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March 14, 2008

Mr. Steven Plunkett
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Texaco Gasoline Service Station (Formerly Freedom ARCO Station)
Site Address: 15101 Freedom Avenue, San Leandro, California
STID 4473/RO0000473

Dear Mr. Plunkett:

SOMA's report entitled "Additional Soil and Groundwater Investigation for Remedial Investigation and Feasibility Study" for the subject property has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

Thank you for your time in reviewing our report. Please do not hesitate to call me at (925) 734-6400, if you have questions or comments.

Sincerely,

Mansour Sepehr, Ph.D.,PE
Principal Hydrogeologist

cc: Mr. Mohammad Pazdel w/report enclosure

Additional Soil and Groundwater Investigation for Remedial Investigation and Feasibility Study

Texaco Gasoline Service Station
15101 Freedom Avenue
San Leandro, California

March 14, 2008

Project 2552

Mr. Mohammad Pazdel
1770 Pistacia Court
Fairfield, California 94533

SOMA ENVIRONMENTAL ENGINEERING, INC.
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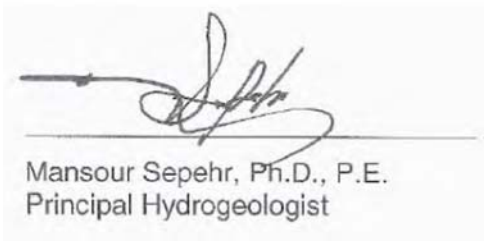
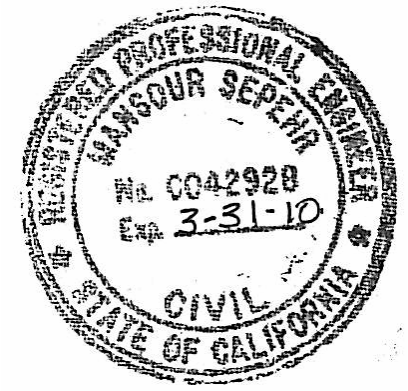
CERTIFICATION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Mohammad Pazdel, owner of the property located at 15101 Freedom Avenue, San Leandro, California. It was prepared in accordance with SOMA's workplan entitled "Workplan for Monitoring Well Installation, Soil Gas Survey and Remediation Feasibility Study at the Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California," dated April 11, 2007, and to comply with Alameda County Health Care Services, Department of Environmental Health correspondence dated October 18, 2007, granting approval of the workplan.



Mansour Sepehr, Ph.D., P.E.
Principal Hydrogeologist



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1. INTRODUCTION

On behalf of the property owner, Mr. Mohammad Pazdel, SOMA Environmental Engineering, Inc. (SOMA) has prepared this report describing results of an additional soil and groundwater investigation for remedial investigation and feasibility study at the property located at 15101 Freedom Avenue, San Leandro, California (the Site). This report was prepared in accordance with SOMA's workplan entitled "Workplan for Monitoring Well Installation, Soil Gas Survey and Remediation Feasibility Study at the Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California," dated April 11, 2007, and to comply with correspondence of the Alameda County Health Care Services (ACHCS), Department of Environmental Health dated October 18, 2007, granting approval of the workplan. Figure 1 shows the Site and surrounding areas.

This report also includes a summary of Site history, contaminants of concern (COCs), their representative concentrations and known lateral and vertical extents, and the known physical characteristics of the Site (geology and hydrogeology). This report provides a framework for selecting Site-specific corrective action methodologies and processes, and describes results of a multi-phase extraction (MPE) study conducted to assess the effectiveness of this remedial alternative.

1.1 Site Location and Description

The Site is located at the foot of the San Leandro Hills, along the west side of San Leandro Valley, at 15101 Freedom Avenue, San Leandro, California (Figure 1). It is bounded on the north by Freedom Avenue, on the east by Fairmont Avenue, on the south by residential properties, and on the west by 151st Avenue. It currently operates as a Valero gasoline service station with mini-mart, and retails Texaco-branded gasoline and diesel fuel. No automotive repair facility is on the Site. The Site has three canopied product dispenser islands and three underground storage tanks (USTs), including one 14,000-gallon UST divided into a 6,000-gallon unit for diesel and an 8,000-gallon unit for gasoline, and one 20,000-gallon UST for gasoline. Originally, six product dispensers and three 10,000-gallon USTs were on the Site. Figure 2 illustrates Site features.

Since the 1960s, the Site has been operated as a gasoline service station. The present owner purchased the station facilities on the Site in May 1985, and in 1992 purchased the property. The Site operated as Freedom ARCO Station from 1985 to 1997, until the present owner sold the station facilities on the Site.

1.2 Regional Geology/Hydrogeology

The Site is located in the San Leandro Valley at an elevation of approximately 54 feet above mean sea level with a moderate topographic gradient toward the

south. The San Leandro Valley is within the San Francisco Bay – Santa Clara Valley depression, a northwest-to-southeast trending basin bounded on the east and west by mountains. The basin is characterized by Quaternary alluvium, chiefly fan and terrace deposits that are generally several hundred feet thick and flat lying.

There is no water body within a half-mile radius of the Site. The nearest water body, Estudillo Canal, is located about 0.6 miles southwest of the Site. The next closest water body is San Leandro Creek, located approximately 1.5 miles south of the Site. The Site is approximately four miles north of San Francisco Bay. East of the Site are the northwest-trending Hayward Fault Zone, the San Leandro Hills, and an assemblage of ultramafic metamorphic and volcanic rocks (California Division of Mines and Geology, 1990).

The United States Geological Survey (USGS) mapped the Site on Late Pleistocene age (10,000 to 70,000 years old) alluvium consisting of irregularly interbedded clay, silt, sand and gravel. Due to the age of this alluvium, these stream-deposited sediments are typically more consolidated than alluvial deposits of Holocene age. In developed urban areas such as the Bay Area, earthwork construction often involves the emplacement of artificial fill derived from nearby cuts or quarries. Artificial fill is emplaced over native earth materials to provide level building pads and base rock for roadways.

The Site is located in the East Bay Groundwater Basin of the San Francisco Bay hydrologic study area. Water-bearing formations include the Santa Clara Formation of Plio-Pleistocene age and late Pleistocene, and recent sediments that have been grouped as Late Quaternary alluvium. Non–water-bearing units underlie the water-bearing formations and are exposed along the surface in the Diablo Range east of the Site and Coyote Hills, near Newark, which is south of the Site.

1.3 Previous Activities

In May 1999, three 10,000-gallon USTs, approximately 250 feet of product piping, and six product dispensers were removed from the Site (Geo-Logic, 1999). A total of 21 soil samples were collected for laboratory analyses from the removal areas, including seven soil samples collected from the east and west sides of the UST removal excavation, at depths ranging from 12 to 14 feet below ground surface (bgs), and 14 soil samples collected from beneath the fuel dispensers and product delivery piping ranging in depth from 2.5 to 3.5 feet bgs. The samples were analyzed for the following: total petroleum hydrocarbons as gasoline (TPH-g); benzene, toluene, ethylbenzene, xylenes (BTEX); and methyl tertiary-butyl ether (MtBE). Laboratory analysis results indicated the need for additional removal of soil from the product piping areas and the UST removal excavation. Concentrations of TPH-g, BTEX and MtBE in the soil samples collected from the UST removal excavation were elevated relative to samples

collected from the product piping and dispenser areas, where concentrations were relatively low. Following the over-excavation activities, three soil samples were collected for laboratory analyses from the enlarged UST removal excavation ranging in depth from 16.5 to 24.5 feet bgs, and one sample was collected from the product delivery piping at 5 feet bgs. The laboratory analyses detected elevated concentrations in the soil samples collected at 24.5 feet bgs from the UST removal excavation relative to samples collected at 16.5 and 19.5 feet bgs. Low concentrations were detected in the soil sample collected from the product delivery piping.

On January 3, 2000, ACHCS notified the owner of the property, Mr. Pazdel, of an unauthorized release that had occurred during the removal of the old USTs in May 1999. ACHCS requested that a preliminary site assessment (PSA) be conducted on the Site.

On July 5, 2001, a soil and groundwater investigation was conducted at the Site to delineate the extent of soil and groundwater impact discovered during the removal of the USTs, product delivery piping and product dispensers in May 1999 (CSS Environmental Services, 2001). Five soil borings, SB-1 through SB-5, were advanced at the Site using direct-push methods. Locations of the borings are illustrated in Figure 2. The soil borings were advanced to a maximum depth of 31 feet bgs. Groundwater was encountered in the soil borings at depths ranging from 29 to 30 feet bgs, and stabilized at depths ranging from 17 to 20 feet bgs. Ten soil samples were collected from the soil borings for laboratory analyses of TPH-g, BTEX and MtBE. Analysis results revealed elevated concentrations between 19 and 25.5 feet bgs. Maximum concentrations of TPH-g and BTEX in soil samples collected were 470,000 micrograms per kilogram (µg/kg), 2,600 µg/kg, 16,000 µg/kg, 12,000 µg/kg, and 73,000 µg/kg, respectively. MtBE was not detected in any soil samples. Grab groundwater samples were collected from each boring for laboratory analyses of TPH-g, BTEX and MtBE. Maximum concentrations of TPH-g and benzene in the groundwater samples collected from the soil borings were 83,000 micrograms per liter (µg/L) and 19,000 µg/L, respectively. MtBE was detected in four of the five grab groundwater samples. The maximum MtBE concentration was 87,000 µg/L.

In April 2002, five groundwater monitoring wells (MW-1 through MW-5) were installed on the Site to a total depth of 30 feet bgs, and competed with well screens installed between 15 and 30 feet bgs. Well locations are illustrated in Figure 2. The wells were installed to evaluate the groundwater flow gradient and the extent of dissolved-phase fuel hydrocarbons in the groundwater beneath the Site (SOMA, 2002). Groundwater was first encountered at depths ranging from approximately 25 to 29 feet bgs, and stabilized at depths ranging from 21 to 23 feet bgs. Five soil samples were collected from the soil borings for laboratory analyses of TPH-g, BTEX and MtBE. Analysis results revealed elevated concentrations of TPH-g and BTEX between 21 and 26 feet bgs, coincident with

the depth at which groundwater was first encountered in the boreholes. Concentrations of MtBE were not detected in the soil samples. Groundwater samples were initially collected from each monitoring well during the Second Quarter 2002 (May 2002) for laboratory analyses of TPH-g, BTEX and MtBE (SOMA, 2002a). Maximum concentrations of TPH-g, benzene and MtBE in the groundwater samples collected from the monitoring wells were 44,000 µg/L, 6,000 µg/L and 12,000 µg/L, respectively. The groundwater gradient was determined to flow south across the Site. Due to the presence of elevated levels of dissolved-phase hydrocarbons in the farthest downgradient monitoring well, off-site migration was apparent.

Between August and October 2003, a soil and groundwater investigation was conducted to evaluate the off-site extent of the dissolved-phase hydrocarbon migration with groundwater (SOMA, 2003). The investigation included a sensitive receptor survey to locate water supply wells and/or water bodies within a 2,000-foot radius of the Site, and a conduit study to identify underground utilities adjacent to the Site beneath Freedom Avenue, Fairmont Drive and 153rd Avenue. Six soil borings (TWB-1 through TWB-6) were advanced to depths ranging from 30 to 44 feet bgs, at locations ranging from 125 to 750 feet hydraulically downgradient from the Site. Figure 2 illustrates locations of the off-site soil borings. A total of 14 soil samples were collected from the soil borings at depths ranging from 16 to 39 feet bgs for laboratory analyses of TPH-g, BTEX, MtBE and 1,2-dichloroethene (1,2-DCE). Analytical results revealed soil impact off-site to a maximum distance of 265 feet hydraulically downgradient of the Site, and at depths ranging from 18 to 31.5 feet bgs. Elevated concentrations were detected at depths ranging from 21.5 to 24.5 feet bgs, approximately 125 feet hydraulically downgradient from the Site. Concentrations of benzene, MtBE and 1,2 DCE were not detected in the soil samples. Grab groundwater samples were collected from each boring for laboratory analyses of TPH-g, BTEX, MtBE and 1,2-dichloroethane (1,2-DCA). Maximum concentrations of TPH-g and benzene were 410,000 µg/L and 2,200 µg/L, respectively, detected in a grab groundwater sample collected from a soil boring located 125 feet hydraulically downgradient of the Site. The maximum concentration of MtBE was 34 µg/L, detected in a grab groundwater sample collected from a soil boring located 265 feet hydraulically downgradient of the Site. The investigation resulted in the preliminary identification of two water-bearing zones (WBZs) beneath the Site and vicinity. The sensitive receptor survey identified 10 wells within 2,000 feet of the Site. Three are located hydraulically downgradient of the Site: one irrigation well and two wells of unknown use. The remaining wells are either hydraulically upgradient or crossgradient of the Site. No water body was identified within one-half mile from the Site. The conduit study revealed two sewer lines beneath Fairmont Drive and 153rd Avenue; it was determined that neither was submerged by groundwater.

In September 2004, an additional soil and groundwater investigation was conducted to further evaluate the extent of dissolved-phase hydrocarbon

migration in groundwater off-site (SOMA 2004). Four groundwater monitoring wells (MW-6 through MW-9) were installed at locations downgradient from the Site. Monitoring well locations are illustrated in Figure 2. The four wells were installed to total depths ranging from 21 to 33 feet bgs, and completed with well screens ranging from 4 to 15 feet long installed at the base of each well. Groundwater was first encountered at depths ranging from approximately 15 to 20 feet bgs, and stabilized at depths ranging from 12 to 17 feet bgs. Four soil samples were collected from one of the four monitoring well boreholes. Soil samples were not collected from the other well boreholes because of extensive and unexpected lateral lithologic changes encountered between the well boreholes during drilling, necessitating continuous coring that precluded collecting soil samples for laboratory analyses. The soil samples were analyzed for TPH-g and BTEX; neither was detected. During this investigation, an attempt was made to collect a groundwater sample from an irrigation well hydraulically downgradient from the Site, identified by the sensitive receptor survey conducted between August and October 2003. The irrigation well was found to have been unused for some time and, subsequently, no groundwater sample could be collected.

An attempt was made to locate another well of unknown use hydraulically downgradient from the Site, also identified by the sensitive receptor survey. This well could not be located despite efforts at canvassing the surrounding residential neighborhood with written requests for information. Based on results of this investigation and the previous investigation conducted between August and October 2003, one WBZ was found to consist of discontinuous water-bearing layers and stringers separated by discontinuous clay lenses of varying thickness. Additionally, a preferential flow pathway study was proposed consisting of a possible buried stream channel trending north to south beneath the eastern portion of the Site, and extending off-site to the south, beneath the intersection of 153rd Avenue, Fairmont Drive and Liberty Avenue, which is hydraulically downgradient from the Site.

On November 21, 2005, ACHCS requested that the owner of the property submit a workplan for a soil and water investigation by January 21, 2006. On December 28, 2005, a workplan was submitted to ACHCS (SOMA, 2005) proposing the installation of eight cone penetrometer test (CPT), membrane interface probe (MIP) borings to refine hydrogeologic conditions using CPT technology on and off the Site. The purpose of this investigation was to define the horizontal and vertical extent of the soil and groundwater impact on and off the Site using MIP technology, and to collect soil and groundwater samples for laboratory analyses to support the MIP findings.

Based on a telephone conversation between SOMA and the ACHCS, on March 3, 2006, an addendum to SOMA's December 2005 workplan was prepared and submitted to ACHCS. The workplan provided further clarification for advancing the CPT/MIP as requested by ACHCS.

