such as water temperature, conductivity, pH, color, turbidity and clarity, will be monitored during well development. Depending on hydrogeologic conditions, approximately 10 to 20 well casing volumes are expected to be removed from the well during development. Following development completion, depth to well bottom and water and free product level recovery rates will be measured with the oil/water interface probe. Well development procedures are included in Appendix C.

#### **D. Groundwater Monitoring Well Sampling**

Monitoring well MW-3 will be allowed to stabilize a minimum of 48 hours after development prior to sampling.

Prior to performing purging and sampling of groundwater monitoring well MW-3, an electric oil/water interface sounding probe will be lowered into the well casing to measure the depth to the water and thickness of any potential floating free product to the nearest 0.01 feet below TOC. Prior to purging, any free product accumulated since development will be skimmed and removed from the well to the extent practicable using either bailing or passive skimming device methods. A new, disposable Teflon™ or polyethylene bailer will be lowered into the well casing and partially submerged. Upon bailer retrieval, the surface water will be retained and examined for any floating product or product sheen. If more than a thin product film or sheen remains, purging and sampling will not be conducted.

When the free product has been removed until only a thin film or sheen remains, well purging will be conducted. After all initial measurements are completed and recorded, a minimum of 3 well volumes of groundwater will be purged with a new, disposable Teflon bailer. Groundwater characteristics, temperature, pH and conductivity will be monitored at each well volume interval. Purging will continue until groundwater parameters have stabilized to within 10%. Groundwater sampling procedures are included in Appendix C.

Groundwater sampling will be conducted after water levels have recovered to at least 80% of initial level, recorded prior to purging. Groundwater samples will be collected with a new, disposable Teflon bailer. Upon bailer retrieval, the water will be transferred to an appropriate sample bottle furnished by the analytical laboratory. It is anticipated that two 40 milliliter (ml) volatile organic analysis (VOA) glass vials treated with hydrochloric acid (HCl) will be used for TPH-g, BTEX and fuel oxygenate and additive analysis; a 1-liter amber glass bottle will be used for the collection of TPH-d and TPH-ms. All sample bottles for volatile organic analysis will have Teflon™ lined septum/caps and be filled such that no headspace is present. The sample bottles will then be labeled and placed on ice inside a cooler awaiting transport under chain-of-custody control to the analytical laboratory.

To help prevent cross contamination, all groundwater sampling equipment that comes in contact with the groundwater will be decontaminated prior to sampling. To minimize the possibility of cross contamination, a new disposable bailer will be used to collect each groundwater sample. Sample handling, storage, and transport procedures described in Appendix C will be employed. All investigative derived wastes, soil (drill cuttings) and water (decontamination, development and purge water and free product) will be temporarily stored in a secure location at the property in 55-gallon drums, awaiting test results for profiling to determine the proper disposal method.

**E. Free Product Interim Remedial Action**

Depending on the rate of floating free product (LNAPL) accumulation measured in monitoring well MW-3 following redevelopment and sampling activities, interim remedial action to mitigate free product will be performed as warranted. A passive skimming device may be placed within the well and emptied at monthly or quarterly intervals depending on rate of product thickness accumulation. Either a canister-type or absorbent sock-type skimmer may be used; typically both of these have a capacity of up to 1 liter of product for a 2-inch diameter skimmer. The free product, or product-soaked “sock” will be emptied from the skimmer into a 55-gallon drum temporarily stored in a secure location at the property pending proper transport and disposal. Drums containing free product are considered hazardous waste and will be transported to a disposal facility within 90 days of accumulation start date (180 days for less than 55 gallons).

If the rate of product accumulation is too great to be handled by a passive skimmer, interim remediation may be performed by monthly skimming using a vacuum truck. The vacuum truck will transport the skimmed product and groundwater directly to an appropriate disposal facility. The interim remedial method chosen will be based on field measurements of free product thickness and recovery rate.

**F. Underground Utility Location**

To avoid damage to underground utility installations during the course of the subsurface investigation, AllWest will contact Underground Service Alert (USA), an organization for public utility information, on the pending subsurface investigation. USA will then notify public and private entities that maintained underground utilities within the site vicinity to locate and mark their installations for field identification. A private underground utility locator, Subtronic Corporation (Subtronic) of Concord, California, will also be employed by AllWest to conduct a magnetometer and/or ground penetrating radar sweep investigation to locate marked and unmarked underground utilities in the vicinity of the proposed boring locations. Other qualified contractors may be used if necessary.

The proposed boring locations shown in Figure 3 were selected to avoid known underground and aboveground utilities as mapped during the WA investigation in 2005, and observed during our site visit. Known underground and aboveground utility locations are shown in Figure 4.

#### **G. Geoprobe<sup>®</sup> DPT Boring Advancement**

Five soil borings (B-15 through B-19) will be advanced by the direct push technology (DPT) continuous coring method (such as the Geoprobe<sup>®</sup> system or equivalent) to collect soil and groundwater samples to further delineate the extent of COCs in the subsurface downgradient and cross-gradient from the subject site. The borings will be advanced to approximate depths of 15 to 20 feet bgs to intersect the first encountered water-bearing zone, depending on depth to first encountered groundwater. Proposed boring locations are shown on Figure 3.

Boring B-15 will be located north of the subject site in the sidewalk along the north side of 67<sup>th</sup> Street. Boring B-16 will be located west of the subject site in the sidewalk or street (depending on underground and overhead utility locations) along the south side of 67<sup>th</sup> Street. Boring B-17 will be located west-northwest of the subject site in the sidewalk along the north side of 67<sup>th</sup> Street within the former Clearprint UST locations east of former monitoring well MW-1. The preferred location of boring B-18 is the construction equipment storage and parking area northwest of the subject site across 67<sup>th</sup> Street; if access to this property cannot be obtained, B-18 will be located on the sidewalk along the north side of 67<sup>th</sup> Street, northwest of the subject property.

The preferred location of the farthest downgradient boring B-19 is the lumber storage yard northwest of the subject site and south of Folger Avenue; if access to this property cannot be obtained, B-19 can be located on Folger Avenue further to the northwest of the subject site, but this is not preferable due to the considerable down to cross-gradient distance from the subject site. The preferable alternate location for B-19 is in the sidewalk along the north side of 67<sup>th</sup> Street, west of the former Clearprint USTs and MW-1, and downgradient from the subject property.

Vironex, Inc., a C-57 licensed drilling contractor will provide drilling services. Other suitable drilling contractors may be utilized if necessary. Following coring of the concrete sidewalk slabs or asphalt pavement, all boring locations will be hand augered to 5 feet bgs to clear potential underground utilities.

Soil sampling will be accomplished using a nominal 4-foot long, 2-inch diameter stainless steel drive probe and extension rods. The drive probe will be equipped with nominal 1-1/2 inch diameter clear plastic poly tubes that line the interior of the probe. The probe and insert tubes are together pneumatically driven using a percussion hammer in 4-foot intervals. After each drive interval the drive probe and rods are retrieved to the surface. The poly tube containing subsurface soil is



then removed. The drive probe is then cleaned, equipped with a new poly tube and reinserted into the boring with extension rods as required. The apparatus is then driven following the above procedure until the desired depth is obtained. Standard Geoprobe™ DPT sampling procedures are included in Appendix C.

#### **H. Geoprobe® DPT Soil Sampling**

An AllWest environmental professional will oversee field work and drilling activities. The boring logs will contain pertinent information on drilling and soil conditions. Soil will be logged in accordance with the Unified Soil Classification System (USCS). Boring logs will be included in the final written report. The poly tubes and soil are inspected after each drive interval with lithologic and relevant drilling observations recorded. Soil samples are screened for organic vapors using a photo-ionizer detector (PID), or other appropriate device, by taking readings of headspace vapor concentrations of the soil inside a zip-lock plastic bag. PID readings, soil staining and other relevant observations are recorded on the boring logs.

It is anticipated that one soil sample from each boring will be collected at approximately 5 to 6 feet bgs, or within areas of obvious contamination, and another within the capillary fringe zone at approximately 10 to 15 feet bgs, depending upon visual observation, odors and PID screening. Selected soil sample intervals will be cut from the 4-foot intervals for analytical testing. The ends of samples for possible analytical testing are sealed using Teflon™ lined plastic end caps. The samples are labeled, and stored in an iced cooler.

#### **I. Geoprobe® DPT Boring Free Product Measurement**

Potential floating free product will be measured and “grab” groundwater samples will be collected after the completion of soil sampling and when the borings have reached their designed depth. The steel probe and rods are then removed from the boring and new, nominal ¾-inch inside diameter (ID) diameter PVC solid and perforated temporary casing is lowered into the borehole. Depth to water and potential floating free product thickness is then measured using an electronic oil/water interface probe. Following groundwater and product level measurements, a ¾-inch ID clear acrylic, polyethylene or Teflon™ bailer will be lowered to the groundwater surface, raised and inspected for potential product sheen or layer thickness. If measurable free product is present, an attempt will be made to bail it down to a thin film or sheen prior to collecting groundwater samples.

#### **J. Geoprobe® DPT Boring Groundwater Sampling**

Following groundwater and free product level measurements, groundwater samples will then be collected by using a polyethylene or Teflon™ disposable bailer, or by oscillating disposable polyethylene or Teflon™ sample tubing fitted

with a check valve. Upon retrieval of the sample, the retained water will be transferred to appropriate sample bottles furnished by the analytical laboratory. Samples for TPH-g, BTEX and fuel oxygenate and additive analysis will be collected in two 40-milliliter VOA vials preserved with HCl solution. Samples for TPH-d and TPH-mo analysis will be collected in one 1-liter amber glass bottle preserved with HCl solution. All sample bottles for volatile organic analysis will have Teflon lined septum/cap and be filled such that no headspace is present. Sample bottles will be labeled and immediately placed on ice to preserve the chemical characteristics of their contents.

**K. Borehole Backfilling**

At the completion of drilling and sampling, the borings will be backfilled with a “neat” Portland Type I or II cement grout slurry that is tremied into the borehole through a PVC pipe. The level of grout will be checked to ascertain if any settling has occurred and will be “topped off” if required. Concrete sidewalk slabs will be restored with a concrete slurry poured flush to grade. Grouting will be performed under supervision of an ACPWA inspector after giving at least 72 hours prior notice to arrange inspection.

**L. Investigative Derived Waste Containment and Disposal**

Investigative derived waste including soil cores, decontamination rinseate, purged groundwater, and free product will contained onsite within a secure storage facility in 55-gallon drums pending analytical results, profiling and transport to an appropriate disposal facility.

**V. QUALITY ASSURANCE / QUALITY CONTROL PROGRAM**

**A. Sample Preservation, Storage and Handling**

To prevent the loss of constituents of interest, all soil and groundwater samples will be preserved by storing in an ice chest cooled to 4°C with crushed ice immediately after their collection and during transportation to the laboratory. Samples will be stored within the cooler in separate zip-lock plastic bags to avoid cross-contamination.

**B. Chain-Of-Custody Program**

All samples collected for this project will be transported under chain-of-custody protocol. The chain-of-custody program allows for the tracing of possession and handling of individual samples from the time of field collection through laboratory analysis. The document includes the signature of the collector, date and time of collection, sample number, number and type of sample containers including preservatives, parameters requested for analysis, signatures of persons

and inclusive dates involved in the chain of possession. Upon delivery to the laboratory the document will also include the name of the person receiving the samples, and date and time samples were received.

## **VI. ANALYTICAL METHODS**

All samples selected for analysis will be analyzed by a State of California certified independent analytical laboratory. McCampbell Analytical, Inc., of Pittsburg, California will likely perform all soil and groundwater analysis. However, other qualified laboratories may be utilized dependent on work load and time frame considerations.

It is anticipated that ten soil samples (two from each boring), one composite sample from the soil waste drum, and six ground water samples (one from each boring and the monitoring well MW-3) collected during this investigation will be analyzed for the following:

All soil and groundwater samples will be analyzed for TPH-d and TPH-ms per EPA Method 8015 with silica gel cleanup, and for TPH-g, BTEX, the fuel oxygenates diisopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), MTBE, tert-amyl methyl ether (TAME) and tert-butyl alcohol (TBA), and the fuel additives EDB and EDC by EPA Method 8260.

One soil waste drum sample composited from corings from all ten borings will be analyzed for TPH-g, BTEX, the fuel oxygenates DIPE, ETBE, MTBE, TAME and TBA, and the fuel additives EDB and EDC by EPA Method 8260, and for LUFT 5 metals (cadmium, chromium, nickel, lead and zinc) by EPA Method 6010 for disposal profiling.

## **VII. REPORT PREPARATION**

A written report will be prepared for this investigation after the completion of all field work and receipt of analytical results. Included in the report will be soil boring logs, chain-of-custody documents and copies of the analytical laboratory reports. The report will be reviewed by a California Professional Geologist.

The report and associated documents (laboratory analytical reports, boring logs, etc.) will be uploaded to the ACEH FTP site and the GeoTracker database.