On April 10, 2006, SOMA oversaw drilling of the CPT/MIP boreholes, compliant with SOMA's approved workplan. Fisch Environmental (Fisch), SOMA's subcontractor, used a Geoprobe 6600 to drill the CPT/MIP boreholes. Because of unforeseen subsurface drilling conditions, and the inability of Fisch's drilling rig to drill through the hard subsurface materials, the drilling depth could not be advanced beyond 35 feet bgs in any of the CPT/MIP locations, despite three days' effort. During this operation, a representative of ACHCS was present at the Site. On April 26, using a hollow stem auger, a CPT calibration borehole was drilled to 47 feet bgs. The location of the boring (HSA) is illustrated in Figure 2. Because the CPT/MIP boreholes could not be advanced to the targeted depths, SOMA negotiated with Fisch and it was decided that Gregg Drilling would perform the CPT/MIP drilling boreholes at a later date, and Fisch's compensation would be appropriately reduced.

In a letter dated May 29, 2006, ACHCS reduced the number of on-site CPT/MIP borings from six to five, altered locations of some CPT/MIP borings, adjusted depths at which the groundwater samples would be collected, and requested development of a site conceptual model (SCM) and corrective action plan (CAP) for the Site along with an interim remediation and migration control evaluation. ACHCS establish November 30, 2006 as the investigative report submittal date.

On September 7, 2006, SOMA resumed the field investigation. To characterize Site lithology and hydrogeology, and to evaluate lateral and vertical distribution of the soil and groundwater impact both on and off the Site, SOMA supervised the advancement of eight CPT/MIP borings using a 25-ton CPT rig provided by Gregg Drilling. Locations of the borings, CPT/MIP-1 through CPT/MIP-8, are illustrated in Figure 2. The MIP portion of the study was performed by Fisch utilizing an MIP probe attached to Gregg Drilling's CPT probe. After completion of the CPT/MIP program, eight borings were advanced using direct-push drilling methods, in the immediate vicinity of the CPT/MIP borings. These borings were advanced to collect soil and groundwater samples for laboratory analyses to support the MIP findings.

Investigation results were presented by SOMA in a report, "Additional Soil and Groundwater Investigation Report and Initial Conceptual Site Model, Texaco Gasoline Service Station, 15101 Freedom Avenue, San Leandro, California," dated November 27, 2006. The report also included an interim remediation and migration control evaluation.

In summary, the report described two main WBZs designated as the First and Second WBZs. Both WBZs appear to be laterally continuous across the Site and hydraulically downgradient of the Site, and are separated by a laterally continuous aquitard. Moderately weathered fuel hydrocarbons are adsorbed to the soil or dissolved in the groundwater within the First and Second WBZs. The source area in the First WBZ appears to be situated in proximity to the location of

the former USTs and the existing fuel dispensers in both the north and southeast portions of the Site. A source area for the Second WBZ is indeterminate based on the limited data for the Second WBZ generated by the investigation. The Site is located in an area of primarily residential properties with a commercial property located east of the Site. The population/receptors exposed to the fuel hydrocarbons in the soil and groundwater of the First WBZ on and off the Site include current and future on-site workers and current off-site commercial workers and residents. The sources are the fuel hydrocarbons adsorbed to the soil profile of the First WBZ and the dissolved-phase hydrocarbons in the groundwater of the First WBZ. The exposure pathways for on-site receptors are inhalation of volatile emissions from the impacted soil and groundwater of the First WBZ. The only exposure pathway for the off-site residents appears to be the incidental ingestion of groundwater from the First and Second WBZs. The soil interim remediation alternatives evaluated included soil excavation, soil vapor extraction (SVE), and multi-phase extraction (MPE). Groundwater interim remediation alternatives included groundwater extraction, ozone sparging and hydrogen peroxide injection.

ACHCS responded to SOMA's November 27, 2006 report in correspondence dated March 14, 2007, which directed that a workplan be prepared to address ACHCS comments in that correspondence and SOMA's recommendations in the report.

A workplan detailing the proposed monitoring well installation, soil gas survey and remediation feasibility study was submitted to ACHCS on April 11, 2007. The approval of said workplan is detailed in ACHCS correspondence dated October 18, 2007.

Quarterly groundwater monitoring/sampling has been regularly conducted at the Site since Second Quarter 2002. Currently there are nine groundwater monitoring wells at the Site, six on-site and three off-site.

1.4 Scope of Work

The scope of work included in this report is the completion of Site remedial investigations by conducting additional subsurface investigation and compiling previous and current chemical and hydrogeologic data. This information is then utilized in the feasiblity study to develop alternative remedies that will eliminate any threat to public health or the environment posed by the Site. The scope of this investigation is as follows:

1. Install groundwater monitoring wells within the Second WBZ in order to evaluate the site hydrogeologic conditions and update the SCM;
2. Perform a shallow soil vapor study to evaluate the potential of vapor intrusion into residences that abut the Site to the south and southwest;

3. Conduct MPE pilot testing to evaluate effectiveness of this technique in removing contaminants from the subsurface;
4. Conduct a sensitive receptor survey and sample the residential neighborhood wells;
5. Complete a preferential flow path analysis;
6. Compile current and historical soil and groundwater data in order to complete the SCM;
7. Compare Site-related contaminant levels with Environmental Screening Levels (ESLs) for further evaluation of the need for continuation of groundwater remediation at the Site;
8. Conduct screening evaluation of available groundwater remedial technologies and feasibility study.

2. ADDITIONAL FIELD INVESTIGATION

2.1 Installation of Groundwater Monitoring Wells MW-1D, MW-3D, MW-4D

SOMA's workplan of April 11, 2007 proposed installing three groundwater monitoring wells in the Second WBZ to assess the groundwater impact to the Second WBZ on-site, defining the horizontal and vertical extent of the soil and groundwater impact and assessing the vertical flow gradients between the First and Second WBZs,

The scope of work included the following tasks:

- Permit acquisition and preparation of a Health and Safety Plan
- Installation of on-site groundwater monitoring wells MW-1D, MW-3D and MW-4D.

Prior to commencing field activities, SOMA obtained a drilling permit (Appendix A: Permit Nos. W2007-1218 to W2007-1220, and W2007-1180 [soil vapor borings] from the Alameda County Public Works Agency, Water Resources Section, for well installation and soil vapor study).

Prior to initiating field activities, SOMA prepared a site-specific health and safety plan (HASP), a requirement of the Occupational Safety and Health Administration (OSHA) "Hazardous Waste Operation and Emergency Response" guidelines (29 CFR 1910.120) and the California Occupational Safety and Health Administration (Cal/OSHA) "Hazardous Waste Operation and Emergency Response" guidelines (CCR Title 8, section 5192). The HASP is designed to address safety provisions during field activities and protect the field crew from physical and chemical hazards resulting from drilling and sampling. The HASP establishes personnel responsibilities, general safe work practices, field

procedures, personal protective equipment standards, decontamination procedures, and emergency action plans. The HASP was reviewed by field staff and contractors prior to beginning field operations at the Site.

To protect the field crew from underground utility hazards, SOMA contacted Underground Service Alert, who contacted the appropriate utility companies to clear the drilling locations.

From December 13 through 18, 2007 SOMA directed Woodward Drilling of Rio Vista, California in construction activities for on-site wells MW-1D, MW-3D and MW-4D. Figure 2 illustrates monitoring well locations. Locations were intended to monitor the impact to groundwater within the Second WBZ from petroleum hydrocarbons in proximity to the on-site contaminant source. In addition, groundwater elevation data from the Second WBZ monitoring wells is utilized to determine the vertical flow gradients between the First and Second WBZs.

2.1.1 Groundwater Monitoring Well Drilling

From December 13 to 18, 2007, Woodward Drilling used a hollow stem auger drilling rig to drill and install the on-site monitoring wells, MW-1D, MW-3D and MW-4D, to approximately 60 feet bgs. Each monitoring well was constructed adjacent to an existing monitoring well constructed in 2002 within the First WBZ (approximately 13-30 feet bgs). This allowed vertical flow gradients between the First and Second WBZs to be determined, as well as groundwater elevations, groundwater flow direction, gradient, and dissolved-phase hydrocarbon concentrations in the Second WBZ. The installed monitoring wells are incorporated into the ongoing quarterly monitoring program for the Site. The monitoring wells were completed using a 10-inch conductor casing that extended down to the top of the well screen for each well to eliminate cross-contamination between the First and Second WBZs.

Specifications for well construction materials and well total depth were the same for all three monitoring wells. The only variation in well construction was the length of conductor casing, 40 feet, and well screen for MW-4D, 20 feet in length and installed from 40 feet to 60 feet bgs. Wells MW-1D and MW-3D utilized 45 feet of conductor casing and 15 feet of screen installed from 45-60 feet bgs.

Soils encountered during well construction were evaluated for possible sample collection and laboratory analyses based on odors, visual observations and photoionization detector (PID) measurements, and described on a borehole log in accordance with the United Soil Classification System (Appendix B). The three monitoring wells were constructed using 2-inch-diameter, flush-threaded Schedule 40 PVC casing. The wells construction included the use of blank (solid) 2-inch PVC casing from the surface to a depth of 40 or 45 feet bgs, and 15-20 feet of 0.02-inch slotted casing from a depth of 40 or 45 feet bgs to the bottom of the boreholes at 60 feet bgs. A sand pack of Monterey #3 sand was emplaced in

the annular space around the casing to a level approximately 2 feet above the top of the well screens (from 60-38 feet bgs or from 60-43 feet bgs). A well seal consisting of Bentonite chips was then emplaced in the annular space 3 feet above the top of the sand pack (from 43-40 feet bgs or from 38-35 feet bgs). Approximately 2 gallons of clean water was then added to hydrate the bentonite, creating a seal. After allowing the bentonite to hydrate, the well was grouted with a Portland cement grout, to approximately 1 foot bgs. All wells were completed at existing grade with traffic-rated vaults. The drilling cuttings were stored in a roll-off bin stored onsite pending characterization and off-site disposal. Boring logs and new well construction details are included as Appendix B.

2.1.2 Well Development

On January 3 and 4, 2008, MW-1D, MW-3D and MW-4D were developed by surging each well screen interval with a surge block. The surge block operation was performed for approximately 50 minutes at each well to flush fine-grained sediments from the well screen, sand pack, and surrounding formations. Following the surge operation, approximately 50 gallons of groundwater were extracted from MW-1D and MW-3D, and approximately 70 gallons from MW-4D using an electric submersible pump. Pumping was discontinued when the field parameters monitored by the SOMA field geologist stabilized. Field parameters monitored included pH, temperature, turbidity and conductivity. The groundwater was temporarily stored on-site in 55-gallon drums pending characterization and off-site disposal.

2.1.3 Well Surveying

On January 3, 2008 a California state-licensed land surveyor, Guida Surveying of Dublin, California, surveyed the wells to determine latitude, longitude, and top of casing elevation relative to the California State Coordinate System Zone II (NAVD 88). The well survey data and an updated site map were uploaded to the GeoTracker system. A copy of survey results is included in this report as Appendix C.

2.1.4 Investigative Derived Waste Collection, Storage and Disposal

Soil cuttings and waste water generated during well installation activities were temporarily stored on-site in a 20-yard bin container, pending characterization, profiling, and transportation to an approved disposal/recycling facility. On January 30, 2008, under SOMA's oversight, the bin was picked up by World Environmental & Energy, Inc. and delivered to Altamont Landfill in Livermore, California. The non-hazardous waste manifest is attached as Appendix D.

2.2 Laboratory Analyses

Soil and groundwater samples collected from monitoring wells MW-1D, MW-3D and MW-4D were submitted to Pacific Analytical Laboratory (PAL), a California state-accredited environmental analytical laboratory, for analyses. The soil and groundwater samples were analyzed for the following constituents, using EPA Method 8260B:

- TPH-g
- BTEX
- MtBE
- Gasoline oxygenates, consisting of tertiary-butyl alcohol (TBA), di-isopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), and tertiary-amyl methyl ether (TAME)
- Lead scavengers, including 1,2-dichloroethane (1,2-DCA), and 1,2-dichloroethene (1,2-DCE)
- Ethanol (groundwater only)

2.2.1 Soil Analyses

One soil sample was collected from approximately 60 feet bgs during the construction of monitoring wells MW-1D, MW-3D and MW-4D and submitted for laboratory analyses. Laboratory analysis results identified low concentrations of TPH-g in all three samples. Concentrations of TPH-g in soil ranged from 0.053 mg/kg to 0.060 mg/kg. The regulatory action level ESL for TPH-g in soil is 83 mg/kg. BTEX and fuel oxygenate COCs were not detected in the soil samples. Soil analytical data is presented in Table 1.

2.2.2 Groundwater Analyses

Two groundwater sampling events during January 2008 and corresponding laboratory results have been reported at the time of preparation of this report. COCs were reported non-detectable in groundwater samples collected following well development of MW-1D, MW-3D and MW-4D on January 3 and 4, 2008, except for MtBE (87.6 µg/L, MW-3D) and TBA, ETBE and TAME. The concentration of TBA reported in groundwater was as follows: 111 µg/L for MW-1D, 37.3 µg/L for MW-3D, and 25 µg/L for MW-4D. Concentrations of ETBE (3.12 µg/L) and TAME (15.3 µg/L) were reported for well MW-3D.

Groundwater samples were collected during late January 2008 as part of quarterly groundwater monitoring at the Site. The gasoline oxygenate TBA was the only COC reported in the sample collected from MW-1D (12.9 µg/L). Concentrations of TBA reported in groundwater samples MW-3D and MW-4D were 15.6 µg/L and 124 µg/L, respectively. The remaining fuel oxygenate

compounds of interest were not detected except for ETBE (3.1 µg/L for MW-3D and 4.9 µg/L for MW-4D) and TAME (15.3 µg/L for MW-3D and 3.32 µg/L for MW-4D). There are no established regulatory action level ESLs for the fuel oxygenate compounds at this time. The 2005 Interim Final report "Screening of Environmental Concerns at Sites with Contaminated Soil and Groundwater" prepared by CRWQCB did include an ESL for TBA of 12 µg/L; however, the 2007 Interim Final report does not include an ESL for TBA in groundwater.

TPH-g, BTEX and MtBE were not detected in the groundwater sample collected from MW-1D. Well MW-3D was reported with MtBE (88.3 µg/L); TPH-g and BTEX were not detected. Toluene was not detected in groundwater collected from MW-4D; however, TPH-g (91.5 µg/L), benzene (18.7 µg/L), ethylbenzene (7.08 µg/L), total xylenes (11.42 µg/L), and MtBE (219 µg/L) were reported.

The regulatory action level ESL for benzene is 1.0 µg/L and for MtBE 5.0 µg/L. The benzene concentration in sample MW-4D (18.7 µg/L) and the MtBE concentrations in MW-4D and MW-3D (219 µg/L and 88.3 µg/L) exceeded their respective ESLs. Groundwater analytical data is presented in Table 2.

2.3 Soil Vapor Study

SOMA's SCM report (SOMA 2006) inferred impacted soil and groundwater in the First WBZ extending beneath residential properties abutting the Site to the southwest. SOMA conducted a soil gas survey along the southwest perimeter of the Site to evaluate potential soil gas intrusion pathways for the adjacent residents. SOMA advanced four soil gas-sampling probes to implement the soil gas survey. The probes were designated SGS-1 through SGS-4 and advanced to a depth of approximately 5 feet bgs. Figure 2 illustrates locations of the soil gas probes along the southwest perimeter of the Site.

2.3.1 Methodology

Soil vapor samples were collected by temporarily inserting a 1-inch-diameter steel drilling rod equipped with a steel drop-off tip. The probe was hydraulically driven into the asphalted subsurface using direct-push technology (DPT). Once the probe reached the designated sampling depth of approximately 5 feet bgs, a ¼-inch diameter Teflon flow sampling tube was inserted down the center of the probe and threaded into the sampling port at the end of the rod. The sampling tube was then capped with a vapor tight valve and the probe was retracted 6 inches and allowed to equilibrate for approximately 20 to 30 minutes.

Hydrated bentonite was placed around the top opening of the drill rod and on the ground surface surrounding the drill rod to inhibit surface air migration down the center or outer portion of the drill rod. A pre- and post-sample vacuum reading was recorded for each Summa Canister (pre-evacuated steel canister that is connected to the surface end of the sample tubing) sample. A 200-milliliter/

minute (ml/min) flow regulator with a built-in vacuum gauge was connected to the downhole side of the tee fitting. A particulate filter was also installed on the downhole side of the regulator. A vacuum test (mechanical leak check) was then performed for 10 minutes to test the connections between the Summa Canister and vapor tight valve. A leak detector compound (isopropyl alcohol 70%) was placed around the borehole, top of the probe rod, and at the vapor tight valve. The vapor tight valve and purge canister valve were then opened to purge three volumes of air from the sample tubing and borehole sample interval. In addition to purging the calculated volume, a visual inspection of the vacuum gauge was also noted to ensure adequate flow.

After three tubing volumes had been purged, the vapor tight valve and the purge canister valve were closed, until after the sample canister gauge indicated that approximately 5 inches mercury of vacuum remained in the canister, approximately 20 percent of the pre-sample vacuum.

In addition, the field parameter calculations during the soil vapor sample collection were noted as follows:

> Effective volume of ¼-inch diameter Teflon tubing, approximately 2.41 ml/ft; average vapor flow rate through the sampling tube, 200 ml/min; total length of the Teflon tubing, approximately 10 feet.

2.3.2 Soil Vapor Sample Laboratory Analyses

Soil gas samples were analyzed for the following constituents:

- using EPA Method TO-3:
    - TPH-g
- using EPA Method TO-15:
    - BTEX
    - MtBE
    - Gasoline oxygenates, consisting of TBA, DIPE, ETBE, and TAME

Table 3 includes laboratory analyses results for each soil gas sample and the applicable regulatory action levels, soil gas screening levels, for each COC. Trace concentrations of TPH-g and BTEX were reported. Fuel oxygenates were not detected in the four soil gas samples. TPH-g concentrations ranged from a minimum of 0.42 µg/m^3 at SGS-4, located northwest of the service station building, to a maximum 2.3 µg/m^3 at SGS-2, located at the southern perimeter of the Site and south of the active fuel dispenser island. The shallow soil gas screening level for TPH-g is 10,000 µg/m^3 for residential property. Benzene was not detected in the soil gas collected at SGS-4. Benzene concentrations ranged from a minimum of 5.7 µg/m^3 at SGS-2 to a maximum 9.6 µg/m^3 at SGS-1. The shallow soil gas screening level for benzene is 84 µg/m^3 for residential property.

The remaining BTEX compounds in soil gas samples were reported at low concentrations, two to four orders of magnitude less than the shallow soil gas screening levels for residential property (Table 3).

Based on these results, concentrations of the COCs in soil gas at the Site are not considered a significant risk to human health. In particular, potential soil gas intrusion into offsite residential properties is not considered a significant risk to human health at this time.

2.4 MPE Pilot Test

SOMA's review of boring logs for soil borings and groundwater monitoring wells installed at the Site between 2001 and 2002, as well as the MIP logs generated during the September 2006 additional soil and groundwater investigation (SOMA, 2006), indicates the presence of a hydrocarbon smear zone below the capillary fringe of the First WBZ. A smear zone is developed as mobile light fuel hydrocarbons (LNAPL) released to the water table spread laterally as a non-wetting phase in soils below the water table, and are distributed vertically through the upper aquifer during seasonal water table fluctuations. As smearing continues, the LNAPL becomes trapped as discontinuous ganglia within soil pores of the upper aquifer. Thus, the smear zone is an area of intimate contact between LNAPL and groundwater, representing a long-term source for dissolved-phase hydrocarbons in groundwater. The smear zone in the First WBZ is identified as gray to gray-green staining of soils at and below the capillary fringe, accompanied by moderate to strong hydrocarbon odor, and elevated PID readings on the MIP logs. The thickness of the smear zone ranges from 2.5 feet to 5 feet. The thicker accumulations were identified in groundwater monitoring wells MW-1 (2.5 feet), MW-3 (4.0 feet), MW-4 (2.5 feet), MW-5 (4 feet), soil boring SB-4 (5 feet), CTP/MIP-2 (5 feet), CPT/MIP-5 (5 feet), and CPT/MIP-3 (4 feet), all of which are located in proximity to or hydraulically downgradient of the fuel dispensers and UST cluster.

The purpose of MPE pilot testing is to determine the feasibility of dewatering the smear zone and removing LNAPL through vacuum-enhanced volatilization. Smear zone dewatering is critical to MPE success. Pilot testing is required to determine air/water yields necessary to completely expose the smear zone for successful volatile organic compound (VOC) mass removal from the subsurface. In addition, the vacuum zone of influence (ZOI) will be determined using vacuum measurements collected at observation wells.

MPE systems have two primary configurations; dual-phase extraction (DPE) and two-phase extraction (TPE). DPE utilizes separate mechanical systems for pumping groundwater and extracting soil vapor from the smear zone. TPE utilizes a single vacuum pump to extract both groundwater and soil vapor through small-diameter drop tube (stinger) piping inserted in the well. The most cost-effective MPE configuration is determined by aquifer permeability and the

corresponding yield of both air and water. The water production rate needed to dewater the smear zone, and the induced vacuum generated for soil vapor extraction, will determine if DPE or TPE is appropriate. If the water production rate is high (>2 gpm/well), then DPE would be the system of choice. If the water production rate is low (<2 gpm/well), then TPE would be the system of choice.

2.4.1 Pre-Test Activities

Prior to initiation of field activities, SOMA prepared a site-specific HASP, which was reviewed by field staff and contractors prior to beginning any field operations at the Site.

2.4.2 Pilot Test Summary

SOMA performed an MPE pilot test at the Site between November 13 and 16, 2007. Current groundwater monitoring wells were used as the extraction and observation wells. MW-3 and MW-5 were utilized as extraction wells. MW-3 and MW-5 were used as observation wells when not being used as extraction wells. MW-1, MW-2, and MW-4 were utilized as observation wells (well locations in Figure 2).

The MPE pilot test was performed using a self-contained mobile treatment system (MTS), equipped with electrical generator, propane tank, liquid ring vacuum pump rated at 25-horsepower and 428-standard cubic feet per minute (scfm), transfer pumps, air/water separator vessel, discharge hoses and traffic-rated hose ramps, downhole stingers, and a thermal/catalytic oxidizer for vapor abatement. The thermal oxidizer operates under a valid various locations BAAQMD permit. Both soil vapor and groundwater were extracted from the subsurface. Extracted groundwater was discharged into a holding tank awaiting off-site disposal.

Physical and chemical parameters including applied vacuum, SVE flow rates, oxidizer temperature, volume of groundwater extracted, VOC concentrations, and induced vacuum, were monitored, measured and recorded. Induced vacuum in the observation wells was measured using magnehellic vacuum gauges fitted to airtight well caps. VOC concentrations in the extracted soil vapor stream were continuously monitored using a PID calibrated to hexane. MPE pilot test operational data is presented in Table 4. Extraction well data is presented in Table 5 (MW-3) and Table 6 (MW-5). Field data sheets are presented in Appendix E. A representative sample of extracted soil vapor was collected during MPE pilot testing. Table 7 lists the sample identifiers and analysis results.

2.4.2.1 Extraction Well MW-3

Pilot testing was scheduled to begin on November 12, 2007; however, due to electric generator failure, MPE was postponed. On November 13, 2007, the pilot

was commenced. Pilot testing at MW-3 began at 11:00 on November 13, 2007 and was terminated on November 15, 2007 at 08:00. Testing time at MW-3 was 2,700 minutes, or 45 hours. During pilot testing, induced vacuum and groundwater levels were measured at observation wells MW-1, MW-2, MW-4 and MW-5 located approximately 85, 110, 70, and 90 feet from MW-3, respectively.

2.4.2.2 Extraction Well MW-5

Pilot testing at MW-5 began at 10:00 on November 15, 2007, and was terminated at 13:00 on November 16, 2007. Testing time at MW-2R was 1,620 minutes, or 27 hours. During pilot testing, induced vacuum and groundwater levels were measured at observation wells MW-1, MW-2, MW-3, and MW-4 located approximately 160, 155, 90 and 70 feet from MW-5, respectively.

2.4.3 Pilot Test Results

Following are results of MPE pilot testing.

2.4.3.1 Extraction Well MW-3

During pilot testing at MW-3, applied vacuum ranged from 24.0 to 26.2 inches of mercury, and vapor extraction flow rate ranged from 1 to 19 scfm (Table 4). VOC concentrations in the extracted soil vapor stream ranged from 8,000 parts per million vapor (ppmv) as hexane to 17,550 ppmv (Tables 4 and 5, Figure 3). Approximately 5,274 gallons of groundwater were extracted at a rate of 1.95 gallon per minute (gpm) (Table 4).

Induced vacuum was measured in observation wells MW-1, MW-2, MW-4, and MW-5. Vacuum was detected only from MW-5 with a value of 0.04 inches of water at the end of the pilot test.

2.4.3.2 Extraction Well MW-5

During pilot testing at MW-5, applied vacuum ranged from 26.0 to 26.2 inches of mercury, and vapor extraction flow rates ranged from 9 to 12 scfm (Table 4). VOC concentrations in the extracted soil vapor stream ranged from 4,840 ppmv as hexane to 6,810 ppmv (Tables 4 and 6, Figure 4). Approximately 3,171 gallons of groundwater were extracted at a rate of 1.96 gpm (Table 4).

Induced vacuum was measured in observation wells MW-1, MW-2, MW-3, and MW-4. Vacuum was detected from MW-3 and MW-4 with values of 0.02 and 0.03 inches of water, respectively, at the end of the pilot test.

2.4.4 Soil Vapor Sample Laboratory Analytical Results

An influent soil vapor sample was collected through a sampling port located on the vacuum pump discharge manifold. A thermal oxidizer stack vapor sample was collected through a sampling port located at the top of the stack. The air samples were submitted under chain-of-custody (COC) documentation to a California state-certified analytical laboratory (Air Toxics Ltd.) and analyzed for TPH-g using USEPA Analytical Method TO-3; and for BTEX, MtBE, TBA, and fuel oxygenates DIPE, ETBE, and TAME, using USEPA Analytical Method TO-15. Soil vapor analytical results are presented in Table 3. Certified laboratory analytical reports and COC documentation are included in Appendix F.

TPH-g, BTEX, and MtBE concentrations were detected in the soil vapor sample. Concentrations of TBA and fuel oxygenates were below laboratory-detection limits.

The following were detected: TPH-g at 32,000,000 µg/m^3, benzene at 210,000 µg/m^3, toluene at 51,000 µg/m^3, ethylbenzene at 49,000 µg/m^3, total xylenes at 137,000 µg/m^3, MtBE at 13,000 µg/m^3, and TBA non-detect.

The vapor sample collected at the oxidizer stack was used to demonstrate compliance with BAAQMD various locations permit. Removal efficiencies exceed 98.5 percent, demonstrating compliance. Removal efficiencies are listed in Table 4.

Estimated VOC mass removal rates and VOC mass removed for the pilot test are presented in Tables 5 and 6 for MW-3 and MW-5, respectively. The estimated total mass of TPH-g, benzene and MtBE removed during the pilot test is presented in Table 8.

Total VOC mass removed was estimated using flow rates during the pilot test, total volume of air extracted during the pilot test and VOC concentrations in ppmv as hexane measured by the PID during the pilot test. The estimated total mass of VOCs removed from the soil vapor extracted from wells MW-3 and MW-5 was 106 lbs, with 85 lbs from MW-3 and 21 lbs from MW-5.

The total VOC mass removal rate in lbs/day is estimated by dividing the estimated VOC mass removed during the pilot test by the elapsed time for the pilot test. For the pilot tests conducted on MW-3 and MW-5, the estimated total VOC mass removal rate was approximately 35 lbs/day.

The total mass of TPH-g, benzene and MtBE removed by the pilot test is estimated using the soil vapor analytical results for the pilot test and the median flow rate for the extraction wells. The estimated total mass of TPH-g removed from extracted soil vapor by the pilot tests conducted on wells MW-3 and MW-5 was 103.35 lbs; of benzene removed, 0.68 lbs; and of MtBE removed, 0.04 lbs.

*Note
The discrepancy between the estimated total mass of VOCs removed and the total mass of TPH-g, benzene, and MtBE removed is based on the difference between PID measurements as hexane and laboratory analyses of the extracted vapor stream. The concentrations based on laboratory analysis are representative only of that moment in the pilot test at which the extracted vapor stream was sampled. Since the laboratory analytical results are not representative of the entire length of the pilot test, unlike the PID measurements which are collected continuously over the length of the pilot test, the total mass of VOCs removed as measured by PID is used to estimate mass removals.

2.4.5 Smear Zone Dewatering

Steady-state dewatering of the smear zone at wells MW-3 and MW-5 was achieved and maintained during the pilot test by vacuum. Dewatering was achieved by opening the dilution control valve at the extraction well to allow atmospheric air into the well casing, accelerating the removal of water from the well casing by vacuum. As the stinger was advanced into the well casing, water was removed by vacuum. As water was removed, vacuum was reestablished in the well casing and the stinger was advanced farther into the well casing. When the stinger reached the base of the well casing, and water ceased to be removed by vacuum, the stinger was elevated off the bottom of the well to maintain steady-state groundwater flow into the well and to maximize mass removal rate out of the well, and then the dilution control valve was closed. At MW-3 and MW-5, steady-state dewatering was achieved when the dilution control valve was closed less than 1 hour into pilot testing (Tables 5 and 6). The estimated groundwater extraction rate for the pilot test based on total gallons extracted and total elapsed time for the pilot test was 1.95 gpm.

2.4.6 Zone of Influence (ZOI)

The MPE ZOI for the pilot test is estimated by determining pressure change in observation wells versus distance from the extraction well at the end of the pilot test (EPA 1995). The log of vacuum pressure measured in the observation well at the end of pilot testing is plotted versus the distance from the MPE well. Figure 5 illustrates this plot for extraction wells MW-3 and MW-5. The data points describe a straight line. The line intersects the pressure axis at 0.1 inches of water and the distance axis to estimate the MPE ZOI. For pilot testing using MW-3 and MW-5, MPE ZOI is approximately 61 ft. The MPE ZOI is plotted on Figure 6, centered on monitoring wells MW-3 and MW-5.

2.4.7 Results of MPE Pilot Test

The estimated total mass of VOCs removed by the MPE pilot test was determined to be 106 lbs. The estimated total VOC mass removal rate for the

MPE pilot test was determined to be 35 lbs/day at wells MW-3 and MW-5 over 72 hours, or 3 days.

Table 7 lists analysis results for groundwater samples collected from wells MW-3 and MW-5 prior to and after the MPE pilot test. Certified laboratory analytical reports and COC documentation are included in Appendix F. Analytical results reveal that concentrations of benzene and MtBE in MW-5 and MW-3 increased following MPE pilot testing. However, concentrations of TPH-g, toluene, and total xylenes decreased in both MW-3 and MW-5 following the MPE test. Increased concentrations of dissolved hydrocarbon constituents suggest that significant fuel hydrocarbon constituents are adsorbed to the smear zone in proximity to wells MW-3 and MW-5. Decreased concentrations of dissolved hydrocarbon constituents suggest that MPE is effective in stripping and removing fuel hydrocarbon constituents from the smear zone in proximity to MW-3 and MW-5.

3. UPDATED SITE CONCEPTUAL MODEL

The SCM was developed for the Site based on the results of previous soil and groundwater investigations, conducted both on- and off-site, and quarterly groundwater monitoring and sampling events conducted at the Site since Second Quarter 2002.

The SCM synthesizes site characterization data (geology, hydrogeology, contaminant distribution, migration pathways, and potential human receptors) to provide a framework for selecting pathways for quantitative analysis in implementing a CAP.