## **VIII. PROJECT STAFF AND SCHEDULE**

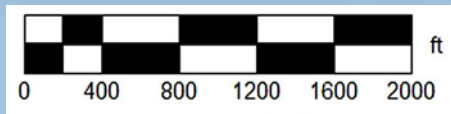
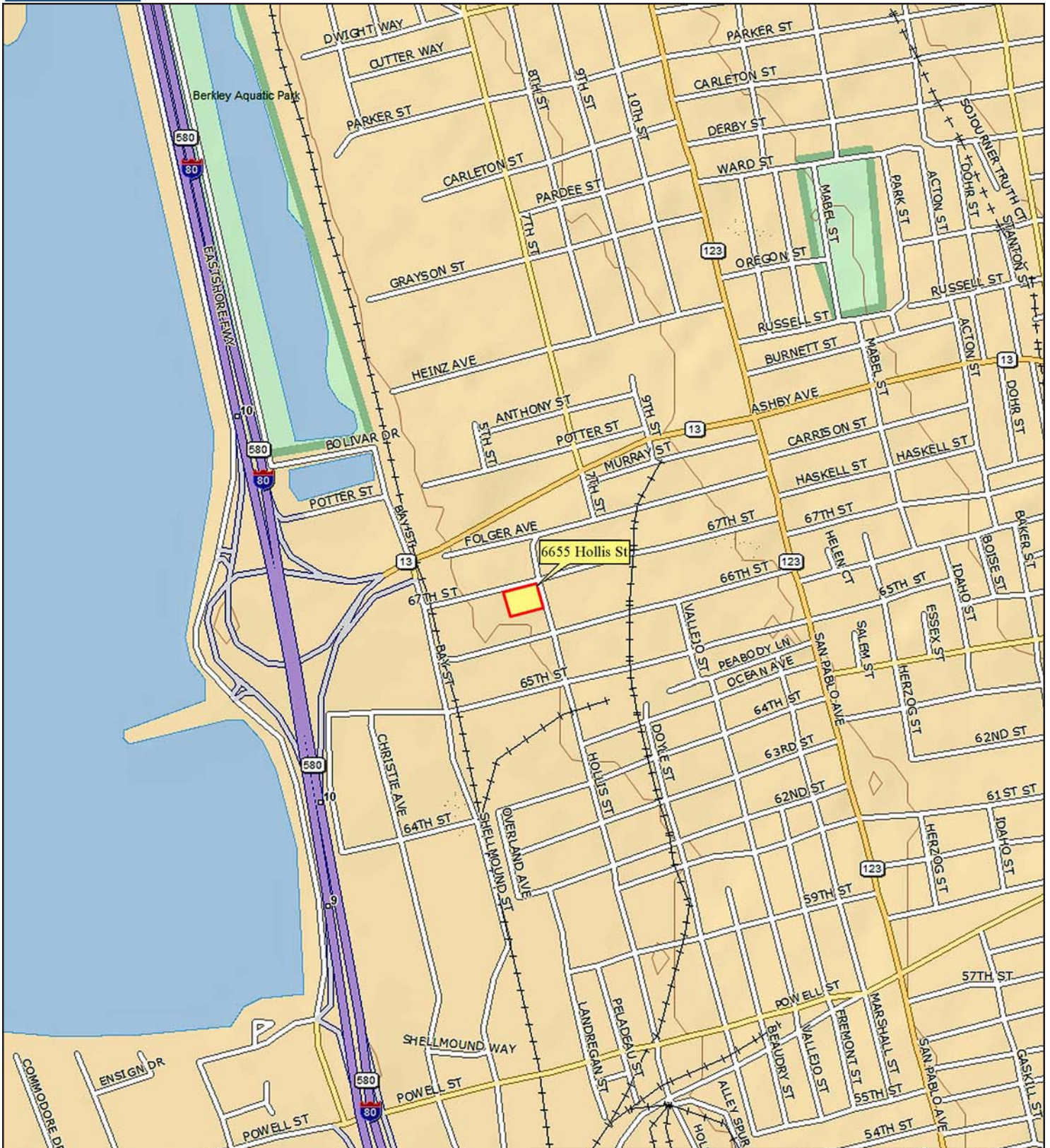
Mr. Leonard P. Niles, P.G., C.H.G., a California Professional Geologist (PG 5774) and Certified Hydrogeologist (CHG 357), will provide technical oversight for this project and act as the project manager and regulatory liaison. Additionally, AllWest's staff of engineers, geologists, and technicians will be employed to perform the various tasks of

the project. AllWest will inform the ACEH and ACPWA at least 72 hours prior to the start of field activities. AllWest will inform the ACEH of any significant developments during the course of the investigations.

## **IX. LIMITATIONS**

AllWest has prepared this remedial investigation and corrective action plan for the exclusive use of Project 101 Associates (Client) for this particular project and in accordance with generally accepted practices at the time of the work and with our written proposal dated June 2011. No other warranties, either expressed or implied, are made as to the professional advice offered. This plan is not a specification for the proposed work and should not be used to bid out any of the proposed work found within. Reliance on this plan by any party other than the Client is at the user's sole risk.

# FIGURES



**FIGURE 1**  
**SITE MAP**







6655 HOLLIS STREET  
EMERYVILLE, CALIFORNIA  
SOURCE: DELORME TOPO 8.0

PROJECT NO.  
11124.23

PREPARED BY: C. RAMELB  
DATE: 09/22/11









	<b>Legend</b>  MW-3 Existing Monitoring Well (ESC, 1995)  MW-1 Former Monitoring Well (Clearprint / ESC, Destroyed 2005)  B-1 Boring (Weiss Associates, 1998)  B-8 Boring (Weiss Associates, 2005)  Former USTs	<b>FIGURE 2: SITE PLAN WITH BORING AND WELL LOCATIONS</b>  <b>Site Name: Former McGrath Steel</b> <b>6655 Hollis Street, Emeryville, CA</b>	<b>Scale:</b> 1 in = 66.66 ft <b>Photo:</b> Google Earth	<b>N↑</b>
			<b>Date:</b> 9/22/2011 <b>By:</b> Leonard Niles	<b>Project Number:</b> <b>11124.23</b>






	<p><b>Legend</b></p>	<p><b>FIGURE 3: PROPOSED BORING LOCATIONS</b></p>	<p>Scale: 1 in = 66.66 ft Photo: Google Earth</p>	<p><b>N↑</b></p>
	<p> MW-3 Existing Monitoring Well</p> <p> B-15 Proposed Boring</p> <p> Former USTs</p>	<p>Site Name: Former McGrath Steel 6655 Hollis Street, Emeryville, CA</p>	<p>Date: 9/22/2011 By: Leonard Niles</p>	<p>Project Number: 11124.23</p>





	<b>Legend</b>	<b>FIGURE 4: UTILITY LOCATIONS</b>	<b>Scale:</b> 1 in = 66.66 ft <b>Photo:</b> Google Earth	<b>N</b> ↑
	<ul style="list-style-type: none"> <li><span style="color: blue;">●</span> MW-3 Existing Monitoring Well (ESC, 1995)</li> <li><span style="color: yellow;">- - - - -</span> PG&amp;E Underground Gas Line</li> <li><span style="color: blue;">- - - - -</span> EBMUD Underground Water Line</li> <li><span style="color: green;">- - - - -</span> Underground Sanitary Sewer Line</li> <li><span style="color: orange;">- - - - -</span> AT&amp;T Underground Telecom Line</li> <li><span style="color: red;">- - - - -</span> PG&amp;E Aboveground Electric Line</li> <li><span style="border: 1px solid yellow; display: inline-block; width: 15px; height: 10px;"></span> Former USTs</li> </ul>	<b>Site Name:</b> Former McGrath Steel <b>6655 Hollis Street, Emeryville, CA</b>	<b>Date:</b> 9/22/2011  <b>By:</b> Leonard Niles  <b>Source:</b> Weiss Associates, 2005	<b>Project Number:</b> 11124.23

# Appendix A



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

November 19, 2010  
*Revised December 6, 2010*

Mr. Jon Braden	Shirley J Davini & Dorothy D McGuire	MCG Investments LLC & et al
McGrath Steel Company	123 Estudillo Avenue	123 Estudillo Avenue
Address Unknown	San Leandro, CA 94577	San Leandro, CA 94577

Subject: Request for Work Plan or Information; Fuel Leak Case No. RO0000063; (Global ID # T0600102099); McGrath Steel Company, 6655 Hollis Street, Emeryville, CA 94608

Dear Ms. Davini, Ms. McGuire, and MCG Investments:

I have recently been assigned this case; please send future correspondence or inquiries to my attention. Alameda County Environmental Health Department (ACEH) staff have recently reviewed the case file for the site including the report entitled, *Site Characterization Report*, dated March 2, 2006, prepared on your behalf by Weiss Associates (Weiss), and the April 7, 2006 ACEH directive letter. These appear to be the most recent documents for the subject site. Based on the review of the case file it appears that information previously requested of you has not been submitted. We request that you address the following technical comments and send us the reports requested below.

#### **TECHNICAL COMMENTS**

1. **Overdue Work Plan** – As described and outlined in the April 7, 2006 ACEH letter, a significant release of petroleum hydrocarbons was identified downgradient of the former McGrath Steel Tanks, and a work plan was required to be submitted by May 9, 2006. To date, we do not appear to have received confirmation that the requested work has been completed. The work plan is overdue and the site is out of compliance with ACEH directives.

Please either have prepared and submit a work plan, or submit any work plans and reports that may have been prepared in the intervening period of time to document the results of all investigative activities that have since occurred at the site.

#### **TECHNICAL REPORT REQUEST**

Please submit the following deliverable to ACEH (Attention: Mark Detterman), according to the following schedule:

- **January 17, 2011** – Work Plan or Additional Information Report

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

Ms. Davini, Ms. McGuire, and MCG Investments  
RO0000063  
December 6, 2010, Page 2

Should you have any questions, please contact me at (510) 567--6876 or send me an electronic mail message at [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org).

Sincerely,



Digitally signed by Mark E.  
Detterman  
DN: cn=Mark E. Detterman, c=US  
Date: 2010.12.06 11:11:40 -08'00'

Mark E. Detterman, PG, CEG  
Hazardous Materials Specialist

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

Copy November 19, 2010 directive letter

cc: L. Maile Smith, Weiss Associates, 350 E. Middlefield Road, Mountain View, CA 94043  
(sent via electronic mail to [lms@weiss.com](mailto:lms@weiss.com))

Donna Drogos, ACEH, (sent via electronic mail to [donna.drogos@acgov.org](mailto:donna.drogos@acgov.org))  
Mark Detterman, ACEH, (sent via electronic mail to [mark.detterman@acgov.org](mailto:mark.detterman@acgov.org))  
Geotracker, e-File



## Attachment 1

### Responsible Party(ies) Legal Requirements / Obligations

#### REPORT REQUESTS

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

#### ELECTRONIC SUBMITTAL OF REPORTS

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

#### PERJURY STATEMENT

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

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

#### UNDERGROUND STORAGE TANK CLEANUP FUND

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

#### AGENCY OVERSIGHT

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

<b>Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)</b>	<b>REVISION DATE:</b> July 20, 2010
	<b>ISSUE DATE:</b> July 5, 2005
	<b>PREVIOUS REVISIONS:</b> October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010
<b>SECTION:</b> Miscellaneous Administrative Topics & Procedures	<b>SUBJECT:</b> Electronic Report Upload (ftp) Instructions

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

## REQUIREMENTS

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

RO#\_Report Name\_Year-Month-Date (e.g., RO#5555\_WorkPlan\_2005-06-14)

## Submission Instructions

- 1) Obtain User Name and Password
  - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
    - i) Send an e-mail to [dehloptoxic@acgov.org](mailto:dehloptoxic@acgov.org)
  - b) In the subject line of your request, be sure to include "**ftp PASSWORD REQUEST**" and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for.**
- 2) Upload Files to the ftp Site
  - a) Using Internet Explorer (IE4+), go to <ftp://alcoftp1.acgov.org>
    - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
  - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
  - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
  - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
  - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
  - a) Send email to [dehloptoxic@acgov.org](mailto:dehloptoxic@acgov.org) notify us that you have placed a report on our ftp site.
  - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
  - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
  - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.



ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director



SENT  
04-10-06

April 7, 2006

Mr. Jon Braden  
McGrath Steel Company  
6655 Hollis St.  
Emeryville, CA 94608

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

Dear Mr. Braden:

Subject: Fuel Leak Case RO0000063, McGrath Steel Company, 6655 Hollis St.,  
Emeryville, CA 94608

Alameda County Environmental Health (ACEH) staff has received and reviewed the case file for the subject site including the March 2, 2006 Site Characterization Report prepared by Weiss Associates. This report provides the results of the 2005 soil and groundwater investigation performed within 67<sup>th</sup> St., which attempted to determine the extent of the petroleum release from the former fuel USTs at the subject site. Additional information is required to progress toward case closure. We have the following observations and technical comments. Please address these comments and submit the technical reports requested below.

#### TECHNICAL COMMENTS

1. The sampling results from borings B-10 and B-12 located near the former Clearprint tanks reported contamination described as gasoline by the analytical laboratory. Therefore, we do not concur with your consultant's conclusion that TPHg and BTEX originating from the Clearprint USTs are contributing to the groundwater plume. These tanks did not contain gasoline, therefore, we believe the contamination has likely come from the former McGrath Steel tanks and this confirms that the County was correct closing the Clearprint site. In addition, we do not concur that there is significant data to support the claim that an up-gradient source is also contributing to the groundwater plume.
2. A significant release of TPHg, TPHd and BTEX into groundwater was identified down-gradient of the former McGrath Steel tanks. The concentrations of TPHg in borings B-11 through B-13 report up to 290 ppm TPHg, 100 ppm TPHd, and 24, 39, 6.7 and 37 ppm BTEX, respectively, in groundwater. Although grab groundwater results are qualitative in nature, these concentrations are near saturation and could indicate the presence of free product. Therefore, the need for interim cleanup for plume migration control must be considered. In addition, the extent of the plume remains unknown and must be determined. Your consultant recommends using a soil gas survey to make this determination. We also believe that the plume may have migrated beneath the existing warehouse(s). Please provide a work plan for plume delineation and discuss interim remediation as requested below.
3. The groundwater flow direction has been assumed the same as that determined for the Clearprint site. Additional monitoring wells must be installed to define the extent of the plume and determine site-specific gradient. We concur with your consultant's proposal for additional wells, however, we believe it may require more than two additional wells to characterize the plume. Please indicate when you will be submitting a work plan for additional monitoring wells.