The SCM integrates and interprets all data obtained to date to increase understanding of the extent and stability of the contamination and its impact on public health and the environment. The primary source of chemical contamination is identified at the point of release of contaminants from the on-site USTs and product dispensers. Secondary sources of contamination include the dissolved groundwater plume and saturated sediments. Potential transport mechanisms from subsurface soils are by volatilization and atmospheric dispersion. Potential transport mechanisms from the dissolved groundwater plume are by volatilization and entering into closed spaces. The COCs, such as TPH-g, TPH-d, BTEX, MtBE, and TBA, detected in the groundwater within the First WBZ can volatilize and travel by diffusion toward the land surface and possibly enter into nearby commercial buildings and residential properties. At these exposure points, they may cause adverse health effects to workers in the commercial buildings and residents living nearby. Current and future on-site workers, and down gradient residential properties, have been identified as the potential receptors of the Site's contaminants. Figure 7 shows the comprehensive SCM flowchart based on the *ASTM E-1689-55 Standard Guide*

for Developing SCM for Contaminated Sites. Figure 8 graphically represents SOMA's site-specific SCM.

3.1 Site Hydrogeology

Results of the CPT/MIP study and borehole logs of the groundwater monitoring wells and earlier soil borings were used to construct three geologic cross-sections. Figure 9 shows the locations of geologic cross-section A-A', B-B' and C-C'. As shown in the diagrams, an unconsolidated sequence of permeable and relatively impermeable sediments underlies the Site and adjacent areas.

3.1.1 Water-Bearing Zones

Two main water-bearing zones have been delineated based primarily upon CPT/MIP data collected during 2006, designated the First and Second WBZs. Based on the CPT data and borehole logs of the groundwater monitoring wells and soil borings, both WBZs appear to be laterally continuous across the Site and hydraulically downgradient of the Site, and are separated by a laterally continuous non–water-bearing unit.

3.1.1.1 First WBZ

The groundwater monitoring well network in the on- and off-site areas is completed within the First WBZ. During well borehole drilling, groundwater in the First WBZ was encountered between approximately 25 and 30 feet bgs. Following well completion and development, groundwater elevations were measured above the depth at which groundwater was encountered during drilling. Over the period of record for quarterly groundwater monitoring at the Site (Second Quarter 2002 to Fourth Quarter 2007), groundwater elevations in the monitoring wells have consistently been measured above the depth at which groundwater was first encountered in the well borings during drilling, and suggest groundwater elevations in the First WBZ reflect potentiometric pressure. Therefore, the First WBZ can be considered a confined aquifer. Over the period of record for quarterly groundwater monitoring at the Site, depth to groundwater in the First WBZ has ranged from approximately 17 to 23 feet bgs (approximately 26 to 31 feet above mean sea level), with the groundwater flow gradient in the First WBZ predominantly toward the south/southwest.

From approximately 12 to 22 feet bgs the First WBZ occurs as an approximate 10- to 15-foot thick interbedded sequence of CPT-interpreted sand, silty sand to sandy silt, cemented sand, and silt to clayey silt. As illustrated on cross-section A-A' and B-B' (Figures 10 and 11, respectively), the top of the First WBZ is inferred at greater than 15 feet bgs but less than 20 feet bgs beneath the Site. In addition, as illustrated on cross-section C-C' (Figure 12), the top of the First WBZ is inferred to be shallower (approximately 12 feet bgs) hydraulically downgradient of the Site from MW-5 to TWB-1, but increases with depth beyond TWB-1 to

TWB-4 (approximately 20 feet bgs). Also, the thickness of the First WBZ is inferred to increase to approximately 30 feet beyond CPT/MIP-7 to CPT/MIP-6 and at TWB-1, and is inferred to decrease to approximately 5 feet to 2 feet beyond TWB-1 to TWB-6 and at TWB-4, respectively. The First WBZ is overlaid by CPT-interpreted clay and clayey silt with thin interbeds of sand and silty sand, approximately 1 to 2 feet thick in the upper portion of the sequence (< 10 feet bgs) beneath the Site, with massive clay and clayey silt to the top of the First WBZ (12 to 22 feet bgs). Based on the CPT and monitoring well and soil boring borehole log data, this layer seems to be an unsaturated layer.

3.1.1.2 Second WBZ

During the well borehole drilling of MW-1D, MW-3D, and MW-4D, groundwater in the Second WBZ was encountered during drilling between approximately 53 and 54 feet bgs. The soils at this depth were classified as silty clay (CL) with sand and gravel. Following well completion and development in early January 2008, groundwater elevations were measured above the depth at which groundwater was encountered during drilling and suggest groundwater elevations in the Second WBZ reflect potentiometric pressure. Therefore, the Second WBZ beneath the Site can be considered a confined aquifer.

The depth to groundwater within the Second WBZ was measured in MW-1D, MW-3D and MW-4D on January 22, 2008. The reported groundwater depths below top of casing and groundwater elevations relative to mean sea level in feet were as follows: 22.85/31.57 (MW-1D), 22.31/31.79 (MW-3D), 21.11/32.01 (MW-4D). Based on the groundwater elevations reported on January 22, 2008, groundwater within the Second WBZ beneath the Site flows toward the north-northwest with a gradient of approximately 0.003 ft/ft. Note that the groundwater flow gradient in the First WBZ is predominantly toward the south/southwest. However, the flow gradient in the First WBZ has reversed direction in the past and the January 22, 2008 groundwater elevation measurements for the on-site monitoring wells MW-1, MW-3, and MW-4 indicate a northerly groundwater flow gradient beneath the Site in the First WBZ.

From approximately 32 to 50 feet bgs, the Second WBZ occurs as an approximately 5 to at least 35-foot thick interbedded sequence of the same CPT-interpreted lithologic type as seen in the First WBZ. The minimum thickness observed (10 feet) was determined at CPT/MIP-1 as illustrated on cross-section B-B' (Figure 11), and the maximum thickness observed (35 feet) was determined at CPT/MIP-3 as illustrated on cross-section A-A' (Figure 10). Thicknesses greater than 35 feet are inferred on all three cross-sections. Beneath the Site, the Second WBZ is inferred to be greater than 30 feet bgs but less than 65 feet bgs, as illustrated on cross-section A-A' and B-B' (Figures 10 and 11, respectively). Hydraulically downgradient of the Site, the top of the Second WBZ is inferred to occur at approximately 40 feet bgs, and is inferred to be shallower at TWB-4 (approximately 32 feet bgs), as illustrated on cross-section C-C' (Figure 12). Soil

samples collected beneath the Site during construction of monitoring wells MW-1D, 3D, and 4D in the Second WBZ exhibited silty clay with various amounts of sand and gravel from approximately 45 feet to 60 feet bgs. Groundwater was first reported in the Second WBZ during drilling at approximately 53 feet bgs.

3.1.1.3 Aquitard

A 5- to 25-foot thick laterally continuous CPT-interpreted unsaturated layer of clay, clayey silt, and silt separate the First and Second WBZs. This unit is referred to as an aquitard. Reduced thickness of the aquitard is inferred at the northeast (CPT/MIP-3) and southwest (CPT/MIP-4) portions of the Site, as illustrated on cross-section A-A' (Figure 10). At CPT/MIP-2 the thickness of the aquitard increases to approximately 10 feet. Hydraulically downgradient of the Site, as illustrated on cross-section A-A' and B-B' (Figures 10 and 11), the top of the aquitard is inferred to occur at approximately 20 feet bgs at CPT/MIP-7 and CPT/MIP–8, and increases with depth to approximately 30 feet bgs at CTP/MIP-6 and at the same depth farther downgradient at TWB-1, TWB-6 and TWB-4. The aquitard is thickest (approximately 25 feet) at CPT/MIP-7 and CPT/MIP–8, but thins to approximately 15 feet at CTP/MIP-6, and thins more (approximately 10 feet and 5 feet) farther downgradient at TWB-6 and TWB-4, respectively.

The lower limit of the Second WBZ is not defined at this time. Soil data from 60 feet bgs (MW-1D, 3D, 4D) and CPT data to 65 feet bgs (CPT-3) beneath the Site do not clearly define a transition to an aquitard. Similar conclusions are indicated for downgradient off-site CPT data from 55 feet to 65 feet bgs (CPTs 6, 7 and 8).

3.2 Nature and Extent of Chemicals in On-Site Vadose Zone

The vadose zone beneath the Site includes shallow subsurface native soils and backfill materials above the groundwater table and capillary fringe, approximately 15 feet bgs. Boring logs from monitoring wells, CPT, and soil borings describe native soils within the upper 15 feet of vadose zone beneath the Site as generally stiff to hard silty clay (CL), Silt (ML), and clayey silt (ML) with intervening layers of medium dense to very dense sand/gravel (SW/GW) sediments. Significant concentrations of COCs were not identified within the vadose zone beneath the Site or downgradient and off-site of the contaminant source area.

On the west side of the Site, the vadose zone is characterized by silt/clay sediments with an occasional discontinuous layer of sand/gravel sediments (MW-2 and MW-4). Below approximately 20 to 25 feet bgs, slight to moderate petroleum hydrocarbon odors were reported and decreased substantially with depth in the underlying silty clay aquitard.

On the east side of the Site, the vadose zone is characterized by a 2- to 9-foot thick sand/gravel layer below 13 to 16 feet bgs. Below approximately 20 feet bgs,

strong petroleum hydrocarbon vapors were encountered in boreholes MW-3 and MW-5 that also decrease substantially in the subjacent clay aquitard.

Fuel USTs and associated piping and fuel dispensers were removed from the central portion of the Site in 1999 under regulatory oversight. Petroleum-impacted soils were removed during overexcavation and new UST systems were installed in the old UST pit during 1999. A 2001 subsurface investigation evaluated potential petroleum hydrocarbon contamination discovered during the removal and upgrade of USTs at the Site. Five hydropunches (SB-1 through SB-5) were advanced in proximity to the UST systems using the direct-push method (Figure 2). Results of that investigation indicated that petroleum-impacted soils are generally encountered below a 19-foot depth interval and are predominantly present within the capillary fringe, or below saturated zone. The maximum concentrations of TPH-g and BTEX in soil samples collected between 19 and 25.5 feet bgs were 470 mg/kg, 2.6 mg/kg, 16 mg/kg, 12 mg/kg, and 73 mg/kg, respectively. MtBE was not detected in any soil samples at the laboratory reporting limit of 0.005 mg/kg. Results of groundwater monitoring events indicate that depth to groundwater in on-site monitoring wells occurs between 17.2 and 23 feet bgs. Therefore, it can be concluded that the vadose zone beneath the Site is not significantly impacted by petroleum hydrocarbons. At greater depths below water table, saturated sediments have been impacted upon contact with fuel-impacted groundwater.

Similar findings were reported by SOMA in 2003, concerning the depth of petroleum-impacted soils/saturated sediments located south-southeast and downgradient of the Site at 19-25 feet bgs. As such, it appears that the thickness of smear zone (below water table) extends at least 6 feet below water table.

Areas of significant concentrations below water table in form of smear zone are located primarily around MW-3 and MW-5 at depths of 21-25 feet bgs in close proximity to the former UST pit, where historically no soil excavation has occurred.

Table 1 summarizes analysis results for soil samples collected at the Site. Data from soil analysis were used to evaluate the mass of petroleum hydrocarbons in the capillary fringe and smear zone. As Appendix G shows 1,338 pounds of petroleum hydrocarbons are in the subsurface smear zone. Appendix G includes the methodology used to calculate the mass of hydrocarbons in groundwater and saturated sediments beneath the Site.

3.3 Nature and Extent of Chemicals in Groundwater

From 2002 to the First Quarter 2008, groundwater samples have been collected and analyzed for COCs on-site and off-site during subsurface assessments and quarterly groundwater monitoring events. Quarterly groundwater monitoring/ sampling has been conducted since Second Quarter 2002 for groundwater

monitoring wells MW-1 through MW-5 on the Site, and since Third Quarter 2004 for groundwater monitoring wells MW-6 through MW-9 off the Site. Groundwater collected from three on-site monitoring wells within the Second WBZ was first analyzed during January 2008. Prior to 2008, grab groundwater samples were collected and analyzed from the Second WBZ during on-site and off-site subsurface assessments.

Results of groundwater analyses to date indicate that the First and Second WBZs beneath the Site and off-site to the south and southeast are impacted by dissolved-phase fuel hydrocarbons. The First WBZ contains significantly greater concentrations of dissolved-phase fuel hydrocarbons than those detected in the Second WBZ.

The existing groundwater monitoring well network on the Site includes MW-1 through MW-5 (First WBZ) and MW-1D, 3D and 4D (Second WBZ). The off-site network includes MW-6 through MW-9 completed only within the First WBZ. Quarterly groundwater monitoring and sampling of the First WBZ has been continuously conducted since Second Quarter 2002 for groundwater monitoring wells MW-1 through MW-5 on the Site, and since Third Quarter 2004 for groundwater monitoring wells MW-6 through MW-9 off the Site. The three on-site monitoring wells completed within the Second WBZ were first sampled during January 2008 as part of the quarterly groundwater monitoring program. Additional analysis of limited grab groundwater sampling was conducted during 2006 to evaluate the presence of dissolved-phase hydrocarbons in the Second WBZ.

Comparing groundwater elevation data collected during First Quarter 2008 groundwater monitoring indicated a slight vertical downward gradient between the First and the Second WBZs at MW-1 and MW-3. However, at MW-4 there is a slight upward vertical gradient between the First and the Second WBZs. More groundwater monitoring data in the future will better define downward hydraulic flow gradient patterns between the First and Second WBZs.

3.3.1 First WBZ

Over the period of record for quarterly monitoring and sampling at the Site, the detection of dissolved-phase hydrocarbons in the First WBZ, including TPH-g, BTEX, MtBE, TBA, ETBE and TAME, has been limited to groundwater samples collected from on-site groundwater monitoring wells MW-1 through MW-5 and off-site groundwater monitoring wells MW-6 through MW-9. Concentrations of TPH-d have also been detected in the First WBZ, but analysis is limited to the grab groundwater samples collected from the First WBZ during the 2006 CPT/MIP investigation. Table 2 lists concentrations of dissolved-phase hydrocarbons detected in groundwater samples collected from the First WBZ over the period of record since Second Quarter 2002 for on-site groundwater

monitoring wells MW-1 through MW-5, and since Third Quarter 2004 for off-site groundwater monitoring wells MW-6 through MW-9.

Table 2 also lists average dissolved-phase concentrations and the 95% upper confident limit (UCL). The 95% UCLs were compared with ESLs for these constituents as developed by the CRWQCB for protection of groundwater as a drinking water source. The ESLs for these constituents, listed in Table 2, indicate the 95% UCLs for TPH-g, TPH-d, BTEX, MtBE and TBA significantly exceed the ESLs for these constituents, with elevated concentrations in groundwater monitoring well MW-3 relative to remaining wells where dissolved-phase hydrocarbons have been detected. In general, dissolved-phase hydrocarbon concentrations are elevated in groundwater monitoring wells on the Site (MW-1 through MW-5) relative to those groundwater monitoring wells off the Site (MW-6 and MW-7).

Analyses results for grab groundwater samples collected from soil borings completed in the First WBZ in September and October 2003 (TWB-1 through TWB-6) detected dissolved-phase hydrocarbons including TPH-g, BTEX and MtBE in proximity to groundwater monitoring well MW-6 (TWB-1), MW-7 (TWB-2), and east of MW-8 (TWB-3). Elevated concentrations were detected in TWB-1. Low concentrations were detected in TWB-3.

Analyses results for grab groundwater samples collected from soil borings completed in the First WBZ during the 2006 CPT/MIP investigation (DPW-4 through DPW-6 and DPW-8) detected dissolved-phase hydrocarbons including TPH-g, BTEX, MtBE, TBA, DIPE and ETBE in the southern portion of the Site (DPW-4 and DPW-5), and south of the Site in DPW-6 and DPW-8. Elevated concentrations were detected in DPW-5 and DPW-6. Lower concentrations were detected in DPW-4 and DPW-8.

The lateral extent of impact of TPH-g plume in the First WBZ is illustrated in Figure 13. This figure is based on the period of record for quarterly monitoring and sampling of the First WBZ, analysis results for grab groundwater samples collected from soil borings completed in the First WBZ in September and October 2003, and during the 2006 CPT/MIP investigation. The lateral extent indicates that impact to the First WBZ occurs beneath the greater part of the footprint of the Site, including the area of the UST cluster and product dispensers, and is inferred to continue south/southeast beneath the northeast corner of the residential area south of the Site, continuing farther southeast and east beneath the intersection of Fairmont Avenue, 152nd Avenue and Liberty Street, and beyond to the southeast corner of the commercial area at the intersection of Fairmont Drive and Liberty Street.

3.3.2 Second WBZ

Groundwater in the Second WBZ was first sampled during the 2006 CPT/MIP investigation, with the data set consisting of three grab groundwater samples:

- DPW-1 (55-59)
- DPW-3 (56-60), and
- DPW-8 (52.5-56.5).

Analysis results are listed in Table 2. The dissolved-phase hydrocarbon concentrations detected in grab groundwater samples beneath the Site were elevated relative to those collected off the Site to the southeast (DPW-8).

Concentrations of TPH-d, TPH-g, BTEX, MtBE, TBA and TAME for the grab groundwater samples collected from the Second WBZ are listed in Table 2. The limited available data indicates that all dissolved-phase hydrocarbons detected exceed their respective ESL values for residential land use for shallow soils (greater than 3 meters or 9 feet) where groundwater is a potential drinking water source, as set forth by the CRWQCB. However, concentrations detected here are significantly less than those detected in the First WBZ.

From December 13 through 18, 2007 SOMA directed construction activities for on-site wells MW-1D, MW-3D and MW-4D. Locations of the monitoring wells were intended to monitor impact to groundwater within the Second WBZ from petroleum hydrocarbons in proximity to the on-site contaminant source. In addition, groundwater elevation data from the Second WBZ monitoring wells were used in preliminary evaluation of vertical flow gradient between the First and Second WBZs. All COCs in groundwater samples collected following development of MW-1D, MW-3D and MW-4D on January 3 and 4, 2008 were reported non-detect except for MtBE (87.6 µg/L for MW-3D) and TBA (111 µg/L for MW-1D, 37.3 µg/L for MW-3D and 25 µg/L for MW-4D), ETBE(3.12 µg/L for MW-3D) and TAME (15.3 µg/L for MW-3D).

Groundwater samples were collected during late January 2008 as part of quarterly groundwater monitoring at the Site. The gasoline oxygenate TBA (12.9 µg/L) was the only COC reported in the sample collected from MW-1D. Concentrations of TBA reported in groundwater samples MW-3D and MW-4D were 15.6 µg/L and 124 µg/L, respectively. The remaining fuel oxygenate compounds of interest were not detected except for ETBE (3.1 µg/L for MW-3D and 4.9 µg/L for MW-4D) and TAME (15.3 µg/L for MW-3D and 3.32 µg/L for MW-4D). There are no established regulatory action level ESLs for the fuel oxygenate compounds at this time. The 2005 Interim Final report “Screening of Environmental Concerns at Sites with Contaminated Soil and Groundwater” prepared by the CRWQCB-Bay Area Region did include an ESL for TBA of 12 µg/L; however the 2007 Interim Final report does not include an ESL for TBA in groundwater.

TPH-g, BTEX and MtBE were not detected in the groundwater sample collected from MW-1D. Well MW-3D was reported with MtBE at 88.3 µg/L, TPH-g and BTEX were not detected. Toluene was not detected in groundwater collected from MW-4D; however, TPH-g (91.5 µg/L), benzene (18.7 µg/L), ethylbenzene (7.08 µg/L), total xylenes (11.42 µg/L), and MtBE (219 µg/L) were reported.

The regulatory action level ESL for benzene is 1.0 µg/L and for MtBE 5.0 µg/L. The benzene concentration in sample MW-4D (18.7 µg/L) and the MtBE concentrations in MW-4D and MW-3D (219 µg/L and 88.3 µg/L) exceeded their respective ESLs. Groundwater analytical data is presented in Table 2.

The lateral extent of impact in the Second WBZ is illustrated in Figure 14, and is based on analysis results for grab groundwater samples collected from the Second WBZ during the 2006 CPT/MIP investigation and the First Quarter 2008 groundwater monitoring event for on-site wells MW-1D, 3D, and 4D. The lateral extent indicates that impact to the Second WBZ occurs beneath the northern portion of the Site, including the area of the north product dispensers, with an isolated area (CPT/MIP-8) in proximity to the intersection of 152nd Avenue and Fairmont Drive.

3.4 Sensitive Receptor Survey

SOMA conducted a sensitive receptor survey in September and October 2003 that included locating water supply wells within a 2,000-foot radius of the Site. Well location information was obtained from the California Department of Water Resources (DWR).

Based on DWR records, 10 wells were located within 2,000 feet of the Site. Three are located hydraulically downgradient of the Site, including two wells of unknown use and one irrigation well. Sensitive receptor survey results indicated that the off-site groundwater plume could impact two private wells, one of which is reportedly located at 1575 153rd Street, and the other at an unidentified address along Oriole Avenue.

In September 2004, an attempt was made to collect groundwater samples from these two wells. No residence for 1575 153rd Street was found at that time. This well is located approximately 840 feet downgradient from the site. However, the owner of the residence at 1573 153rd Street indicated that there is a non-operational well on his property. The owner stated that water from this well was previously used only for irrigation since potable water for the residence is provided by the local utilities. An attempt was made to collect a water sample from the well by running the well pump for several hours. However, no groundwater was produced. An attempt was then made to unbolt the well cap. However, it was noted that preexisting cracks in the casing were exhibiting signs of stress resulting from this procedure. Removal of the cap was terminated to

avoid damaging the well casing and no groundwater sample was collected from the well.

On January 4, 2008, SOMA obtained permission from the resident at 1573 153rd Avenue to evaluate the condition of said well and collect a groundwater sample. At the time of the survey, SOMA was informed that the well has been non-operational for some time. The existing pump was not operational, and a disposable bailer was used to collect a grab groundwater sample. Samples were decanted into 40-mL VOA vials, pre-preserved with hydrochloric acid. The samples were then immediately stored in a cooler with ice, and submitted to Pacific Analytical Laboratory (PAL) a California state-certified laboratory, under COC protocol. The sample was analyzed using EPA Method 8260B for TPH-g, BTEX, MtBE and gasoline oxygenates. As shown in Table 1, all analytes except TBA were detected below the laboratory-reporting limit. TBA was detected at 21 µg/L. The laboratory analytical report is included as Appendix F.

Because well survey findings of 2004 did not indicate a specific address for the private well located in the area of Oriole Avenue (around the area of the reported well location), written notifications were distributed to all residents on the potentially affected avenue. However, none responded to the notification. In attempts to locate the historical irrigation well reportedly present in the area, SOMA performed a door-to-door survey of Oriole Avenue residents on January 4, 2008. Of the 23 residences visited, SOMA acquired 13 responses to its inquiry. Of the 13 respondents, 12 reported no wells or no knowledge of wells in the area. One respondent, residing at 1612 Oriole Avenue, disclosed knowledge of a 4-inch metal casing on the parcel, set in existing pavement with no visible equipment attached. No further survey or sampling has been performed to date. Further investigation of this possible irrigation well location is recommended concurrent with the next groundwater monitoring event.

3.4.1 Water Bodies

Based on USGS topographic maps, and maps obtained from the Alameda County Public Works Department, it was determined that no water body exists within a half-mile radius of the Site. There is record of a former buried or drained creek (CIRCA 1950), that ran parallel to the Site, approximately 200 feet east between Fairmont Drive and Oriole Avenue. It appears that during the urbanization of the area the historical creek was filled, and to reduce the risk of flood damage an engineered Canal ("Estudillo Canal") was constructed. Estudillo Canal is a series of storm drains and canals draining the southern San Leandro Area. It runs below ground as a storm drain conduit along Freedom Avenue adjacent to the Site, then parallel to Oriole Avenue (between Oriole Avenue and Fairmont Drive). Approximately 800 feet southeast of the Site it becomes an above-ground concrete culvert that runs through the city of San Leandro and drains into the ocean. Figure 15 shows the location of the historical watercourse and the present day flood control canal in relation to the Site. The

next closest water body is San Leandro Creek, located approximately 1.5 miles south of the Site. These water bodies are located considerably more than 2,000 feet from the Site, and are not considered probable sensitive receptors.

3.5 Preferential Flow Path Analysis

To evaluate the potential preferential flow pathways at the Site and in the vicinity, records documenting locations and relative depths of utility line trenches were obtained from ORO Loma Sanitary District (OLSD). OLSD provided a utility map showing a sewer line at a depth of approximately 4.8 feet bgs located approximately 40 feet southeast of the Site along 152nd Avenue with a gradient to the southwest. The OLSD map also illustrated a sewer main at a depth of approximately 10.2 feet bgs located approximately 80 feet east of the Site along Fairmont Avenue, with a gradient to the south.

Because groundwater in the First WBZ occurs at depths ranging from 17 to 23 feet bgs, the sewer line along 152nd Avenue and the sewer main along Fairmont Drive are situated above the minimum depth of groundwater in the First WBZ. Thus, trenches carrying these sewer utilities are not submerged, and are not considered a preferential pathway for the migration of dissolved-phase hydrocarbons south and southeast of the Site.

3.6 Site Zoning

The Site is located in the unincorporated area in the city of San Leandro. According to the Alameda County Planning Department, the Site is zoned “C1,” a retail business district with the service station as a conditional use. The surrounding area downgradient of the Site consists of single- and multi-family residential properties as far as East 14th Street.

3.7 Stability of Chemical Plume and Comparison with ESLs

Beneficial use of the groundwater has been impacted by past petroleum hydrocarbon release. As discussed in Section 3.6, there is a potential for the groundwater to be used in a downgradient residential neighborhood for irrigation purposes.

Due to the process of natural attenuation, the COC concentrations in general follow a downward trend. Only the historical groundwater chemical concentrations for the past two years were used to evaluate the 95% UCL values, as more representative of the current groundwater contamination levels. It was assumed that the Site will remain a commercial facility, and its zoning will not change. The 95% UCL values were compared with those of published screening level values (as Tier I) presented by the CRWQCB, San Francisco Bay Region.

As Table 2 shows, the reported 95% UCL concentrations of the contaminant levels such as TPH-g, benzene, and MtBE reported in on-site well MW-3 are at least two orders of magnitude higher than the screening groundwater concentration values set forth by CRWQCB. The reported 95% UCL concentrations of contaminant levels such as TPH-g, benzene, and TBA reported in off-site well MW-5 are also at least one to two orders of magnitude higher than the screening groundwater concentration values set forth by CRWQCB. Table 2 shows comparison results for off-site irrigation wells, where groundwater is considered a potential drinking water source.

To evaluate stability of the groundwater chemical plumes, results of the groundwater monitoring data at the on- and off-site areas were reviewed. The purpose of this study was to evaluate the historical upward or downward trend in chemical concentrations in the groundwater at the on- and off-site areas.

Figure 16 shows the TPH-g, benzene, MtBE, and TBA concentrations in groundwater, related to distances from the source area. Three “snap shot” data sets, evenly distributed throughout the period of the groundwater monitoring at the Site, were used in this assessment, and represent a generalized concentration trends for the COCs. The data sets dating back to May 10, 2002, June 15, 2005, and January 11, 2008 were used in this evaluation. Furthermore, since no off-site groundwater monitoring wells were installed at the time, the data set dated May 10, 2002 is incomplete. Chemical concentrations detected in monitoring wells MW-1 through MW-6 and MW-8, located approximately within the center of the chemical plume in the on and off-site areas, were used.

As Figure 17 shows, the main bulk of the TPH-g plume is located in the on-site area. This could be attributed to the low solubility of this COC. Over the study period, the on-site wells exhibited steady downward concentration trends. In the off-site wells, except for well MW-5, TPH-g also exhibited low stable or decreasing concentration trends. In well MW-5, TPH-g increased in 2005 and then decreased to the 2002 levels during the latest groundwater monitoring event of 2008.

As Figure 18 shows, the main bulk of the benzene plume is also located in the on-site area. Over the study period, the on-site wells exhibited steady downward concentration trends. In the off-site wells, except for well MW-5, benzene exhibited low stable or decreasing concentration trends. In well MW-5, benzene decreased from 1,000 µg/L to 145 µg/L in 2005 and then increased to 572 µg/L during the latest groundwater monitoring event of 2008.

As Figure 19 shows, the main bulk of the MtBE plume is also located in the on-site area. Over the study period, with some minor fluctuation, the on and off-site wells exhibited steady downward concentration trends.

As discussed earlier, among Site-related contaminants TBA is the only chemical that has migrated greater distances to the off-site receptors. As Figure 20 shows, due to the high permeability of the saturated zones and high solubility of TBA, its plume has been readily migrating to off-site areas. TBA concentrations in the on- and off-site monitoring wells exhibit an upward trend, confirming that the plume is expanding with time. Furthermore, TBA was detected at 21.0 µg/L in the off-site irrigation well approximately 840 feet away from the Site, at 1573 153rd Street.

3.8 Identification of Exposure Pathways and Potential Receptors

The Site is located in an area of primarily residential properties, with a commercial property located east of the Site, across Fairmont Drive. Currently, the on-site single-story building houses the station's offices and food mini-mart. Residential properties abut the Site on the south and west and are located beyond to the southeast, south, southwest and west. Therefore, the exposed population/receptors to the on- and off-site contaminants are:

1. current and future on-site workers
2. current off-site commercial workers and residents

For current and future workers on the Site, and receptors off the Site, particularly the residences that abut the Site to the southwest, the source of chemicals is fuel hydrocarbons dissolved in the First WBZ. Due to the presence of low levels of hydrocarbons in the groundwater in off-site areas, the inhalation pathway is not a complete exposure route. In the off-site areas the incidental ingestion of groundwater of the First WBZ may be the only exposure pathway.

4. EVALUATION OF REMEDIATION OPTIONS

This section will evaluate the feasibility of using available technologies for soil and groundwater cleanup at the Site.

4.1 Soil Remediation Alternatives

As discussed, the unsaturated soils above the capillary fringe have not been significantly impacted by petroleum hydrocarbons. As such, no active soil remediation is warranted.

4.2 Groundwater Remedial Alternatives

Because groundwater investigation results revealed the presence of elevated levels of contaminants in First WBZ and to a lesser extent in the Second WBZ,

this section discusses available alternatives for remediation of fuel-impacted groundwater.

4.2.1 First WBZ

Based on available data, the smear zone is the source area for the continued generation of dissolved-phase hydrocarbons entering groundwater in the First WBZ. As discussed in Section 3.7, concentrations of COCs in groundwater samples collected from the First WBZ are at least two orders of magnitude higher than ESL values set forth by the CRWQCB for drinking water standards. As such, groundwater remediation for the First WBZ is warranted.

4.2.2 Second WBZ

Based on the limited available data, and comparison of groundwater contaminants with ESL levels, it appears that the beneficial use of groundwater in the Second WBZ has been impacted by the past Site-related activities. However, due to insufficient groundwater monitoring data and fact that the source of groundwater chemicals in the Second WBZ is the downward migration of chemicals from the First WBZ, remediation of this layer may be less urgent than for the First WBZ. Once enough monitoring data from the Second WBZ wells is collected and the plume of COCs is fully evaluated, remediation of this layer may be considered. However, a monitored natural attenuation study may be appropriate for this WBZ before implementation of any active remediation technology.