4. The MTBE release has not been adequately characterized. Although low levels of TPHg and BTEX remain in soil, up to 12 ppm MTBE was detected in the soil sample from B-14, immediately down-gradient of the former tanks. Elevated MTBE in groundwater from MW-3 was reported at 12 ppm. It appears that significant residual MTBE remains in soil and groundwater near the former USTs. Your interim remediation should also address residual MTBE. In 1998, up to 59 ppm MTBE was detected in the groundwater sample from boring B-5 but the recent groundwater samples in this area detect approximately 0.4 ppm. It therefore appears that the MTBE plume has migrated beyond these 2005 sampling points.

#### TECHNICAL REPORT REQUEST

Please submit the following technical report to our office according to the following schedule:

- May 9, 2005- Work Plan for Plume Delineation, Interim Remediation and monitoring well installation.

#### ELECTRONIC SUBMITTAL OF REPORTS

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Please do not submit reports as attachments to electronic mail.

Submission of reports to the Alameda County ftp site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) Geotracker website. Submission of reports to the Geotracker website does not fulfill the requirement to submit documents to the Alameda County ftp site. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have been required to submit groundwater analytical data, surveyed locations of monitor wells, and other data to the Geotracker database over the Internet. Beginning July 1, 2005, electronic submittal of a complete copy of all necessary reports was required in Geotracker (in PDF format). Please visit the SWRCB website for more information on these requirements ([http://www.swrcb.ca.gov/ust/cleanup/electronic\\_reporting](http://www.swrcb.ca.gov/ust/cleanup/electronic_reporting)).

In order to facilitate electronic correspondence, we request that you provide up to date electronic mail addresses for all responsible and interested parties. Please provide current electronic mail addresses and notify us of future changes to electronic mail addresses by sending an electronic mail message to me at [barney.chan@acgov.org](mailto:barney.chan@acgov.org).

#### PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the

Mr. Jon Braden  
6655 Hollis St., Emeryville  
Page 3 of 3

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

#### PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

#### UNDERGROUND STORAGE TANK CLEANUP FUND

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

If you have any questions, please call me at (510) 567-67xxx.

Sincerely,

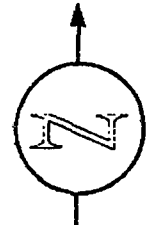
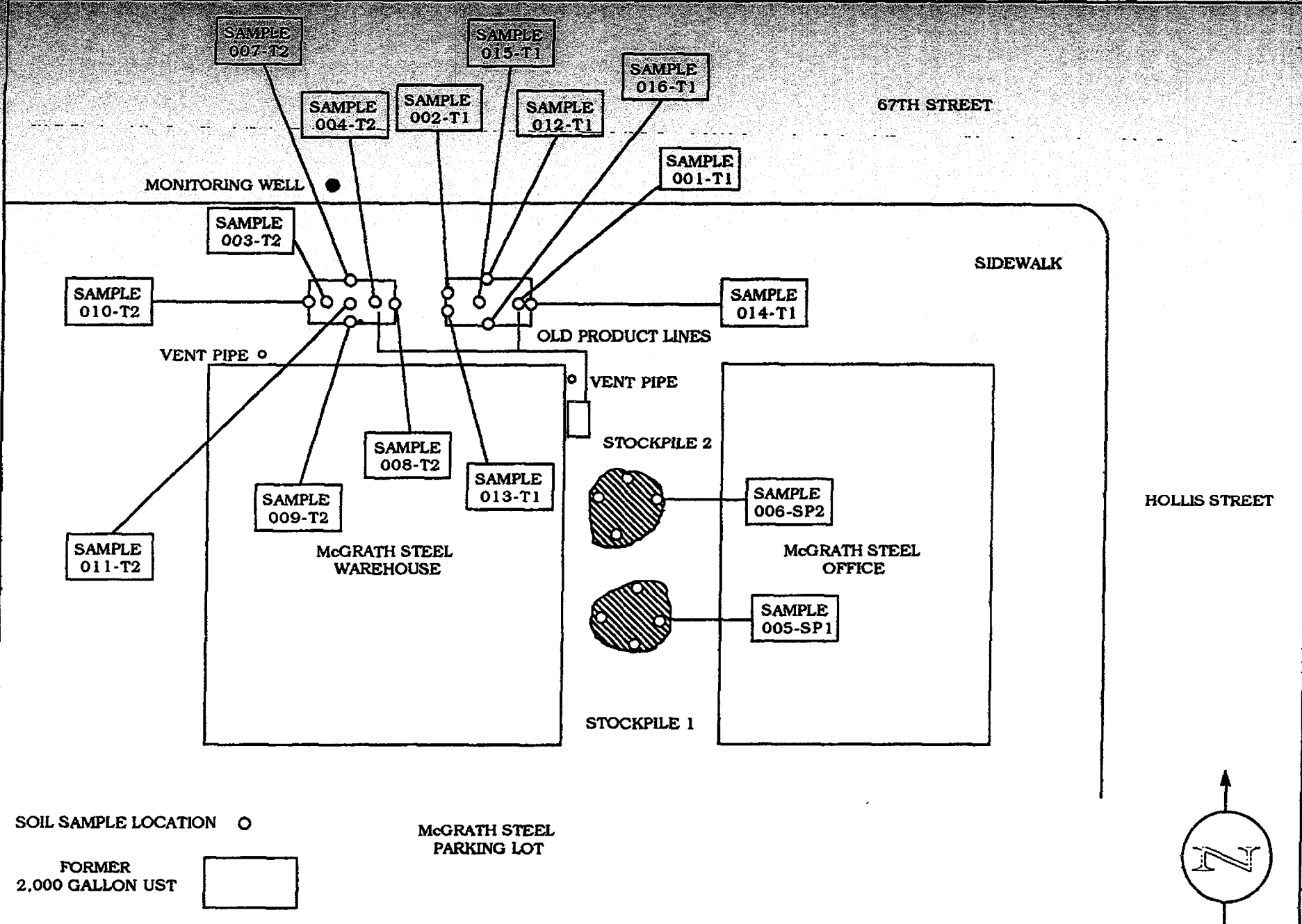


Barney M. Chan  
Hazardous Materials Specialist

cc: files, D. Drogos  
Ms. Maile Smith, Weiss Associates, 350 Middlefield Rd., Mountain View, CA 94043

4\_7\_08 6655 Hollis St

# Appendix B



Not to scale | Project # 960241 | September, 1996  
**Subsurface Environmental Corp.**

**SOIL SAMPLE MAP**  
 6655 HOLLIS STREET EMERYVILLE, CA 94608

**Figure 1**

**SOIL SAMPLE**  
**ANALYTICAL RESULTS**

**TABLE 1**

<b>Sample Number</b> <b>Date and Location</b>	<b>TPH(g)</b>	<b>TPH(d)</b>	<b>MTBE</b>	<b>B</b>	<b>T</b>	<b>E</b>	<b>X</b>	<b>Lead</b>
001-T1 - 7/3/96 east bottom deisel tank 8 feet 6 inches bgs	N/A	340	N/A	4.6	33	30	170	N/A
002-T1 - 7/3/96 west sidewall deisel tank 8 feet bgs	N/A	140	N/A	0.1	0.012	0.073	0.73	N/A
003-T2 - 7/3/96 west bottom gasoline tank 9 feet bgs	710	N/A	9.7	1.5	0.52	8.7	11	0.48
004-T2 - 7/3/96 east bottom gasoline tank 9 feet bgs	1300	N/A	35	15	3.5	30	72	0.32
005-SP1 - 7/3/96 stockpile deisel tank	N/A	320	ND	ND	ND	ND	0.044	N/A
006-SP2 - 7/3/96 stockpile gasoline tank	260	N/A	4.7	0.24	2.4	1.2	19	0.25

Please refer to the attached original laboratory results.

All analytical results on this, and Table 2 are reported in parts per million (ppm).

N/A = Not Applicable

ND = Non Detect

**SOIL SAMPLE  
ANALYTICAL RESULTS**

**TABLE 2**

<b>Sample Number</b>	<b>TPH(g)</b>	<b>TPH(d)</b>	<b>MTBE</b>	<b>B</b>	<b>T</b>	<b>E</b>	<b>X</b>
<b>Date and Location</b>							
007-T2 - 7/11/96 north sidewall gasoline tank pit 9 feet 5 inches bgs	450	N/A	27	2.1	22	12	71
008-T2 - 7/11/96 east sidewall gasoline tank pit 9 feet 5 inches bgs	49	N/A	9.1	2.1	0.19	1.1	14
009-T2 - 7/11/96 south sidewall gasoline tank pit 11 feet bgs	19	N/A	12	2.5	0.041	0.66	0.069
010-T2 - 7/11/96 west sidewall gasoline tank pit 10 feet 1 inch bgs	37	N/A	71	3.3	3.7	2.1	4.1
011-T2 - 7/11/96 floor, gasoline tank pit 12 feet bgs	15	N/A	17	0.85	0.4	0.57	0.74
012-T1 - 7/11/96 north sidewall deisel tank pit 9 feet bgs	N/A	16	N/A	0.23	0.21	0.49	2.4
013-T1 - 7/11/96 west sidewall deisel tank pit 10 feet bgs	N/A	400	N/A	0.1	0.98	4	23
014-T1 - 7/11/96 east sidewall deisel tank pit 10 bgs	N/A	15	N/A	0.87	1.7	0.83	4.6
015-T1 - 7/11/96 floor, deisel tank pit 12 feet bgs	N/A	340	N/A	0.14	0.64	1.9	11
016-T1 - 7/11/96 south sidewall deisel tank pit 10 feet 6 inches bgs	N/A	870	N/A	3.2	9.6	23	13

Ms. Susan Hugo  
Alameda County Health Care Service Agency  
August 5, 1998

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**Table 1. Samples Collected, McGrath Steel, 6655 Hollis Street, Emeryville, California**

Sample ID	Sample Type	Sample Depth (feet bgs)
B-1-10	Soil	10
B-1-23	Soil	23
B-2-5	Soil	5
B-2-10	Soil	10
B-2-19.5	Soil	19.5
B-5-8	Soil	8
B-5-12	Soil	12
B-1	Water	22.5
B-2	Water	22
B-5	Water	16

The downhole drilling equipment was steam cleaned prior to arrival on-site and at the completion of work. Between borings, the equipment was washed in analconox water solution and triple rinsed. Upon completion of the fieldwork, the borings were grouted to the surface with a 3-5% bentonite/cement grout.

## Results

The soil and ground water samples were submitted under chain-of-custody procedures to Curtis and Tompkins, Ltd., Analytical Laboratories (C&T) in Berkeley, California, a state of California Department of Health Services approved laboratory. The ground water samples from each boring were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and diesel (TPH-D), benzene, toluene, ethylbenzene and xylenes (BTEX), and methyl tertiary-butyl ether (MTBE). At least one soil sample from each boring was analyzed for total petroleum hydrocarbons as gasoline (TPH-G) and diesel (TPH-D), benzene, toluene, ethylbenzene and xylenes (BTEX), and methyl tertiary-butyl ether (MTBE). The additional soil samples were placed on hold and not analyzed. Table 2 summarizes the analytical results.



Ms. Susan Hugo  
Alameda County Health Care Service Agency  
August 5, 1998

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**Table 2. Sample Results for McGrath Steel, 6655 Hollis Street, Emeryville, California**

Sample ID	Sample Type	Sample Depth (feet bgs)	TPH-G	TPH-D	B	E	T	X	MTBE
B-1-10	Soil	10	NA	NA	NA	NA	NA	NA	NA
<b>B-1-23</b>	<b>Soil</b>	<b>23</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;0.005</b>	<b>&lt;0.005</b>	<b>&lt;0.005</b>	<b>&lt;0.005</b>	<b>&lt;0.020</b>
B-2-5	Soil	5	NA	NA	NA	NA	NA	NA	NA
B-2-10	Soil	10	NA	NA	NA	NA	NA	NA	NA
<b>B-2-19.5</b>	<b>Soil</b>	<b>19.5</b>	<b>&lt;1</b>	<b>&lt;1</b>	<b>&lt;0.005</b>	<b>&lt;0.005</b>	<b>&lt;0.005</b>	<b>&lt;0.005</b>	<b>&lt;0.020</b>
B-5-8	Soil	8	NA	NA	NA	NA	NA	NA	NA
<b>B-5-12</b>	<b>Soil</b>	<b>12</b>	<b>27</b>	<b>2.8<sup>b,c</sup></b>	<b>0.28</b>	<b>&lt;0.130</b>	<b>0.600</b>	<b>0.49</b>	<b>3.8</b>
<b>B-1</b>	<b>Water</b>	<b>22.5</b>	<b>68<sup>a</sup></b>	<b>120<sup>b</sup></b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2</b>
<b>B-2</b>	<b>Water</b>	<b>22</b>	<b>71<sup>a</sup></b>	<b>150<sup>b</sup></b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;0.5</b>	<b>&lt;2</b>
<b>B-5</b>	<b>Water</b>	<b>16</b>	<b>270,000</b>	<b>1,600<sup>b,c</sup></b>	<b>21,000</b>	<b>6,000</b>	<b>34,000</b>	<b>36,000</b>	<b>59,000</b>

a = sample exhibits unknown single peak or peaks

b = sample exhibits fuel pattern which does not resemble standard

c = lighter hydrocarbons than indicated standard

Soil results in mg/kg

Water results in ug/L

NA = not analyzed

**BOLD TEXT** = samples that were analyzed.

Borings B-1 and B-2 analytical results indicate that there is no fuel hydrocarbon contamination in soils or ground water in their vicinity. The single peaks reported are likely due to an unrelated occurrence such as lab contamination.

Boring B-5 analytical results indicate that there is little fuel hydrocarbon contamination in soils just above the water table in the vicinity of the boring. Boring B-5 analytical results indicate that there is gasoline range hydrocarbon contamination in ground water in the vicinity.

Copies of the laboratory report and chain-of-custody are included as Attachment B.