4.3 Potentially Suitable Remedial Technologies

SOMA screened several potential remedial technologies. In addition, an MPE pilot test was conducted to evaluate effectiveness of this technology.

Selection criteria of the alternatives presented are as follows:

- The remedial alternative prevents further migration of the chemicals to off-site areas;
- The remedial alternative maximizes the mass removal rate of the Site-related contaminants from the target zone of remediation; and
- The remedial alternative does not interfere with ongoing Site activities and is economically affordable.

Potentially suitable remedial technologies include:

- **Groundwater Extraction and Treatment** This alternative includes a groundwater extraction system which would extract fuel-impacted groundwater from a series of extraction wells or French drain. The

extracted water is treated using granulated activated carbon (GAC) vessels. The treated water is released to the sanitary sewer or storm drain system.

This system is effective because it would prevent off-site migration of chemicals while removing most soluble components of groundwater contaminants, such as TBA and MtBE, from groundwater.

This alternative will be considered further.

- **Soil Vapor Extraction/Air Sparge (SVE/AS)** This alternative entails injecting air into the saturated zone and extracting vapors from the unsaturated zone, combined with treatment of the extracted air using GAC, an internal combustion engine (ICE), a catalytic/thermal oxidizing unit (CatOx), an air stripper, or other methods, followed by discharge of the treated vapor stream into ambient air, under permit from the BAAQMD. This alternative would utilize existing groundwater monitoring wells after installing air sparging points. Due to low vapor pressure and high solubility of MtBE and TBA in groundwater, this alternative alone may not be the most effective and feasible alternative to meet the selection criteria discussed above. This alternative was eliminated because this type of system would not be capable of removing adsorbed-phase hydrocarbons adsorbed to the saturated sediments in the smear zone. In addition this alternative would not prevent migration of COCs to the off-site areas. This alternative will not be considered further.

- **MPE** This alternative consists of extracting vapor and liquids from common wells, rather than only from wells specifically designed to allow extraction of vapor and/or groundwater only. Instead, vapor and liquid are removed from each well using a high vacuum pump (such as a liquid ring pump), with the liquids decanted into a separate holding tank (knockout pot), and the resulting separate phases (liquid and vapor) treated using GAC, ICE, CatOx, and air stripper, or other method, followed by discharge of the treated effluent to ambient air, and/or to the sanitary or storm sewer. Due to the high efficiency of MPE in removing significant amounts of contaminant mass from the subsurface, this alternative may be effective in removing the contaminants from the subsurface in a timely manner. This alternative will be considered further.

- **Natural Attenuation** This alternative assumes that existing conditions in the saturated sediments are sufficient to degrade the dissolve-phase hydrocarbons without enhancement as verified by groundwater monitoring. This alternative alone does not meet the selection criteria as discussed above, in that no mass will be physically removed from the subsurface; therefore the chemical plume will continue to migrate to the off-site areas. As such, this alternative will not be further considered.

- **Chemical Oxidation** This alternative entails introduction of an oxidizing compound or mixture into the subsurface via injection points or wells. The introduced compound is selected to facilitate degradation of the dissolved-phase hydrocarbons without requiring extraction or removal of effluent, vapor, or water from the subsurface. This alternative would require the installation of injection points and/or wells to facilitate the introduction of the selected compound and monitoring of the subsurface to assess the treatment results. This alternative's effectiveness in reducing the chemical mass is uncertain; in addition, it will allow continued migration of the chemical plume to off-site areas. Furthermore, the close proximity of most impacted wells such as MW-3 to the existing USTs makes the injection of oxidants such as ozone to subsurface potentially extremely dangerous. For these reasons this alternative will not be evaluated further.

- **Excavation** This alternative includes dewatering the source area and removing the smear zone by excavation. This alternative was eliminated because possibly not all the smear zone will be removed, resulting in renewed impact to groundwater in the First WBZ. Dewatering the excavation to expose the smear zone beneath the capillary fringe in the First WBZ may not be feasible under this alternative. As discussed, this alternative may become more feasible for remediation of the shallow and native soils from 10 to 12 feet bgs. Since groundwater occurs at depths greater than 10-12 feet bgs, this alternative will not be feasible.

  Because of its high cost and low feasibility, this alternative will not be considered further for remediating the smear zone to remove the source of groundwater contamination.

4.4 Suitable Groundwater Remedial Alternatives

Remedial technologies that are applicable to the First WBZ include the combination of MPE and a groundwater pump-and-treat system. It appears that using MPE will prevent further migration of groundwater to the off-site areas and at the same time will remove chemicals from the smear zone in a timely manner. Although groundwater pump-and-treat will create a good capture zone and prevent further migration of chemicals to off-site areas, it cannot completely remove chemicals from the smear zone and meet the closure objectives.

MPE This technique has the potential to simultaneously remove contaminants from the smear zone as well as dissolved- or free-phase petroleum hydrocarbons from the First WBZ. MPE results have shown that it is effective in extracting dissolved- as well as adsorbed-phase hydrocarbons from the smear zone at the Site. This alternative would utilize existing and new groundwater extraction wells within the chemical source area.

MPE pilot test results indicated that the ZOI of the extraction well is about 61 feet (see section 2.4.6). This is largely due to the presence of coarse-grained sediments encountered in the saturated zone.

Groundwater Extraction and Treatment

As discussed earlier, operation of the pump-and-treat system was effective in controlling further migration of the dissolved-phase plume in the groundwater within the First WBZ by extracting from the on-site extraction wells. Given the fact that major COCs are TBA and MtBE and these chemicals are comparatively soluble and less volatile, removing groundwater by pump-and-treat technology is an attractive option.

Monitored Natural Attenuation (MNA) This alternative is potentially applicable to remediate the low levels of dissolved-phase hydrocarbons in the groundwater, particularly in the Second WBZ. In addition, MNA would be applicable to the First WBZ following active remediation at the source area (smear zone) and hydraulic control, capture and treatment of the dissolved-phase plume in the First WBZ. SOMA believes the low levels of dissolved-phase hydrocarbons have the potential to naturally attenuate with time. This alternative would involve continuing quarterly monitoring/sampling of the groundwater monitoring wells completed in the Second WBZ and, in addition, collecting field dissolved-oxygen and oxygen-reduction-potential data, additional groundwater samples for heterotrophic plate count (HPC), and data for biodegradation parameters nitrate, manganese, ferrous iron, sulfate and methane. The dissolved-oxygen and HPC data would be used to evaluate whether subsurface conditions are favorable for aerobic and anaerobic biodegradation of dissolved fuel oxygenates (MtBE). The biodegradation parameters would be displayed on Radial Redox Diagrams to further evaluate whether subsurface conditions are favorable for aerobic or anaerobic biodegradation. Feasibility testing would utilize a single quarterly monitoring and sampling event to collect the additional field data and samples for analyses to determine whether subsurface conditions are favorable for aerobic or anaerobic biodegradation. If feasible, MNA would become part of quarterly monitoring and sampling at the Site.

4.5 Cost Estimate for Implementation of Most Viable Groundwater Remediation Options

Among the feasible groundwater remediation alternatives, pump-and-treat and MPE appear to be the most attractive options. As discussed earlier, using MPE alone will meet the groundwater cleanup objectives. However, due to limited extent of the smear zone and the high cost of MPE operation, this method will not be cost effective if utilized over a long period. However, using MPE for a limited time to remediate the smear zone, while using pump-and-treat for a long period

to create a capture zone and remove dissolved-phase petroleum hydrocarbons from groundwater, appears to be most attractive combination.

To employ MPE, a groundwater treatment system containing GAC units will be required to treat groundwater extracted by MPE. Based on our experience, following are major obstacles to utilizing a continuously operating MPE system at the Site:

1. Capital costs associated with purchase and installation of components;
2. High power source requirements, which might not be easily supplied by PG&E;
3. High operation costs, including costs of power and fuel;
4. Restrictions on continuously operating MPE systems imposed by BAAQMD in areas where there are sensitive receptors such as schools or day care centers within a 1,000-foot radius of the site of operation.

To overcome these difficulties, the MPE system can be operated intermittently rather than on a continuous basis. Costs associated with operation of an MPE system on a continuous and intermittent basis are compared in Table 9. (These costs do not take into account issues involved in BAAQMD permitting for continuous operation.)

As Table 9 shows, installation cost of a continuous-operation MPE system is about $150,000, with yearly operation costs totaling about $100,000. The cost associated with a 5-day event on an intermittent basis is $16,000. As discussed in Appendix G, a total of 1,338 pounds of petroleum hydrocarbons remain in the smear zone. Pilot test results showed that the average removal rate by MPE is about 35 pounds per day. Since with ongoing operation of the MPE system the removal rate will drop, it is safe to assume that the average removal rate may become 20 pounds per day. As such, it will take 61 days to remove 1,338 pounds of petroleum hydrocarbons from the soil and the smear zone. It was conservatively assumed that it will take one year (12 events of a 5-day operation period each) to achieve remediation goals. Therefore, the cost of smear zone cleanup will be about $192,000 (12 x $16,000), which is significantly lower than cost associated with continuous MPE operation.

MPE will remove the petroleum hydrocarbon source from the subsurface, and will also remediate residual levels of petroleum hydrocarbons from the impacted soils within the capillary fringe area.

Price information was received from Frontier Environmental for the MPE system model that includes liquid ring pump and 420 CFM electric catalytic oxidizer. The system runs on 230 volts and a three-phase power source. In our experience, obtaining three-phase power at the Site could be problematic. As Table 9 shows,

the cost of using the MPE system on an event-by-event basis (up to 12 events) is lower than running the fixed system for one year.

4.6 Introducing the Most Effective, Feasible and Cost-Effective Soil and Groundwater Remediation Option

It appears that combining a pump-and-treat system with MPE technology will meet groundwater cleanup criteria at the Site. The combined impact of the two systems will prevent migration of chemicals within the First WBZ to off-site areas and clean up groundwater at the Site. MNA is also recommended for the First and Second WBZ to evaluate the state of bio-remediation processes at the Site. Accordingly, we recommend collecting bio-degradation parameters during quarterly groundwater monitoring to evaluate the effectiveness of natural attenuation in reducing chemical concentrations in subsurface.

We recommend installing two groundwater extraction wells, one next to MW-6 and one next to DPW-6 to prevent further migration of chemicals to off-site areas. Extracted groundwater will be delivered to the Site for treatment using GAC units. As discussed, groundwater extracted during MPE events will also be treated by the on-site system. At the request of ACHCS, SOMA will prepare a workplan to install groundwater extraction wells and the on-site groundwater treatment system.

5. CONCLUSIONS AND RECOMMENDATIONS

SOMA's findings and recommendation for implementation of effective, feasible and less costly alternatives are summarized below.

1. Of the two water-bearing zones beneath the Site, it appears that the majority of Site-related contaminants are present in the First WBZ.
2. Groundwater investigation results indicate that the Second WBZ has not been significantly impacted by petroleum hydrocarbons. Therefore, no active remediation is warranted.
3. Results of SOMA's contaminant mass calculation indicate that there are over 1,338 pounds of petroleum hydrocarbons in subsurface soils and the smear zone beneath the Site. In addition there are about 2,374 pounds of chemicals in groundwater in dissolved and adsorbed phases.
4. Soil gas survey results indicated that soil vapors in subsurface do not pose a significant health risk to off-site residents.
5. MPE pilot test results indicated that this technique is effective in removing petroleum hydrocarbons from groundwater. During the pilot test, 106 pounds of petroleum hydrocarbons were removed from the subsurface;

6. Results of our evaluation indicate that because groundwater occurs at greater depths than utility lines, the public utility lines and conduits in the Site vicinity do not act as preferential flow pathways.

7. Based on DWR records, 10 wells were located within 2,000 feet of the Site. Three are located hydraulically downgradient of the Site, including of two of unknown use and one irrigation well. Sensitive receptor survey results indicated that the off-site groundwater plume could impact two private wells, one of which is reportedly located at 1575 153rd Street, and the other at an unidentified address along Oriole Avenue. Analytical results for groundwater samples collected from well at 1573 153rd Street showed only TBA, at 21 µg/L. The well on Oriole Street could not be sampled and is no longer operational.

8. Results of our corrective action evaluation indicated that a combination of pump-and-treat with an MPE system is the most effective and least costly alternative for removing petroleum hydrocarbons from the smear zone and the First WBZ. No active remediation of the Second WBZ is warranted. However, MNA is recommended for the First and Second WBZs.
9. Results of our evaluation show that utilizing MPE on an intermittent basis is the most feasible and least costly MPE alternative. Due to high costs of a permanent MPE system in connection with purchase, installation, operation and maintenance, as well as issues related to BAAQMD permitting, it is not cost effective to utilize MPE on a permanent basis.

FIGURES

N

approximate scale in feet

0 150 300

Figure 1: Site vicinity map.

SOMA ENVIRONMENTAL ENGINEERING, INC.

N

CPT/MIP-1
DPS-1
DPW-1

HSA

MW-1D

MW-1

SB-4

CPT/MIP-3
DPS-3
DPW-3

CPT/MIP-4
DPS-4
DPW-4

DISPENSER ISLANDS

MW-2

SB-1

USTs

MW-3D

MW-3

SB-2

SB-3

Site Boundary

STATION BUILDING

CPT/MIP-2
DPS-2
DPW-2

DISPENSER ISLANDS

MW-4

SB-5

MW-4D

CPT/MIP-5
DPS-5
DPW-5

MW-5

CPT/MIP-6
DPS-6
DPW-6

CPT/MIP-8
DPS-8
DPW-8

CPT/MIP-7
DPS-7
DPW-7

TWB-1

MW-6

TWB-2

MW-7

TWB-5

MW-9

MW-8

TWB-3

TWB-6

TWB-4

RESIDENTIAL AREA

RESIDENTIAL AREA

RESIDENTIAL AREA

RESIDENTIAL AREA

COMMERCIAL AREA

FREEDOM AVENUE

151 st AVENUE

152 nd AVENUE

FAIRMONT DRIVE

LIBERTY ST

ORIOLE AVENUE

INTERSTATE 580 ONRAMP

INTERSTATE 580

LARK AVENUE

153 rd AVENUE

1573 153rd Street

- Monitoring Wells 1st WBZ
- Monitoring Wells 2nd WBZ
- Irrigation Well
- Soil Borings drilled July, 2001
- Temporary Well Borehole Drilled by SOMA September 2003
- HSA Borehole
- CPT/MIP Borehole
- GS Borehole

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 70 140

Figure 2: Site map showing locations of groundwater monitoring wells, soil borings/hydropunches, CPT/MIP boreholes in on- and off-site areas

SOMA ENVIRONMENTAL ENGINEERING, INC.