Figure 1. Site Location Map—McGrath Steel, 6655 Hollis Street, Emeryville, California

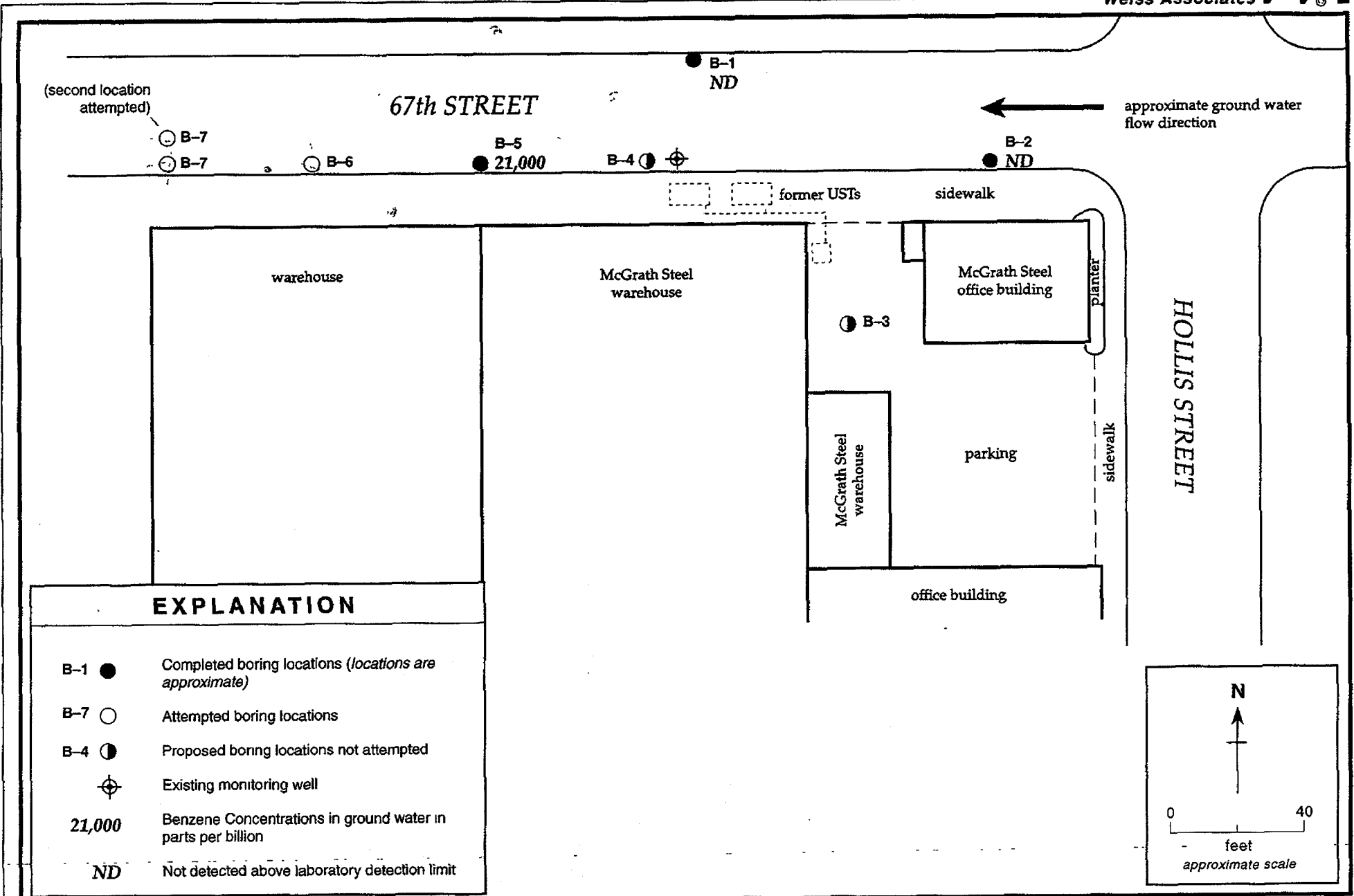


Figure 2. Site Plan—McGrath Steel, 6655 Hollis Street, Emeryville, California

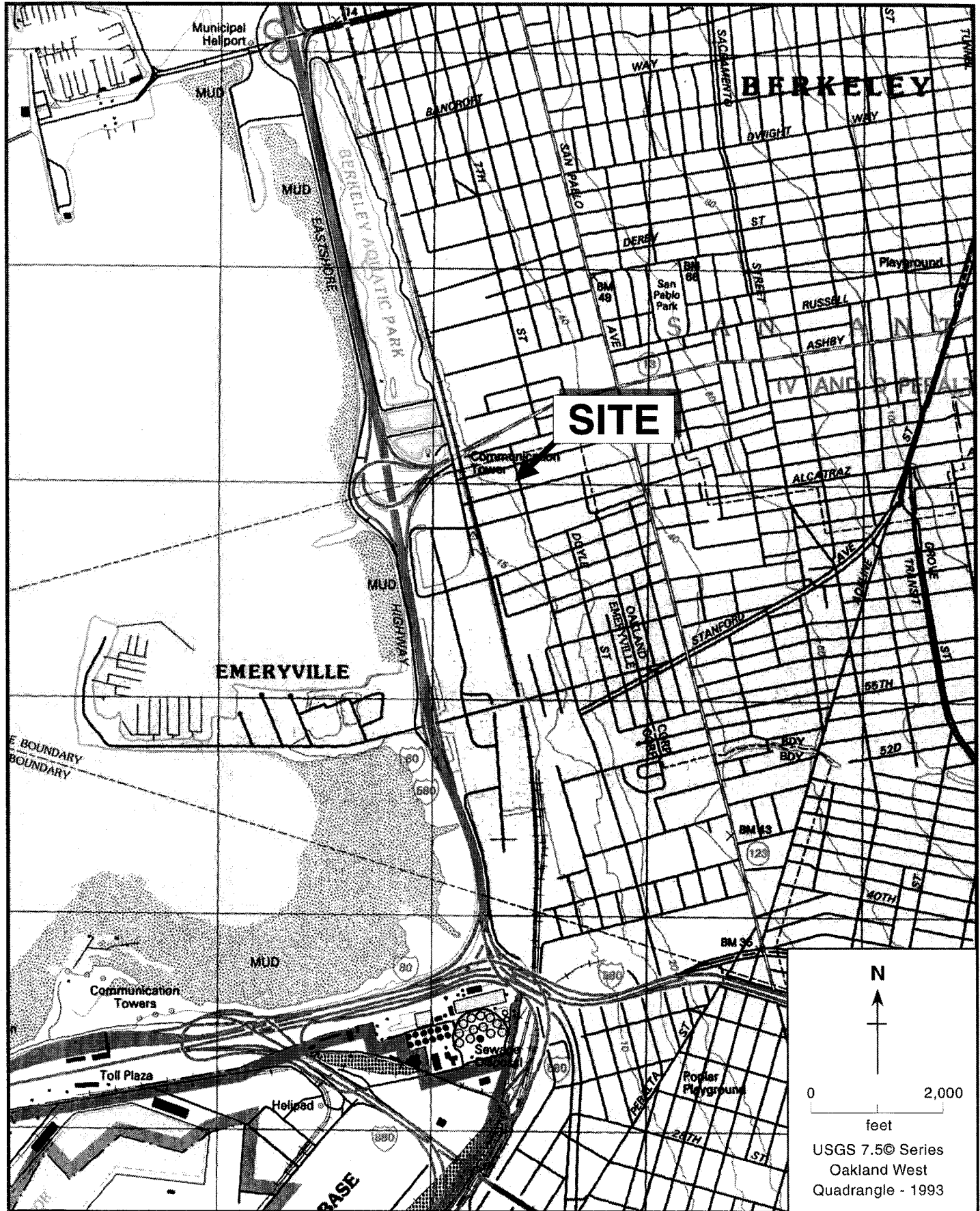
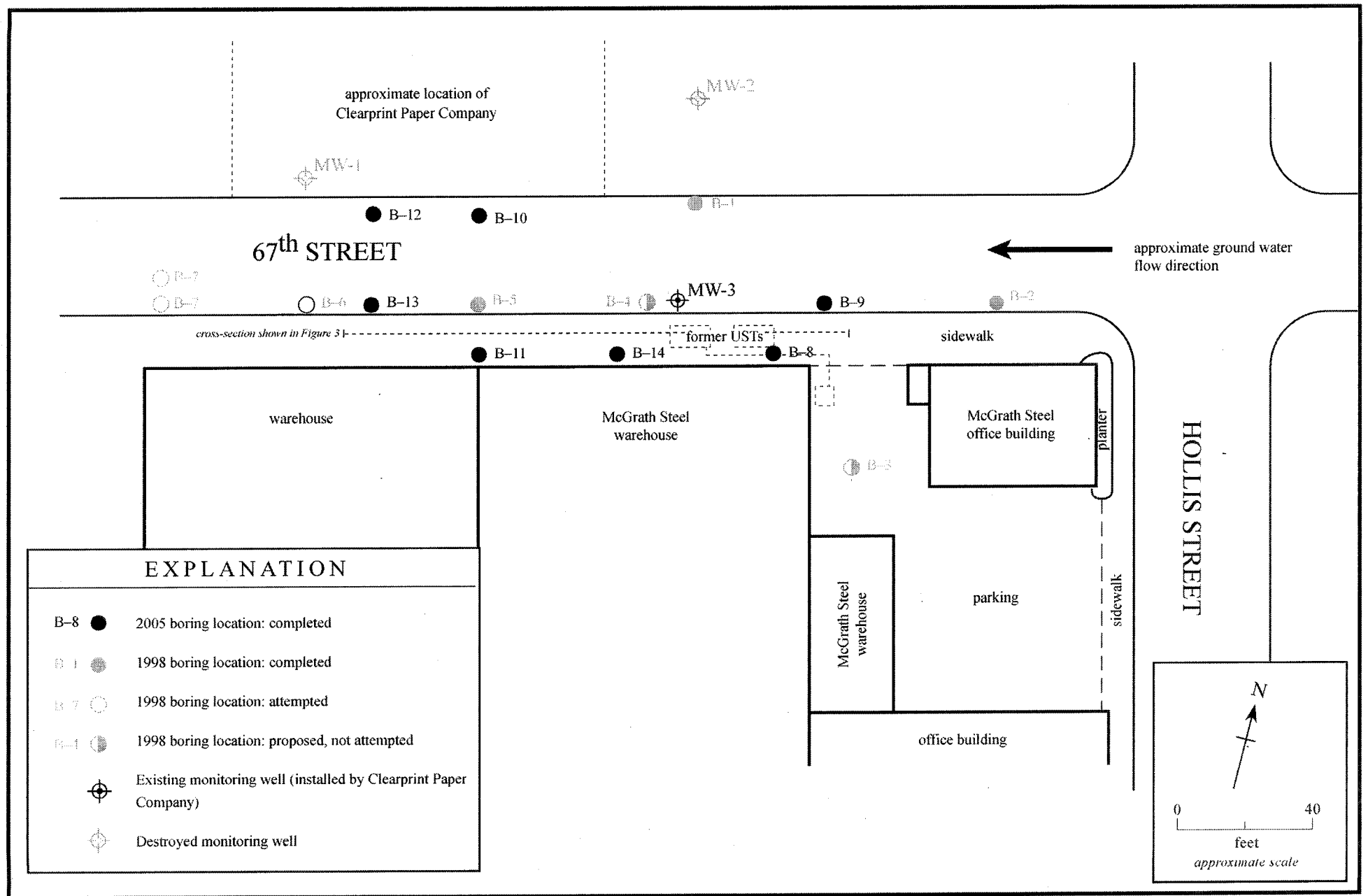


Figure 1. Site Location Map—McGrath Steel, 6655 Hollis Street, Emeryville, California



**EXPLANATION**

- B-8 ● 2005 boring location: completed
- B-1 ● 1998 boring location: completed
- B-7 ○ 1998 boring location: attempted
- B-1 ○ 1998 boring location: proposed, not attempted
- ⊕ Existing monitoring well (installed by Clearprint Paper Company)
- ⊕ Destroyed monitoring well

Figure 2. Site Plan and Boring Locations, McGrath Steel, 6655 Hollis Street, Emeryville, California

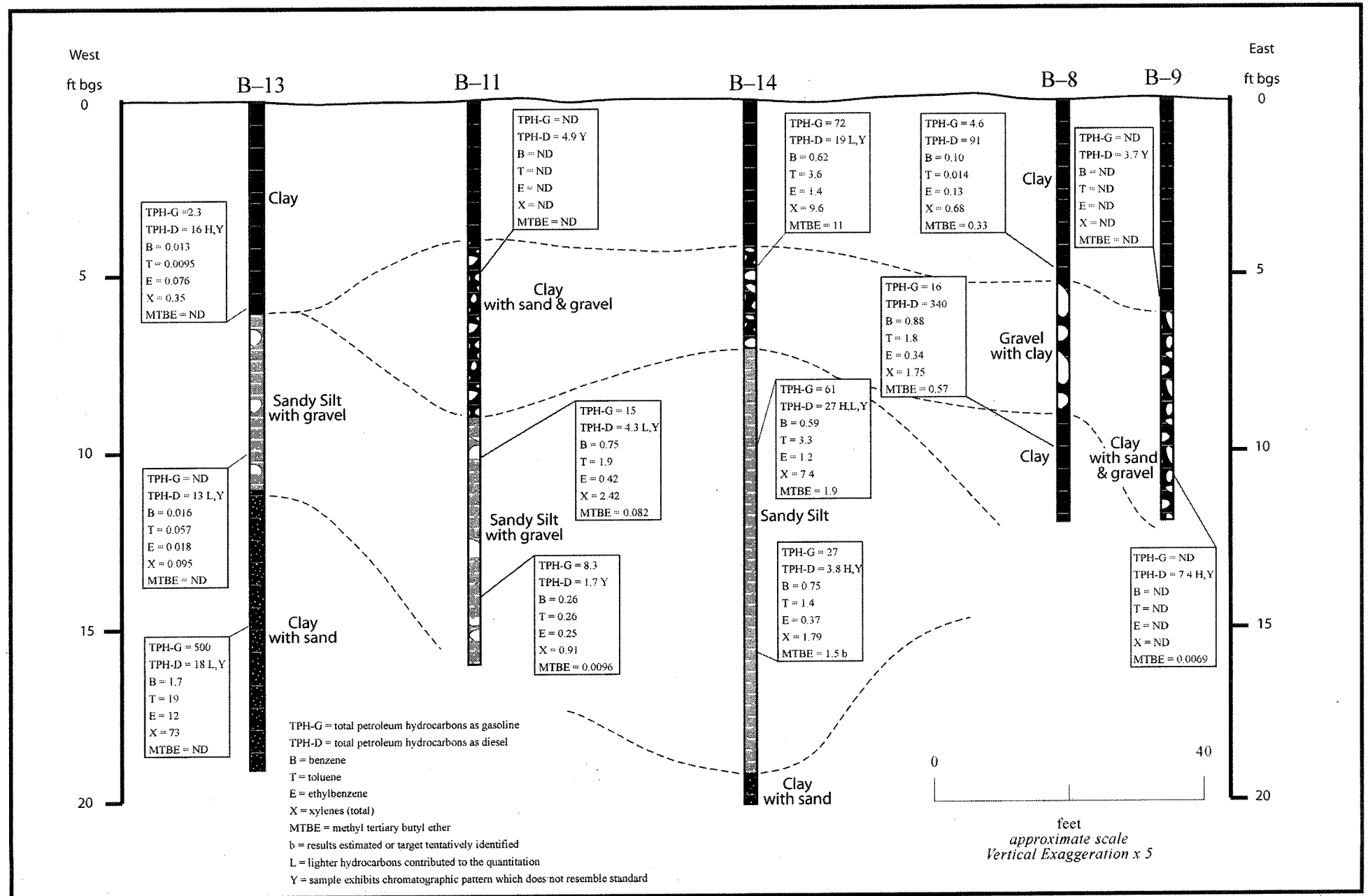


Figure 3. Cross-Section and Summary of Soil Sample Results, McGrath Steel, 6655 Hollis Street, Emeryville, California

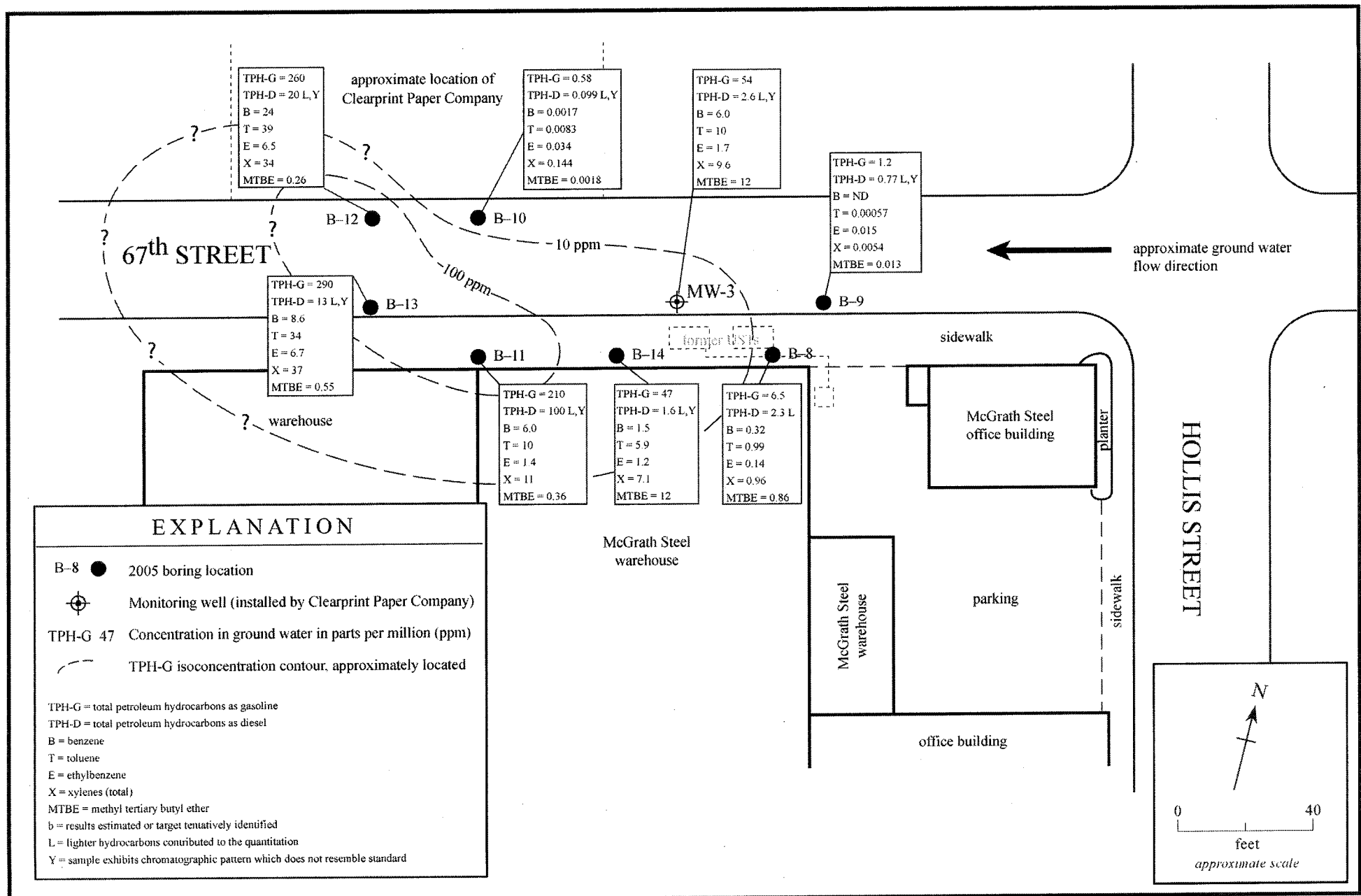
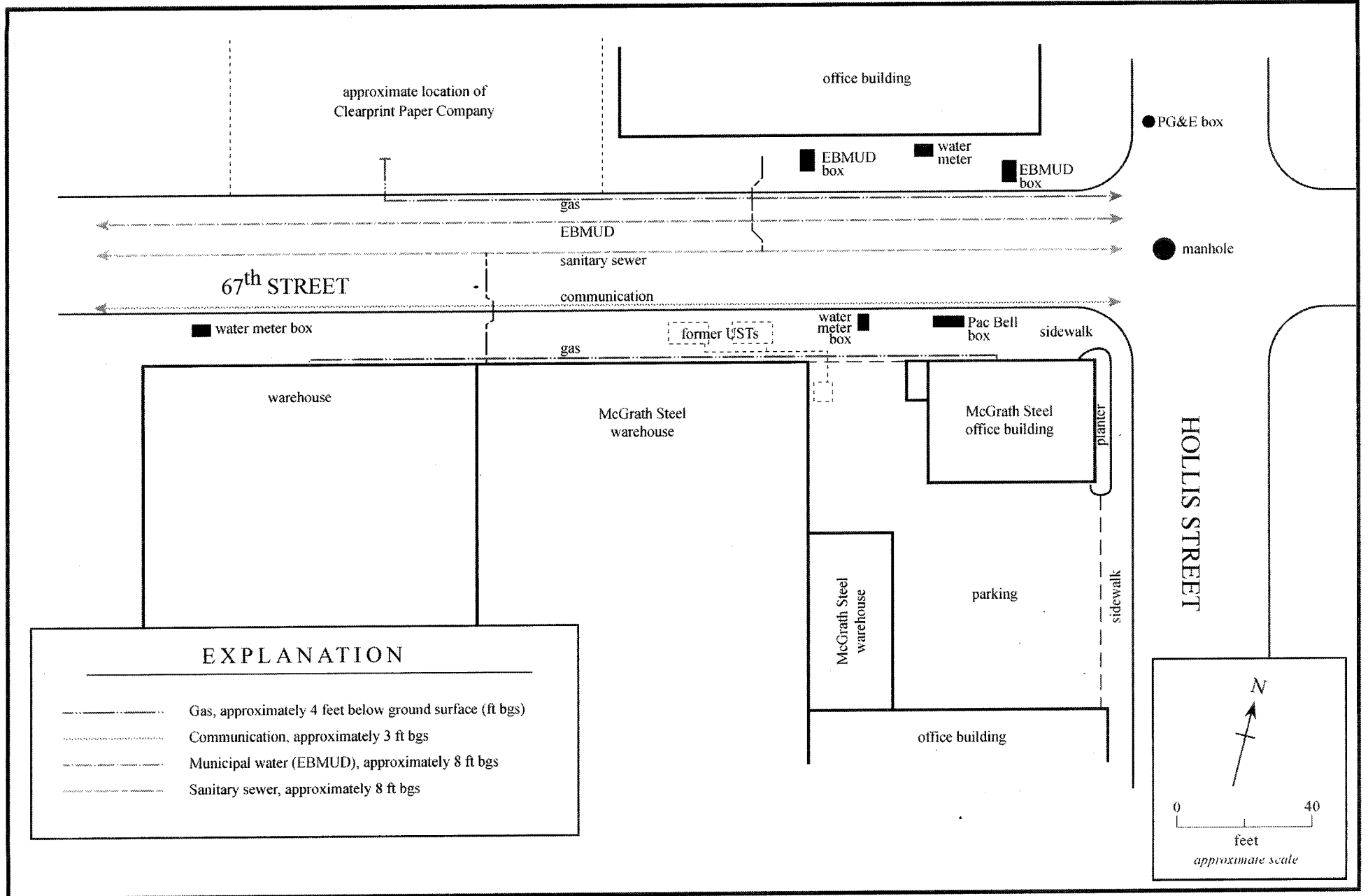


Figure 4. Summary of Grab Ground Water Sample Results, McGrath Steel, 6655 Hollis Street, Emeryville, California



**EXPLANATION**

- Gas, approximately 4 feet below ground surface (ft bgs)
- ..... Communication, approximately 3 ft bgs
- . - . - . Municipal water (EBMUD), approximately 8 ft bgs
- — — — Sanitary sewer, approximately 8 ft bgs

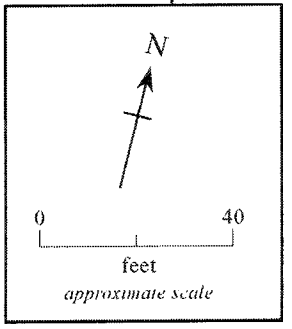


Figure 5. Subsurface Utility Locations, McGrath Steel, 6655 Hollis Street, Emeryville, California



Table 1. Summary of Soil and Ground Water Samples, December 2005, McGrath Steel, Emeryville, California

	B-8	B-9	B-10	B-11	B-12	B-13	B-14
<b>Soil:</b>	B-8-5	B-9-6	B-10-5	B-11-5	B-12-5	B-13-6	B-14-5
	B-8-10	B-9-11	B-10-10	B-11-10	B-12-11	B-13-10	B-14-10
			B-10-15	B-11-14		B-13-15	B-14-16
	TD = 12	TD = 12	TD = 22	TD = 16	TD = 20	TD = 19	TD = 20
<b>Ground Water:</b>	B-8-W	B-9-W	B-10-W	B-11-W	B-12-W	B-13-W	B-14-W
	DTW = 10.73	DTW = 10.47	DTW = 9.22	DTW = 13.79	DTW = 11.51	DTW = 16.22	DTW = 16.31

**Notes and Abbreviations**

B-X-Y = soil sample collected from boring "X" at "Y" feet below ground surface

B-Z-W = water sample collected from boring "Z"

DTW = depth to first-encountered ground water; measured during drilling in feet below ground surface

TD = total depth of boring in feet below ground surface

Table 2. Chemical Analytic Results Summary, December 2005, McGrath Steel, Emeryville, California

Sample ID	Sample Date	TPH-G	TPH-MS	TPH-D	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	TBA	MTBE	DIPE	ETBE	TAME	EDC	EDB
<b>Soil:</b>																
<i>Analytic Method:</i>		8015B	8015B	8015B	8021B	8021B	8021B	8021B	8021B	8260B	8260B	8260B	8260B	8260B	8260B	8260B
<i>Units:</i>		-----mg/kg (ppm)-----														
B-8-5	20-Dec-05	4.6	NA	91	0.10	0.014	0.13	0.56	0.12	0.22	0.33	ND	ND	ND	ND	ND
B-8-10	20-Dec-05	16	NA	340	0.88	1.8	0.34	1.2	0.55	ND	0.57	ND	ND	ND	ND	ND
B-9-6	20-Dec-05	ND	NA	3.7 Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-9-11	20-Dec-05	ND	NA	7.4 H,Y	ND	ND	ND	ND	ND	ND	0.0069	ND	ND	ND	ND	ND
B-10-5	20-Dec-05	ND	ND	16 H,Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-10-10	20-Dec-05	4.9	4.7 Y	3.4 Y	ND	ND	0.13	0.25	0.025	ND	ND	ND	ND	ND	ND	ND
B-10-15	20-Dec-05	ND	ND	8.3 L,Y	ND	0.016	0.10	0.040	0.018	ND	ND	ND	ND	ND	ND	ND
B-11-5	21-Dec-05	ND	NA	4.9 Y	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-11-10	21-Dec-05	15	NA	4.3 L,Y	0.75	1.9	0.42	1.7	0.72	ND	0.082	ND	ND	ND	ND	ND
B-11-14	21-Dec-05	8.3	NA	1.7 Y	0.26	0.26	0.25	0.65	0.26	ND	0.0096	ND	ND	ND	ND	ND
B-12-5	20-Dec-05	6.4	6.2 Y	38 L,Y	0.45	1.0	0.18	0.66	0.22	ND	ND	ND	ND	ND	ND	ND
B-12-11	20-Dec-05	5.6	5.5 Y	26 Y	0.18	0.0091	0.46	0.22	0.031	ND	ND	ND	ND	ND	ND	ND
B-13-6	21-Dec-05	2.3	NA	16 H,Y	0.013 C	0.0095 C	0.076	0.25	0.10	ND	ND	ND	ND	ND	ND	ND
B-13-10	21-Dec-05	ND	NA	13 L,Y	0.016	0.057	0.018	0.067	0.028	ND	ND	ND	ND	ND	ND	ND
B-13-15	21-Dec-05	500	NA	18 L,Y	1.7 C	19	12	53	20	ND	ND	ND	ND	ND	ND	ND
B-14-5	21-Dec-05	72	NA	19 L,Y	0.62 C	3.6	1.4	7.0	2.6	ND	11	ND	ND	ND	ND	ND
B-14-10	21-Dec-05	61	NA	27 H,L,Y	0.59 C	3.3	1.2	5.3	2.1	ND	1.9	ND	ND	ND	ND	ND
B-14-16	21-Dec-05	27	NA	3.8 H,Y	0.75	1.4	0.37	0.59	1.2	ND	1.5 b	ND	ND	ND	ND	ND