Figure 3: PID readings of vapors versus time during MIP pilot test of MW-3

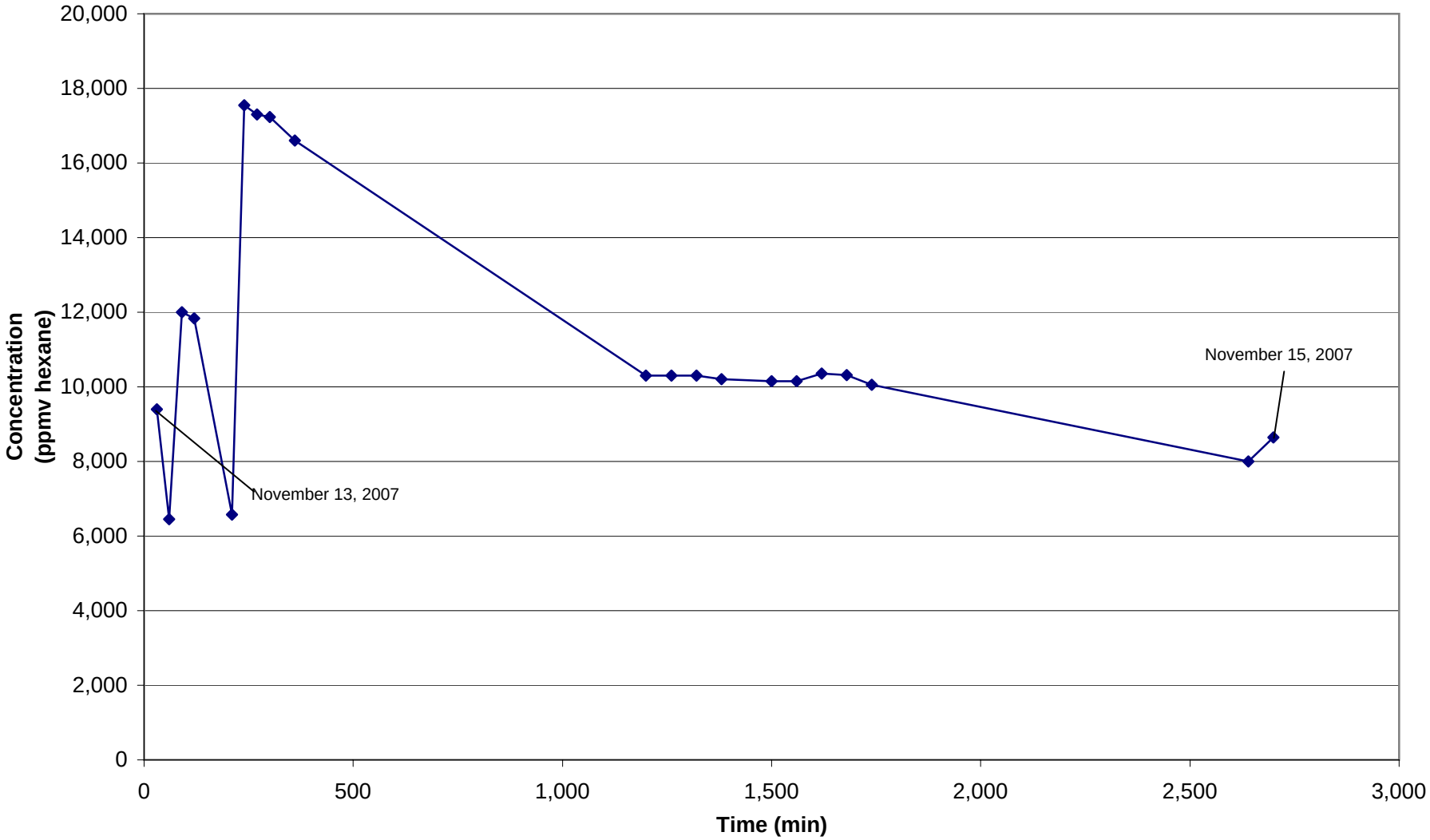


Figure 4: PID readings of vapors versus time during MIP pilot test of MW-5

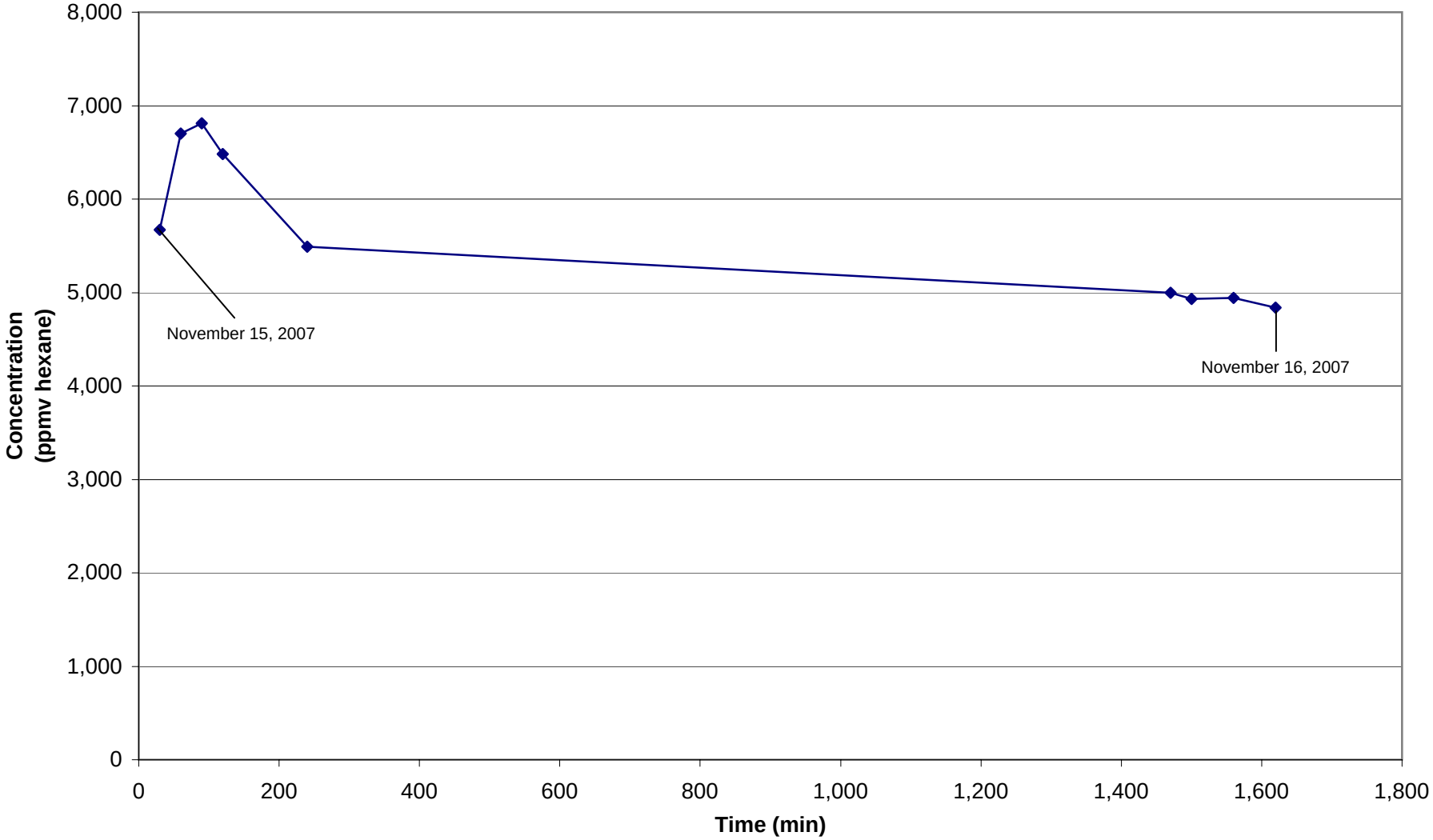
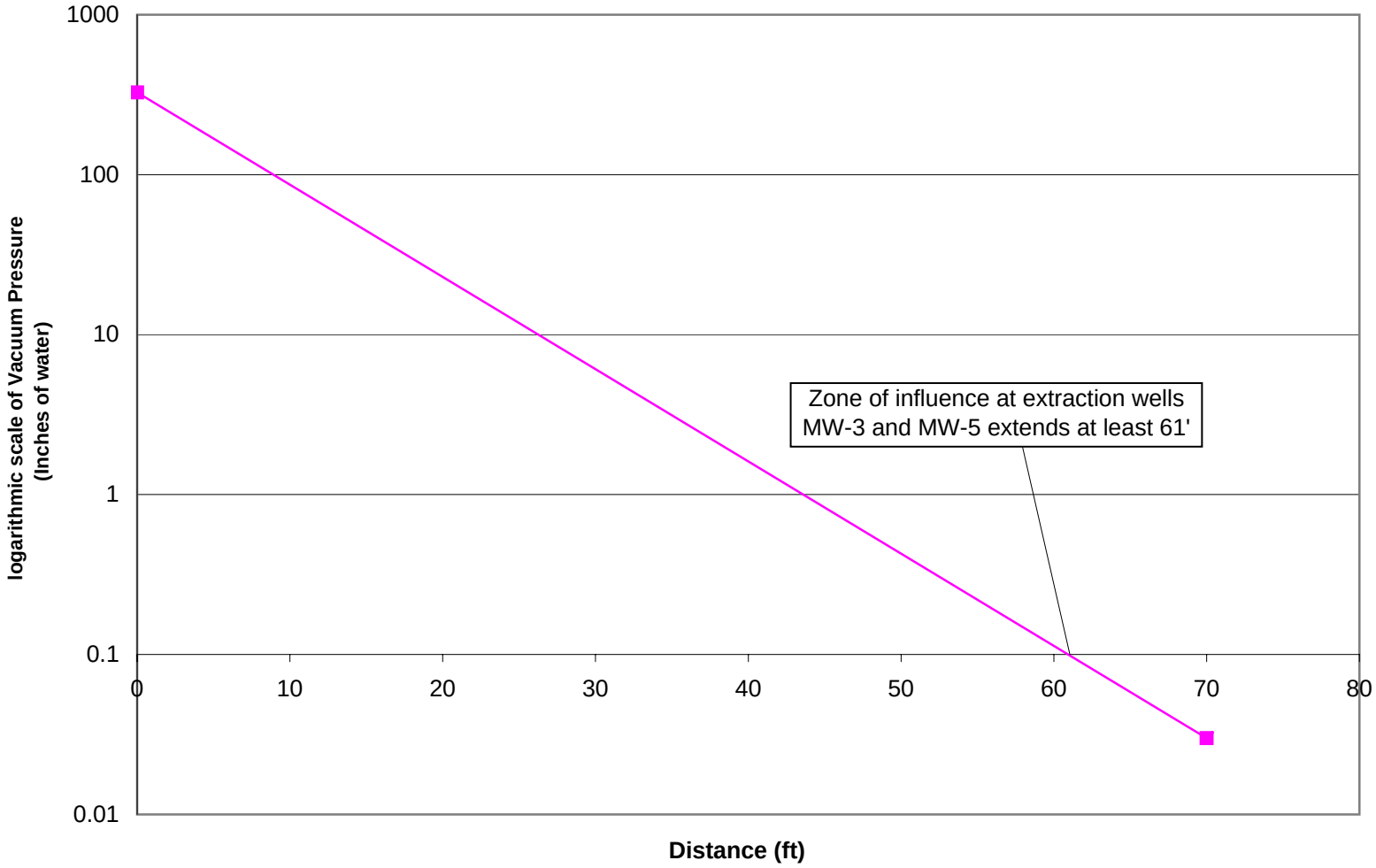


Figure 5: Log of vacuum pressure versus time at different observation points during pilot test