Table 2. Chemical Analytic Results Summary, December 2005, McGrath Steel, Emeryville, California

Sample ID	Sample Date	TPH-G	TPH-MS	TPH-D	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	TBA	MTBE	DIPE	ETBE	TAME	EDC	EDB
<b>Ground Water:</b>																
<i>Analytic Method:</i>		8015B	8015B	8015B	8021B	8021B	8021B	8021B	8021B	8260B	8260B	8260B	8260B	8260B	8260B	8260B
<i>Units:</i>										mg/L (ppm)						
MW-3	20-Dec-05	54	NA	2.6 L,Y	6.0	10	1.7	7.0	2.6	ND	12	ND	ND	ND	ND	ND
B-8-W	20-Dec-05	6.5	NA	2.3 L	0.32	0.99	0.14	0.69	0.27	ND	0.86	ND	ND	ND	0.0097	ND
B-9-W	20-Dec-05	1.2	NA	0.77 L,Y	ND	0.00057	0.015	0.0054	ND	ND	0.013	ND	ND	ND	ND	ND
B-10-W	20-Dec-05	0.58	0.55 Y,b	0.099 L,Y	0.0017 C	0.0083	0.034	0.11	0.034	ND	0.0018	0.0019	ND	ND	0.0024	ND
B-11-W	21-Dec-05	210	NA	100 L,Y	6.0	10	1.4	7.5	3.5	ND	0.36	ND	ND	ND	ND	ND
B-12-W	20-Dec-05	260	180 Y,b	20 L,Y	24	39	6.5	24	10	ND	0.26	ND	ND	ND	ND	ND
B-13-W	21-Dec-05	290	NA	13 L,Y	8.6	34	6.7	26	11	ND	0.55	ND	ND	ND	ND	ND
B-14-W	21-Dec-05	47	NA	1.6 L,Y	1.5	5.9	1.2	4.9	2.2	ND	12	ND	ND	ND	ND	ND

**Notes and Abbreviations**

8015B = Modified USEPA Method 8015 for total volatile or extractable petroleum hydrocarbons; silica gel cleanup method USEPA 3630C conducted on TPH-D samples

8021B = USEPA Method 8021B for volatile aromatic compounds by gas chromatography-mass spectrometry (GCMS)

8260B = USEPA Method 8260B for volatile organic compounds (VOCs) by GCMS

b = results estimated or target tentatively identified

C = presence confirmed, but relative percent difference (RPD) between columns exceeds 40%

DIPE = di-isopropyl ether

EDB = ethylene dibromide; 1,2-dibromoethane

EDC = ethylene dichloride; 1,2-dichloroethane

ETBE = ethyl tert-butyl ether

H = heavier hydrocarbons contributed to the quantitation

L = lighter hydrocarbons contributed to the quantitation

mg/kg = milligrams per kilogram; equivalent to parts per million (ppm) in soil

mg/L = milligrams per liter; equivalent to parts per million (ppm) in ground water

MTBE = methyl tertiary butyl ether

NA = not analyzed, not required

ND = not detected above laboratory reporting limit

TAME = tert-amyl methyl ether

TBA = tert-butyl alcohol

TPH-D = total petroleum hydrocarbons as diesel (C10-C24 range)

TPH-G = total petroleum hydrocarbons as gasoline (C7-C12 range)

Y = sample exhibits chromatographic pattern which does not resemble standard

ALAMEDA COUNTY  
HEALTH CARE SERVICES



AGENCY  
DAVID J. KEARS, Agency Director

June 27, 2005

ENVIRONMENTAL HEALTH SERVICES  
ENVIRONMENTAL PROTECTION  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Mr. Earl Mau  
Clearprint Paper Co., Inc.  
1482 67<sup>th</sup> St.  
Emeryville, CA 94608

Mr. Don Fleischauer  
GPC International  
510 Broad Hollow Rd.  
Melville, New York, 11747  
(510) 567-6700  
FAX (510) 337-9335

Dear Messrs. Mau and Fleischauer:

Subject: Fuel Leak Site Case Closure, Clearprint Paper Co., 1482 67<sup>th</sup> St.,  
Emeryville, CA 94608; Case No. RO0000055.

This letter transmits the enclosed underground storage tank (UST) case closure letter in accordance with Chapter 6.75 (Article 4, Section 25299.37[h]). The State Water Resources Control Board adopted this letter on February 20, 1997. As of March 1, 1997, the Alameda County Environmental Health (ACEH) is required to use this case closure letter for all UST leak sites. We are also transmitting to you the enclosed case closure summary. These documents confirm the completion of the investigation and cleanup of the reported release at the subject site. The subject fuel leak case is closed.

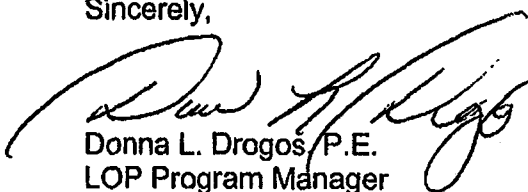
#### SITE INVESTIGATION AND CLEANUP SUMMARY

Please be advised that the following conditions exist at the site:

- Up to 610 parts per million (ppm) Total Petroleum Hydrocarbons as gasoline (TPHg), 340 ppm TPH as diesel, 930 ppm Oil and Grease, 33 ppm zinc, 1.3 ppm naphthalene, 1.1 ppm anthracene, 1.1 ppm fluoranthene and 0.96 ppm pyrene remain in soil at this site.

If you have any questions, please call Barney Chan at (510) 567-6765. Thank you.

Sincerely,



Donna L. Drogos, P.E.  
LOP Program Manager

Enclosures:

1. Case Closure Letter
2. Case Closure Summary

cc: Ms. Cherie McCaulou  
Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Mr. Toru Okamoto (w/enc)  
State Water Resources Control Board  
Underground Storage Tank Cleanup Fund  
P.O. Box 944212  
Sacramento, CA 94244-2120

Mr. George Warren (w/enc)  
City of Emeryville Fire Dept.  
1313 Park Ave.  
Emeryville, CA 94608

✓ B. Chan, (w/orig enc), D. Drogos (w/enc), R. Garcia (w/enc)

ALAMEDA COUNTY  
HEALTH CARE SERVICES

AGENCY  
DAVID J. KEARS, Agency Director



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

June 27, 2005

Mr. Earl Mau  
Clearprint Paper Co., Inc.  
1482 67<sup>th</sup> St.  
Emeryville, CA 94608

Mr. Don Fleischauer, Exec. VP  
GPC International  
510 Broad Hollow Rd.  
Melville, New York, 11747

Dear Messrs. Mau and Fleischauer:

Subject: Fuel Leak Site Case Closure, Clearprint Paper Co., 1482 67<sup>th</sup> St., Emeryville, CA 94608; Case No. RO0000055.

This letter confirms the completion of a site investigation and remedial action for the four (4) underground storage tanks, (1- 9450 gallon, 1- 8000 gallon, 1- 1000 gallon and 1- 10000 gallon), formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above-referenced file and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and corrective action carried out at your underground storage tank(s) site is in compliance with the requirements of subdivisions (a) and (b) of Section 25299.37 of the Health and Safety Code and with corrective action regulations adopted pursuant to Section 25299.77 of the Health and Safety Code and that no further action related to the petroleum release at the site is required.

This notice is issued pursuant to subdivision (h) of Section 25299.37 of the Health and Safety Code.

Please contact our office if you have any questions regarding this matter.

Sincerely,

Mee Ling Tung  
Director  
Alameda County Environmental Health



**CASE CLOSURE SUMMARY  
LEAKING UNDERGROUND FUEL STORAGE TANK - LOCAL OVERSIGHT PROGRAM**

**I. AGENCY INFORMATION**

Date: April 14, 2005

Agency Name: Alameda County Environmental Health	Address: 1131 Harbor Bay Parkway
City/State/Zip: Alameda, CA 94502-6577	Phone: (510) 567-6719
Responsible Staff Person: Robert W. Schultz	Title: Hazardous Materials Specialist

**II. CASE INFORMATION**

Site Facility Name: Clearprint Paper Co. Inc.		
Site Facility Address: 1482 67th Street, Emeryville, California 94608		
RB Case No.: Geotracker 01-2083	Local Case No.: STID 320	LOP Case No.: RO0000055
URF Filing Date: 10/9/94	SWEEPS No.: ---	APN: 049-1512-006 01 and 02

Responsible Parties	Addresses	Phone Numbers
Clearprint Paper Co., Inc.	Attn. Earl Mau 1482 67th Street Emeryville, CA	510-652-4762
	c/o GPC International Attn. Don Fleischauer, Exec. VP 510 Broad Hollow Road Melville, New York 11747	631-752-9600

Tank I.D. No	Size in Gallons	Contents	Closed In Place/Removed?	Date
1	9,450	mineral spirits	removed	October 3 & 4, 1994
2	8,000	solvent – Soltrol 10 (2,2,4-trimethylpentane and related isoparaffins)	removed	October 3 & 4, 1994
3	1,000	mineral spirits	removed	October 3 & 4, 1994
4	10,000	mineral spirits	removed	October 3 & 4, 1994
Piping			removed	October 3 & 4, 1994

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and Type of Release: UST failure – holes noted in tanks 1 and 3	
Site characterization complete? Yes	Date Approved By Oversight Agency: ----

Monitoring wells installed? Yes	Number: 3	Proper screened interval? Yes
Highest GW Depth Below Ground Surface: 6.78	Lowest Depth: 11.03	Flow Direction: west
Most Sensitive Current Use: Potential drinking water source.		

Summary of Production Wells in Vicinity:  
 The East Bay Plain Groundwater Basin Beneficial Use Evaluation Report prepared by the Regional Water Quality Control Board, San Francisco Bay Region, dated June 1999, inventoried all municipal, domestic, industrial and irrigation wells permitted by the Alameda County Flood Control District. The East Bay Plain Study states that 0 permitted water wells were located in Emeryville, and that no extractive beneficial uses are planned in the future. The site is within the Emeryville Brownfields Groundwater Management Zone identified by the East Bay Plain study. The City of Emeryville has developed a sub-regional groundwater monitoring plan to protect groundwater in this Brownfields Zone. Older (and consequently un-permitted) deeper wells were also considered in the East Bay Plain study. The density of deeper wells in Emeryville as evaluated from the Dockweiler Report (dated 1912) is fairly low at about 1 deep well per square mile.

Are drinking water wells affected? No	Aquifer Name: East Bay Plain
Is surface water affected? No	Nearest SW Name: San Francisco Bay, 2000 ft west of the site
Off-Site Beneficial Use Impacts (Addresses/Locations): None	
Reports on file? Yes	Where are reports filed? Alameda County Environmental Health

TREATMENT AND DISPOSAL OF AFFECTED MATERIAL			
Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date
Tank	4 USTs	Offsite Disposal. H&H Ship Service 220 Terry A. Francois Street San Francisco, CA 94107	October 3 & 4, 1994
Piping	unknown	unknown	October 3 & 4, 1994
Free Product	none	---	---
Soil	520 cu yds	Offsite Disposal. Gibson Oil and Refining, Bakersfield, CA	October 5 through 11, 1994
Groundwater	6,900 gals.	Offsite Disposal. Petroleum Recycling Co. Patterson, CA	October 5 through 11, 1994

**MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS BEFORE AND AFTER CLEANUP**  
 (Please see Attachments 1 through 5 for additional information on contaminant locations and concentrations)

Contaminant	Soil (ppm)		Water (ppb)	
	Before	After	Before	After
TPH (Gas)	610	610	8,600**	<0.5
TPH (Diesel)	340	340	19,000	<0.4
Oil & Grease	930	930	12,000	NA
Benzene	20**	20**	730**	<0.5
Toluene	72**	72**	2,100**	<0.5
Ethylbenzene	35**	35**	300**	<0.5
Xylenes	180**	180**	1,400**	<0.5
Heavy Metals	33***	33***	NA	NA
MTBE	NA	NA	<1.0*	<1.0*
Other (8240/8270)	1.3****	1.3****	NA	NA

\* <5.0 ppb TAME, <5.0 ppb ETBE, <5.0 ppb DIPE, <10 ppb TBA, <0.5 ppb EDB, and <0.5 ppb 1,2-DCA  
 Soil not analyzed for MTBE as USTs were never used for fuel. Mineral spirits and solvent (2,2,4-trimethylpentane) storage only.

\*\* detected concentration believed to be the result of source at upgradient McGrath Steel site (RO-63) as data is from an offsite upgradient monitoring well that is adjacent to the former McGrath Steel UST location.

Heavy Metals = <0.25 mg/kg Cadmium (Cd), 20 mg/kg Chromium (Cr), 31 mg/kg Nickel (Ni), 31 mg/kg Lead (Pb) and 33 mg/kg Zinc (Zn), detected concentrations are shown in the attached tables and are consistent with anticipated naturally occurring background levels

\*\*\*Highest LUFT 5 heavy metal concentration was 33 mg/kg Zinc.

NA = not analyzed or not applicable

\*\*\*\*1.3 mg/kg naphthalene, 1.1 mg/kg anthracene, 1.1 mg/kg fluoranthene and 0.96 mg/kg pyrene

**Site History and Description of Corrective Actions:**

Clearprint Paper Company manufactured paper products from 1950 until approximately 2002. Manufacturing operations at the site included use of mineral oil. Two tanks were installed in 1950 through 1951, and two additional tanks were installed in 1978 through 1979. The underground storage tanks were formerly located onsite and contained mineral oil and the solvent Soltrol (2,2,4-trimethylpentane and related isoparaffins). In 1990, Clearprint Paper Company discontinued the use of solvents at the site.

- All four tanks were removed from the site in October 1994.
- During removal of the underground storage tanks in 1994, overexcavation of soils surrounding the tanks was performed and soil was disposed offsite. Twenty-six confirmation soil samples and two groundwater samples were collected.
- Six soil borings were drilled in 1995. Three of the borings were backfilled with cement grout and monitoring wells were installed in the 3 remaining borings.
- The monitoring wells were sampled once in 1995 and three additional times in 2004.

**IV. CLOSURE**

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes No
Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes No
Does corrective action protect public health for current land use? Alameda County Environmental Health staff does not make specific determinations concerning public health risk. However, based upon the information available in our files to date, it does not appear that the release would present a risk to human health based upon current land use and conditions.
Site Management Requirements: Case closure for this fuel leak site is granted for commercial/industrial use only. If a change in land use to residential or other more sensitive use occurs at this property, Alameda County Environmental Health must be notified and the case needs to be re-evaluated.
Should corrective action be reviewed if land use changes? Yes
List Enforcement Actions Taken: None
List Enforcement Actions Rescinded: None

**V. ADDITIONAL COMMENTS, DATA, ETC.**

Considerations and/or Variances:

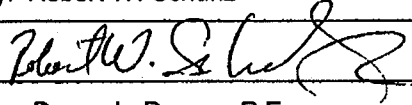
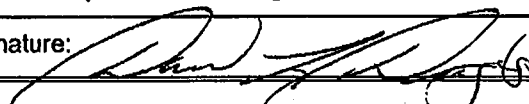
In 1995, dissolved gasoline, including benzene, toluene, ethylbenzene and xylenes (BTEX), was detected in monitoring wells MW-1 and MW-3. Further, free product was observed in well MW-3 in 1996. Well MW-3 is upgradient of the site and is adjacent to former USTs at McGrath Steel, 6655 Hollis St., Emeryville. McGrath Steel is an active Leaking Underground Fuel Tank (LUFT) case being overseen by ACEH (case no. RO-63). Detectable levels of BTEX were present in site soils within the anticipated range of water level fluctuations. No BTEX was detected in shallow soil samples (<3 ft bgs). USTs at the site do not appear to have been used for fuel storage. Polynuclear aromatic hydrocarbons (PAHs) were detected in one soil sample only and appear to be limited in extent. The detected metals concentrations are consistent with anticipated naturally occurring background levels.

Soil and groundwater investigation at the site was limited to the UST vicinity only. No investigation of soil and groundwater conditions beneath the building immediately adjacent to the sidewalk) was performed. Accordingly, if land use changes to residential or other more sensitive use, site conditions will need to be re-evaluated.

In addition, boring logs for sample locations SB-1, SB-2 and SB-3 were not submitted to ACEH.

Conclusion:  
Based on the considerations above, the site is likely not the source of the observed free product or the detected BTEX concentrations. The detected PAHs are localized and do not appear to pose a significant threat. Alameda County Environmental Health staff believe that the levels of residual contamination do not pose a significant threat to water resources, public health and safety, and the environment based upon the information available in our files to date. No further investigation or cleanup is necessary. ACEH staff recommend case closure for this site.

**VI. LOCAL AGENCY REPRESENTATIVE DATA**

Prepared by: Robert W. Schultz	Title: Hazardous Materials Specialist
Signature: 	Date: 5/11/05
Approved by: Donna L. Drogos, P.E.	Title: Supervising Hazardous Materials Specialist
Signature: 	Date: 05/11/05

This closure approval is based upon the available information and with the provision that the information provided to this agency was accurate and representative of site conditions.

VII. REGIONAL BOARD NOTIFICATION

*Engineering Geologist*

Regional Board Staff Name: <i>Cherie McCaulou</i>	Title: <del>Associate Water Resources Control Engineer</del>
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB: <i>5/12/05</i>
Signature: <i>[Signature]</i>	Date: <i>5/12/05</i>

VIII. MONITORING WELL DECOMMISSIONING

Data Requested by ACEH:	Date of Well Decommissioning Report: <i>6/30/05</i>	
All Monitoring Wells Decommissioned: Yes <input type="radio"/> No <input checked="" type="radio"/>	Number Decommissioned: <i>2</i>	Number Retained: <i>1</i>
Reason Wells Retained: <i>MW 3 INCORPORATED INTO R063 GW MONITORING NETWORK</i>		
Additional requirements for submittal of groundwater data from retained wells: <i>NA</i>		
ACEH Concurrence - Signature: <i>[Signature]</i>	Date: <i>6/30/05</i>	

Attachments:

1. Site Vicinity Map
2. Site Plan (2 pages)
3. Soil Analytical Data (19 pages)
4. Groundwater Analytical Data (3 pages)
5. Boring Logs (9 pages)

This document and the related CASE CLOSURE LETTER shall be retained by the lead agency as part of the official site file.

*Re: 1482-67th St. Emeryville*

Post-It® Fax Note	7871	Date	<i>5/12/05</i>	# of pages	<i>1</i>
To	<i>Bob Schultz</i>	From	<i>Cherie McCaulou</i>		
Co./Dept.	<i>ACEH</i>	Co	<i>RWQCB</i>		
Phone #		Phone #	<i>570-622-2342</i>		
Fax #	<i>570-337-9335</i>	Fax #	<i>570-622-2464</i>		

**VII. REGIONAL BOARD NOTIFICATION**

Regional Board Staff Name:	Title: Associate Water Resources Control Engineer
RB Response: Concur, based solely upon information contained in this case closure summary.	Date Submitted to RB:
Signature:	Date:

**VIII. MONITORING WELL DECOMMISSIONING**

Date Requested by ACEH:	Date of Well Decommissioning Report:	
All Monitoring Wells Decommissioned: Yes No	Number Decommissioned:	Number Retained:
Reason Wells Retained:		
Additional requirements for submittal of groundwater data from retained wells:		
ACEH Concurrence - Signature:	Date:	

**Attachments:**

1. Site Vicinity Map
2. Site Plan (2 pages)
3. Soil Analytical Data (19 pages)
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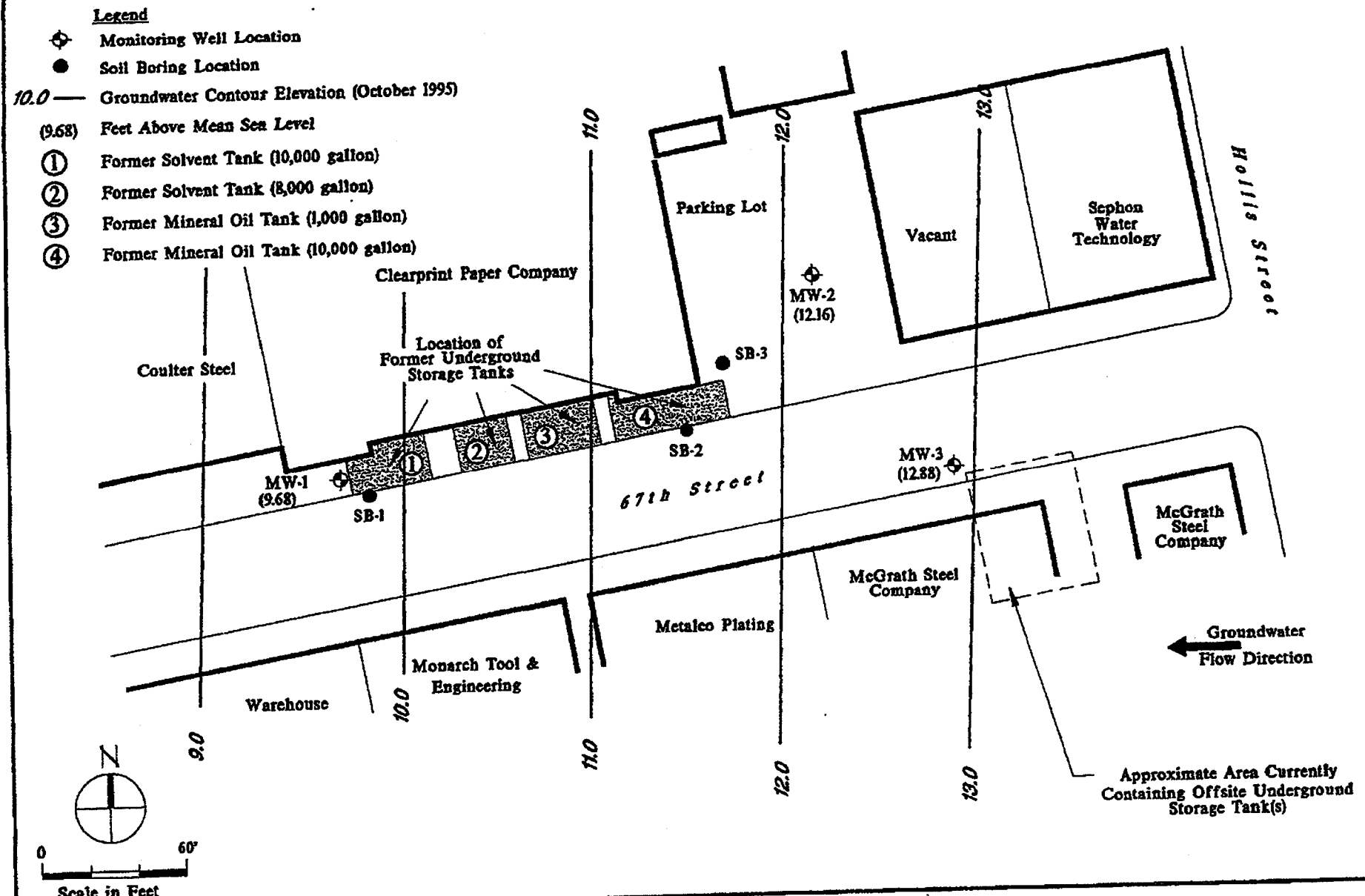


Figure 6  
 Groundwater Contour Elevation (November 21, 1995)  
 Clearprint Paper Company  
 Emeryville, California

Attachment 2

Table 1

Historical Groundwater Elevations  
Clearprint Paper Company Facility  
Emeryville, California

<u>Monitoring Well</u>	<u>Date</u>	<u>Depth to Groundwater (Ft)</u>	<u>Depth to Free Product (Ft)</u>	<u>Groundwater Elevation (Ft MSL)</u>	<u>Change in Elevation (ft)</u>
MW-1	10/17/95	10.21	N/A	10.11	
	11/21/1995	10.64	N/A	9.68	-0.43
	12/23/1996	9.07	N/A	11.25	1.56
	1/15/1996	9.34	N/A	10.98	-0.27
	2/16/1996	7.46	N/A	12.86	1.88
	3/28/1996	7.48	N/A	12.84	-0.02
MW-2	10/17/95	10.28	N/A	12.91	
	11/21/1995	11.03	N/A	12.16	-0.75
	12/23/1996	9.21	N/A	13.98	1.13
	1/15/1996	9.40	N/A	10.92	-3.06
	2/16/1996	7.35	N/A	12.97	2.05
	3/28/1996	7.32	N/A	13.00	0.03
MW-3	10/17/95	9.42	N/A	13.31	
	11/21/1995	9.85	N/A	12.88	-0.43
	12/23/1996	8.52	N/A	14.21	1.14
	1/15/1996	8.72	N/A	11.60	-2.61
	2/16/1996	7.08	7.04 (a)	13.24	1.64
	3/28/1996	6.78	6.75 (a)	13.54	0.30

a/ = Measurable free product was brown with a solvent/hydrocarbon odor and low viscosity.

Attachment 4

**Table 4**  
**Analytical Result Summary for Groundwater Samples**  
**Clearprint Facility, Emeryville, CA**  
**Supplemental Investigation, October 1995 (ug/l) (a)**

<b>Analyte</b>	<b>MW-1</b>	<b>MW-2</b>	<b>MW-3</b>	<b>201(duplicate of MW-1)</b>
TPH-diesel	890	65	220	650
TPH-gasoline	8100	50 U	8600	7400
Mineral oil	100 U	100 U	100 U	100 U
Benzene	160	0.50 U	730	120
Toluene	710	0.8 U	2100	570
Ethylbenzene	800	0.50 U	270	250
Xylenes (total)	1500	0.9 U	1400	1300

a/U = undetected at indicated detection limit

**Groundwater Sample Summary  
Clearprint, Emeryville, Ca (a)**

<u>Date</u>	<u>Location</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Xylenes</u>	<u>TPHg</u>	<u>TPHd</u>	<u>TPHmin</u>	<u>TPH C6-C40</u>	<u>TCE</u>	<u>cis-1,2-DCE</u>
10/17/1995	MW-1	160	710	300	1,500	<del>NA</del> <sup>8100</sup>	590	<100	NA	NA	NA
9/28/2004	MW-1	2	<0.001	4	<0.003	<0.5	<0.4	<0.4	NA	NA	NA
11/18/2004	MW-1	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	ND**	<0.5	<0.5
10/17/1995	MW-2	<0.5	0.8	<0.5	0.9	<50	65	<100	NA	NA	NA
9/28/2004	MW-2	<0.001	<0.001	<0.001	<0.003	<0.5	<0.4	<0.4	NA	NA	NA
11/18/2004	MW-2	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	ND***	47	0.9
12/3/2004	MW-2	<0.5	<0.5	<0.5	<1.0	NA	NA	NA	NA	68	1.9
10/17/1995	MW-3*	730	2,100	270	1,400	8,600	220	<100	NA	NA	NA
	MCLs	0.5	150	300	1,750					5	6
	ESLs					100	100	100			

a\ ug/l

ND\ not detected at instrument reporting limit

TPH\ total petroleum hydrocarbons

MCLs\ Maximum Contaminant Levels

ESLs\ San Francisco Bay RWQCB Environmental Screening Levels (February 2005)

\*\ MW-3 no longer exists

\*\*\ reporting limit for C6-C12 was 0.50; for C12-22 and C22-C40 was 0.40

BORING LOG  
 Environmental Strategies Corporation  
 101 Metro Drive, Suite 650  
 San Jose, CA 95110

PROJECT  
 10 ARPRINT  
 1482 67TH ST  
 Emeryville CA

Boring No. 14W-5  
 Sheet 1 of 2  
 Date Drilled 10/11/95

Approved by:

Drilling Co. WEST HAZMAT  
 Driller LEE FOX  
 ESC Geologist J BENSON

Boring Location SE of TANK 4  
 Ground Elevation \_\_\_\_\_  
 TOC Elevation \_\_\_\_\_

Method Hollow Stem Auger  
 Hole Diameter 8"  
 Inside Diameter 3.75"  
 Total Depth 29.4

Outer Casing  
 Type N/A  
 Diameter \_\_\_\_\_  
 Length \_\_\_\_\_

Well Casing/Screen/Filter Pack  
 Type/Diameter Sched 40/2"  
 Screen Length \_\_\_\_\_  
 Screen Slot Size 0.01 Filter Pack 2/12  
 Total Depth 29.4

Sampler  
 Method SS Split spoon  
 Length (ft) 18"  
 Hammer (lbs)/Fall (ins) 140 lb 26"

Blows/ft	Sample Depth	Water Level Time & Date	Sample Time	PID (ppm)	Core Sample Number	Depth (ft)	Description	Graphic Log	Well Construction	
N/A				NA		1	Asphalt / BASE MAT			
						2				
						3				
13				13.8		4	Mod gel brown 10 PR 5/4	CL		
28				29.9		4	Silty clay some 10 PR 2/2			
13				20.1		5	Mottled			
				11.2		6				
10				28.9		6	LT olive gray 54 5/2 mottled			
15		1515		32.6		7	w/ Mod brown 5 PR 3/4 silty clay			
23				18.9		7				
				16.7		8				
14		1525		78.0		9	Some grayish green			
17				1128.8		9				
28				149.6		10				
				23.11		10				
20		1530		117.21		11	Mod gel brown 10 PR 5/4 some	SM	strong petro/solvent odor	
28				585.6		11	Gray green 56 5/2 mottled silty			
32				72.9		12	Very coarse sandy gravel some clay			
						13				
13				29.4		14	Mod gel brown 10 PR 5/4 silty clay			
13				7.6		14	w/ some coarse sand			
21				4.3		15				
				4.0		15				
23				4.4		16	Mod yellow brown 10 PR 5/4 very			
27				8.3		16	coarse clay w/ some gravel			
38				10.2		17				

**BORING LOG**

Environmental Strategies Corporation  
 101 Metro Drive, Suite 650  
 San Jose, CA 95110

PROJECT \_\_\_\_\_

Boring No. \_\_\_\_\_

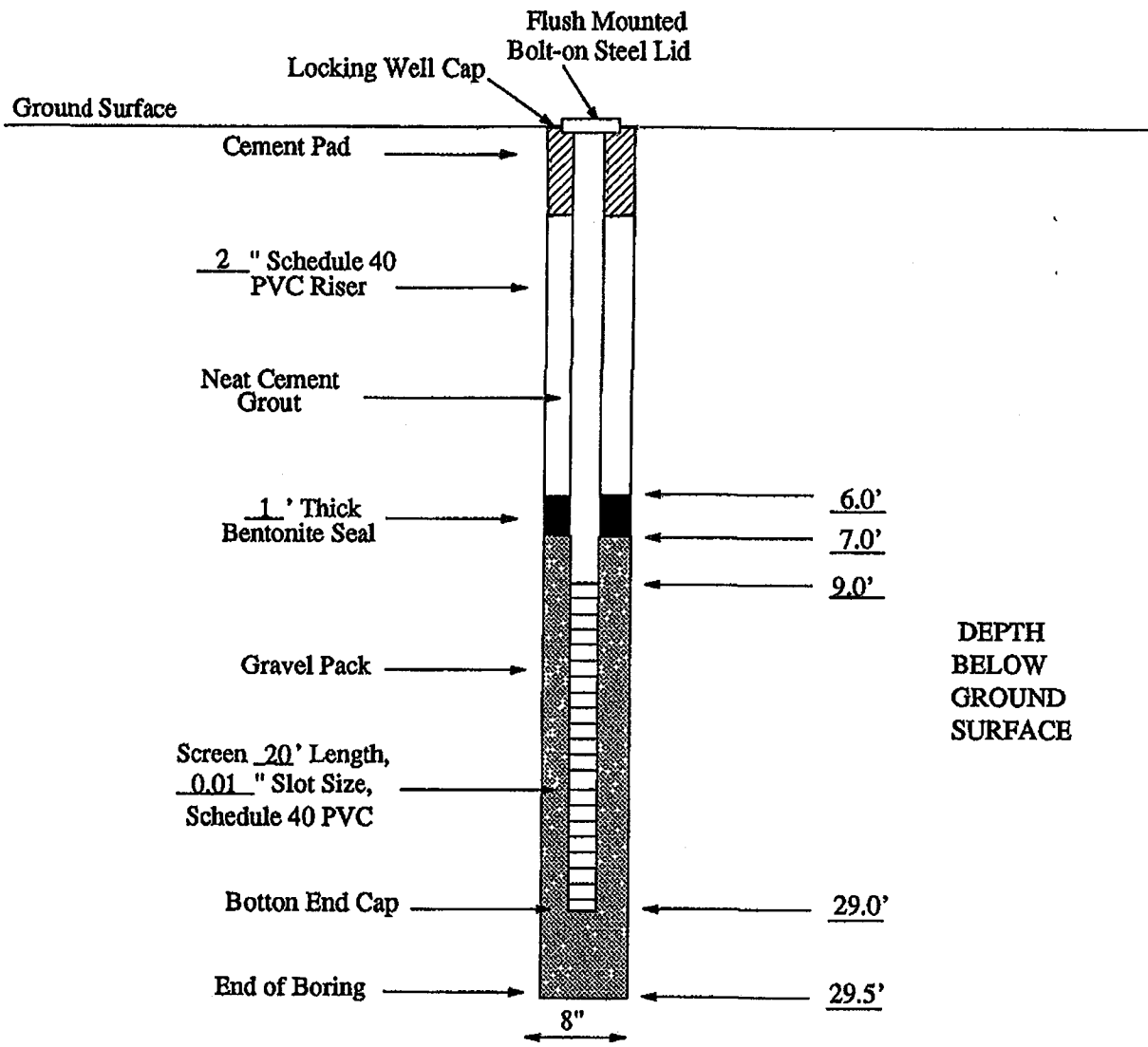
Sheet \_\_\_\_\_ of \_\_\_\_\_

Date Drilled \_\_\_\_\_

Approved by: \_\_\_\_\_

Blows/FL	Sample Depth	Water Level Time & Date	Sample Time	PID (ppm)	Core Sample Number	Depth (ft)	Description	Graphic Log	Well Construction
						18	Same as above	CL	
22			1600	0					
26				2.0					
30				0		19	Same as above w/ some mottling silty clay	CL	
				0		20			
16				0		21			
19				0		22			
26				0		23			
				0		24	Same as above w/ some mottling silty clay	CL	
12				1.5		24			
30			1638	0		25	No recovery Fine silty sand Muck in auger some grayish black org		
				0		26			
+50						27			
Muck in auger						28			
						29	End of boring 29.4'		
						30			
						31			
						32			
						33			
						34			
						35			
						36			
						37			
						38			

SITE NAME: Clearprint  
 LOCATION: Emeryville, California  
 DATE: 10/11/95



AS-BUILT DIAGRAM FOR WELL MW-3



ENVIRONMENTAL STRATEGIES CORP.  
 101 Metro Drive Suite 650  
 San Jose, California 95110  
 408-453-6100



# Appendix C



## STANDARD GEOPROBE™ DPT SAMPLING PROCEDURES

### **Soil Sampling**

Direct push technology (DPT) soil core sampling using Geoprobe™ or similar methods is accomplished using a nominal 4-foot long, 2-inch diameter stainless steel drive probe and extension rods. The drive probe is equipped with nominal 1-1/2 inch diameter clear plastic poly tubes that line the interior of the probe. The probe and insert tubes are together pneumatically driven using a percussion hammer in 4-foot intervals. After each drive interval the drive probe and rods are retrieved to the surface. The poly tube containing subsurface soil is then removed. The drive probe is then cleaned, equipped with a new poly tube and reinserted into the boring with extension rods as required. The apparatus is then driven following the above procedure until the desired depth is obtained. The poly tubes and soil are inspected after each drive interval with lithologic and relevant drilling observations recorded. Soil samples are screened for organic vapors using an organic vapor meter (OVM), photo-ionization detector (PID) or other appropriate device. OVM/PID readings, soil staining and other relevant observations are recorded. Selected soil sample intervals can be cut from the 4-foot intervals for possible analytical or geotechnical testing or other purposes.

The soils contained in the sample liners are then classified according to the Uniform Soil Classification System and recorded on the soil boring logs.

Sample liners selected for laboratory analyses are sealed with Teflon sheets, plastic end caps, and silicon tape. The sealed sample liner is then labeled, sealed in a plastic bag, and placed in an ice chest cooled to 4°C with crushed ice for temporary field storage and transportation. The standard chain-of-custody protocol is maintained for all soil samples from the time of collection to arrival at the laboratory.

### **Groundwater Sampling**

Groundwater sampling is performed after the completion of soil sampling and when the boring has reached its desired depth. The steel probe and rods are then removed from the boring and new, nominal 1-inch diameter PVC solid and perforated temporary casing is lowered into the borehole. Alternatively, a retractable screen sampling device such as a Hydropunch™ can be driven to the desired depth and pulled back to expose the screened interval. Depth to water is then measured using an electronic groundwater probe. Groundwater samples are collected using a stainless steel bailer, disposable Teflon™ bailer, or check valve or peristaltic pump with disposable Teflon™ or polyethylene sample tubing.

After the retrieval of the bailer, groundwater contained in the bailer (or discharged from sample tubing) is decanted into laboratory provided containers. The containers are then sealed with Teflon coated caps with no headspace, labeled, and placed in an ice chest for field storage and transportation to a state certified analytical laboratory. The standard chain-of-custody protocols are followed from sample collection to delivery to the laboratory. A new bailer (or sample tubing) is used for each groundwater sampling location to avoid cross contamination.



## **Groundwater Monitoring Well Development**

Groundwater monitoring wells will be developed with the combination of surging and pumping actions. The wells will be alternately surged with a surging block for five minutes and pumped with a submersible pump for two minutes. The physical characteristics of the groundwater, such as water color and clarity, pH, temperature, and conductivity, will be monitored during well development. Well development will be considered complete when the groundwater is relatively sediment-free and groundwater characteristic indicators are stabilized (consecutive readings within 10% of each other).

Groundwater will be sampled from the developed wells no sooner than 48 hours after well development to allow stabilization of groundwater conditions. Prior to groundwater sampling, a proper purging process will be performed at each well. The purpose of well purging is to remove fine grained materials from the well casing and to allow fresh and more representative water to recharge the well. Prior to well purging, an electric water depth sounder will be lowered into the well casing to measure the depth to the water to the nearest 0.01 feet. A clear poly bailer will then be lowered into the well casing and partially submerged. Upon retrieval of the clear bailer, the surface of the water column retained in the bailer will be carefully examined for any floating product or product sheen.

After all initial measurements are completed and recorded, the well will be purged by an electrical submersible pump or a bailer. A minimum of 3 well volumes of groundwater will be purged and groundwater characteristics (temperature, pH, and conductivity) monitored at each well volume interval. Purging is considered complete when indicators are stabilized (consecutive readings within 10% of each other) and the purged water is relatively free of sediments.

Groundwater sampling will be conducted after the water level has recovered to at least 80% of the initial level, recorded prior to purging. The groundwater sample will be collected by a disposable bailer. Upon retrieval of the bailer, the retained water will be carefully transferred to appropriate sample bottle furnished by the analytical laboratory. All sample bottles will have a Teflon lined septum/cap and be filled such that no headspace is present. Then the sample bottles will be labeled and immediately placed on ice to preserve the chemical characteristics of its content.

To prevent cross contamination, all groundwater sampling equipment that comes in contact with the groundwater will be thoroughly decontaminated prior to sampling. A disposable bailer will be used to collect the groundwater samples. Sample handling, storage, and transport procedures described in the following sections will be employed. All well development and purging water will be temporarily stored on-site in 55-gallon drums awaiting test results to determine the proper disposal method.