6620 Owens Drive, Suite A, Pleasanton, California 94588 (925) 734-6400 (925) 734-6401 FAX www.somaenv.com

N

RESIDENTIAL AREA

151 st AVENUE

CPT/MIP-1
DPS-1
DPW-1

HSA

MW-1D

MW-1

FREEDOM AVENUE

SB-4

CPT/MIP-3
DPS-3
DPW-3

DISPENSER ISLANDS

CPT/MIP-4
DPS-4
DPW-4

MW-2

SB-1

USTs

MW-3D

MW-3

Site Boundary

SB-2

SB-3

STATION BUILDING

CPT/MIP-2
DPS-2
DPW-2

DISPENSER ISLANDS

MW-4

SB-5

MW-4D

CPT/MIP-5
DPS-5
DPW-5

MW-5

INTERSTATE 580 ONRAMP

INTERSTATE 580

CPT/MIP-6
DPS-6
DPW-6

CPT/MIP-8
DPS-8
DPW-8

COMMERCIAL AREA

CPT/MIP-7
DPS-7
DPW-7

RESIDENTIAL AREA

TWB-1

MW-6

FAIRMONT DRIVE

TWB-2

MW-7

LIBERTY ST

152 nd AVENUE

TWB-5

MW-9

MW-8

RESIDENTIAL AREA

TWB-3

ORIOLE AVENUE

RESIDENTIAL AREA

TWB-6

LARK AVENUE

TWB-4

1573 153rd Street

153 rd AVENUE

Zone of Influence

Monitoring Wells 1st WBZ

Monitoring Wells 2nd WBZ

Irrigation Well

Soil Borings drilled July, 2001

Temporary Well Borehole
Drilled by SOMA September 2003

HSA Borehole

CPT/MIP Borehole

GS Borehole

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

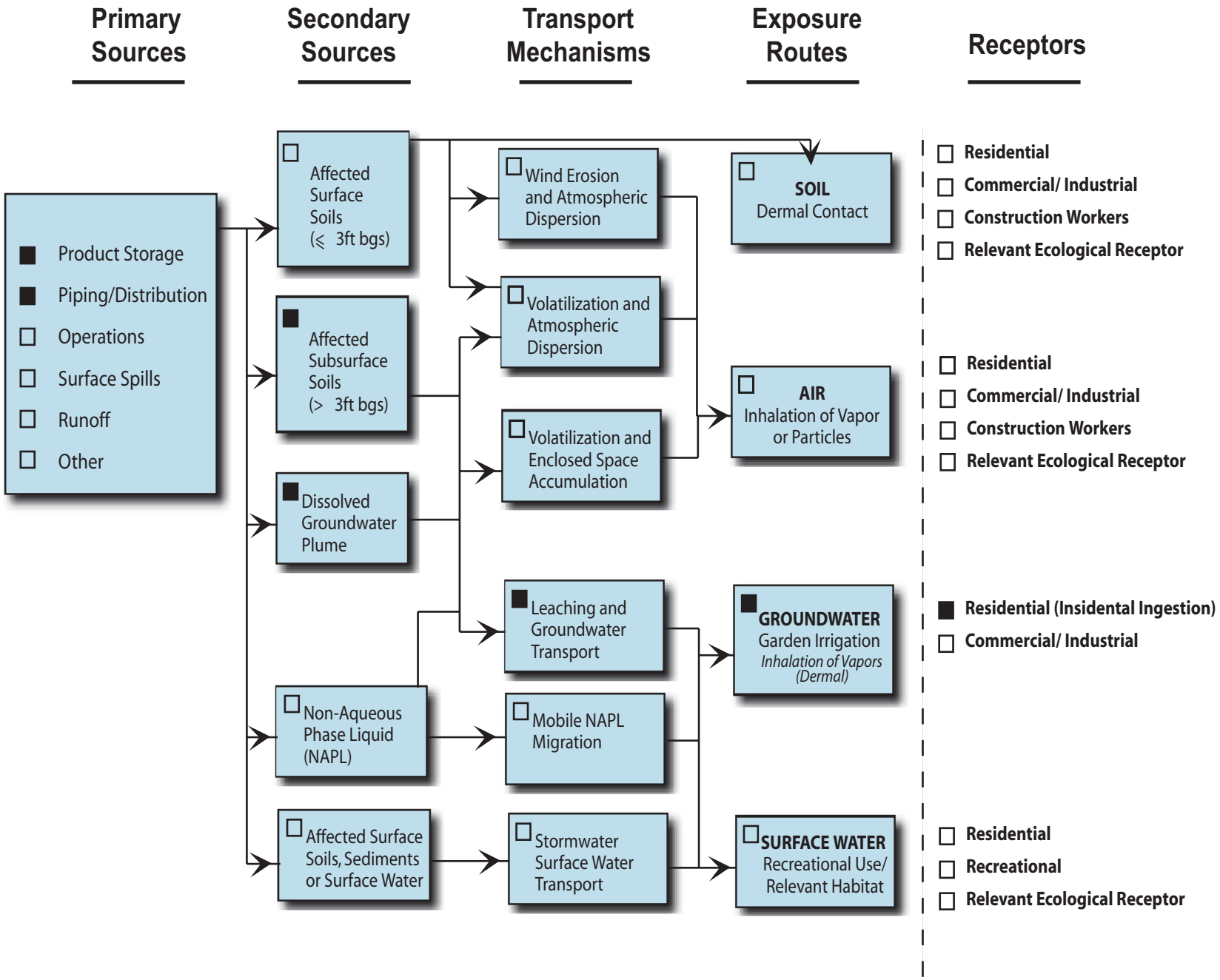
approximate scale in feet

0 70 140

Figure 6: Zone of influence of MW-3 and MW-5 during pilot test

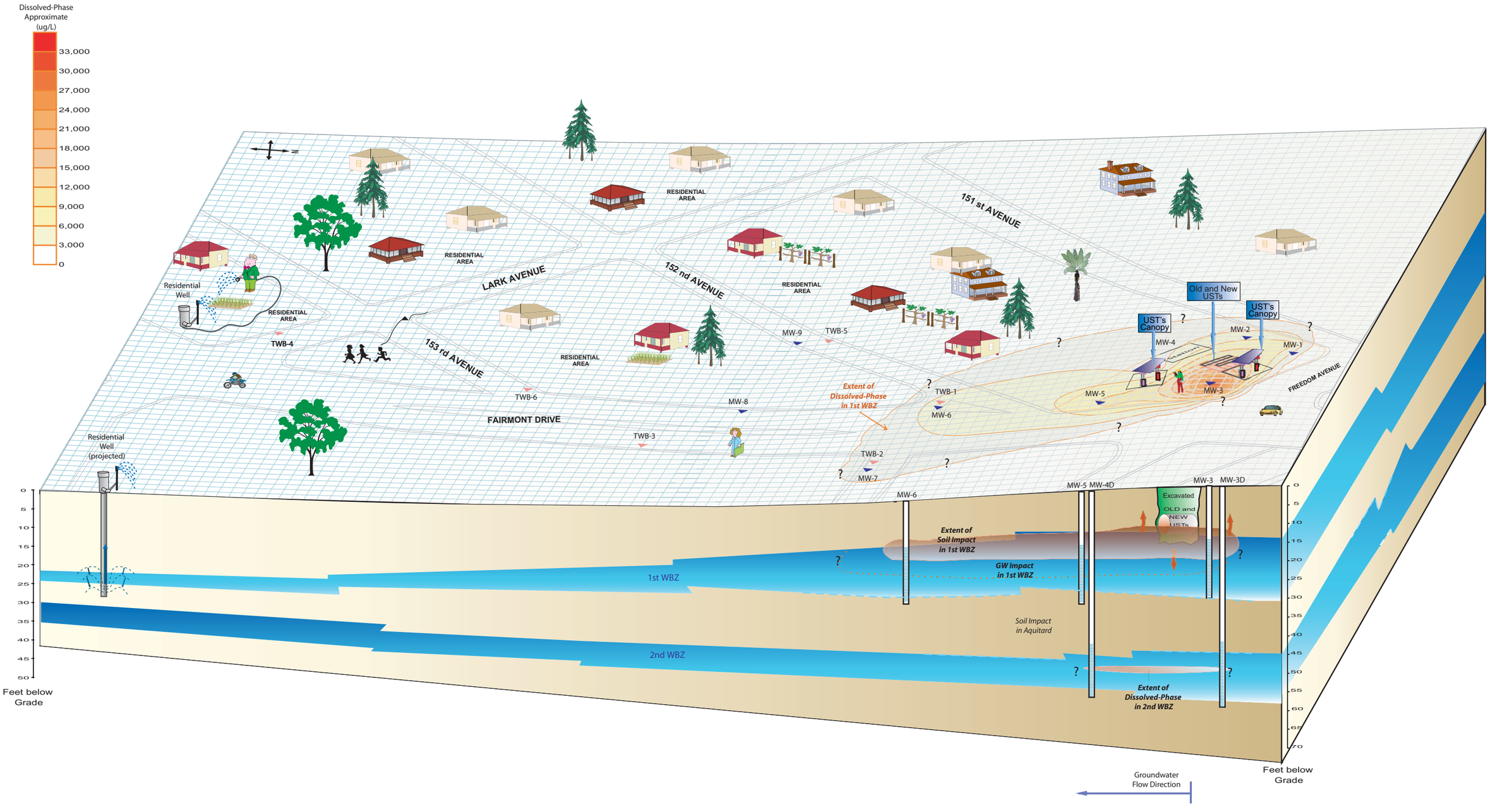
SOMA ENVIRONMENTAL ENGINEERING, INC.

15101 Freedom Avenue, San Leandro, CA



Source: ASTM E-1689-95 Standard Guide for Developing Conceptual Site Models for Contaminated Sites

Figure 7: Comprehensive site conceptual model flowchart



NOTE:
Field of View -45 ; Tilt -24
Rotation- 257 ; Projection Orthographic
All wells were projected
Approximate scale 1"=80 feet

Not to scale

Figure 8: Updated site conceptual model

SOMA ENVIRONMENTAL ENGINEERING, INC.

N

RESIDENTIAL AREA

151 st AVENUE

FREEDOM AVENUE

CPT/MIP-1
DPS-1
DPW-1

B

HSA

MW-1D

MW-1

SB-4

DISPENSER ISLANDS

CPT/MIP-3
DPS-3
DPW-3

A

A'

CPT/MIP-4
DPS-4
DPW-4

SB-1

USTs

MW-2

MW-3D

MW-3

SB-2

SB-3

Site Boundary

STATION BUILDING

CPT/MIP-2
DPS-2
DPW-2

MW-4

DISPENSER ISLANDS

SB-5

MW-4D

CPT/MIP-5
DPS-5
DPW-5

MW-5

B'

C

CPT/MIP-6
DPS-6
DPW-6

CPT/MIP-8
DPS-8
DPW-8

CPT/MIP-7
DPS-7
DPW-7

INTERSTATE 580 ONRAMP

INTERSTATE 580

COMMERCIAL AREA

RESIDENTIAL AREA

TWB-1

MW-6

FAIRMONT DRIVE

TWB-2

MW-7

LIBERTY ST

152 nd AVENUE

TWB-5

MW-9

MW-8

RESIDENTIAL AREA

TWB-3

ORIOLE AVENUE

RESIDENTIAL AREA

TWB-6

LARK AVENUE

C'

TWB-4

1573 153rd Street

153 rd AVENUE

Monitoring Wells 1st WBZ

Monitoring Wells 2nd WBZ

Irrigation Well

Soil Borings drilled July, 2001

Temporary Well Borehole
Drilled by SOMA September 2003

HSA Borehole

CPT/MIP Borehole

GS Borehole

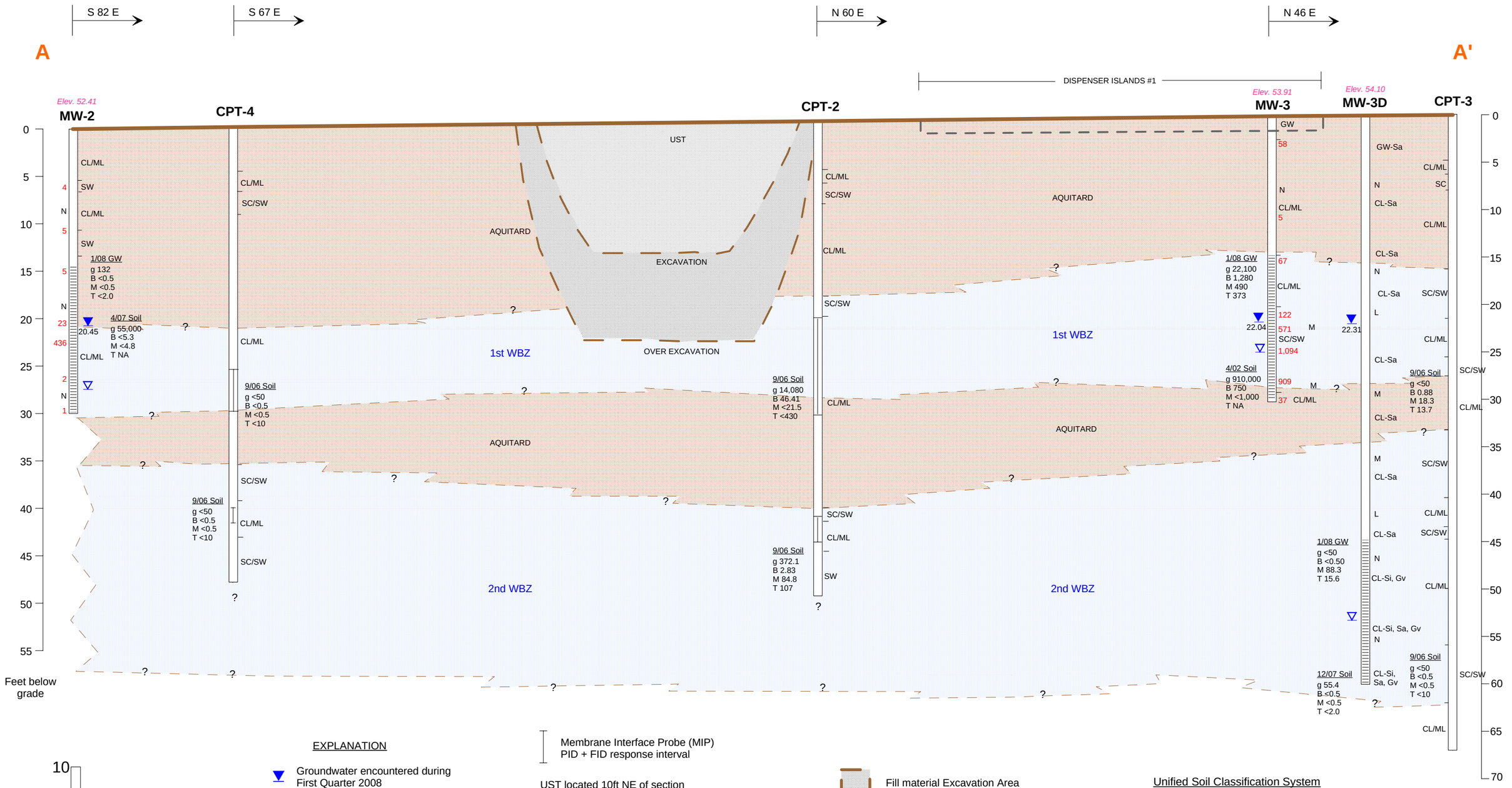
Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 70 140

Figure 9: Locations of geologic cross-sections AA', BB' and CC'

SOMA ENVIRONMENTAL ENGINEERING, INC.



10 0 10

approximate scale in feet

EXPLANATION

- Groundwater encountered during First Quarter 2008
- Groundwater encountered during well borehole drilling
- Monitoring well screen interval
- ? Inferred contact

Note: Analytical Soil and Groundwater Data for CPT borings taken from soil borings (GS)

Membrane Interface Probe (MIP)
PID + FID response interval

UST located 10ft NE of section
Dispenser # 1 located 20ft N of section

1/08 Month/Yr

122 - PID readings ppm VOCs

N, L, M, S: No, Light, Medium, Strong PHC Odor

Fill material Excavation Area

GW - GroundWater (ug/L)
Soil (ug/kg)

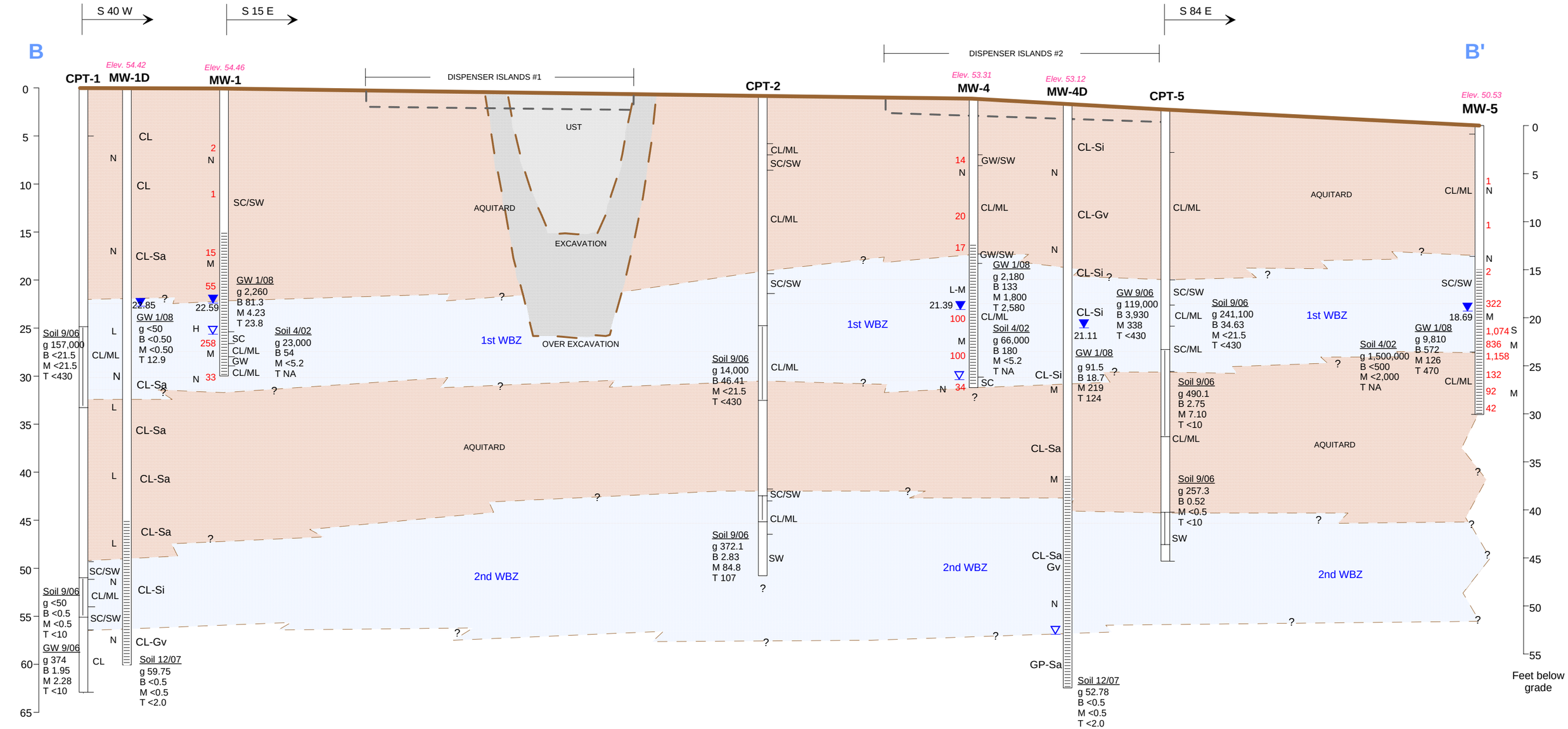
ug/L	g - TPH-g
ug/L	B - Benzene
ug/L	M - MtBE
ug/L	T - TBA

Unified Soil Classification System

CL	Clay	CL-Sa	Sandy Clayey
SP	Sand, Poorly Graded	CL-Si	Silty Clay
SW	Sand, Well Graded	CL-Gv	Gravelly Clay
GW	Gravel, Well Graded	GP-Sa	Sandy Gravel
ML	Silt		
SM	Silty Sand		

Figure 10: Geologic Cross-Section AA'

SOMA ENVIRONMENTAL ENGINEERING, INC.



EXPLANATION

- Groundwater encountered during Quarterly Monitoring Event First Quarter 2008
- Groundwater encountered during well borehole drilling
- Monitoring well screen interval
- ? Inferred contact

Note: Analytical Soil and groundwater Data for CPT borings taken from Soil borings (GS)

10 / 0 / 15

approximate scale in feet

Dispenser Island #1 located 10ft N of section

Membrane Interface Probe (MIP) PID + FID Response Interval

122 - PID readings ppm VOCs

N, L, M, S: No, Light, Medium, Strong PHC odor

Fill material Excavation Area

ug/L	g - TPH-g
ug/L	B - Benzene
ug/L	M - MtBE
ug/L	T - TBA

Unified Soil Classification System

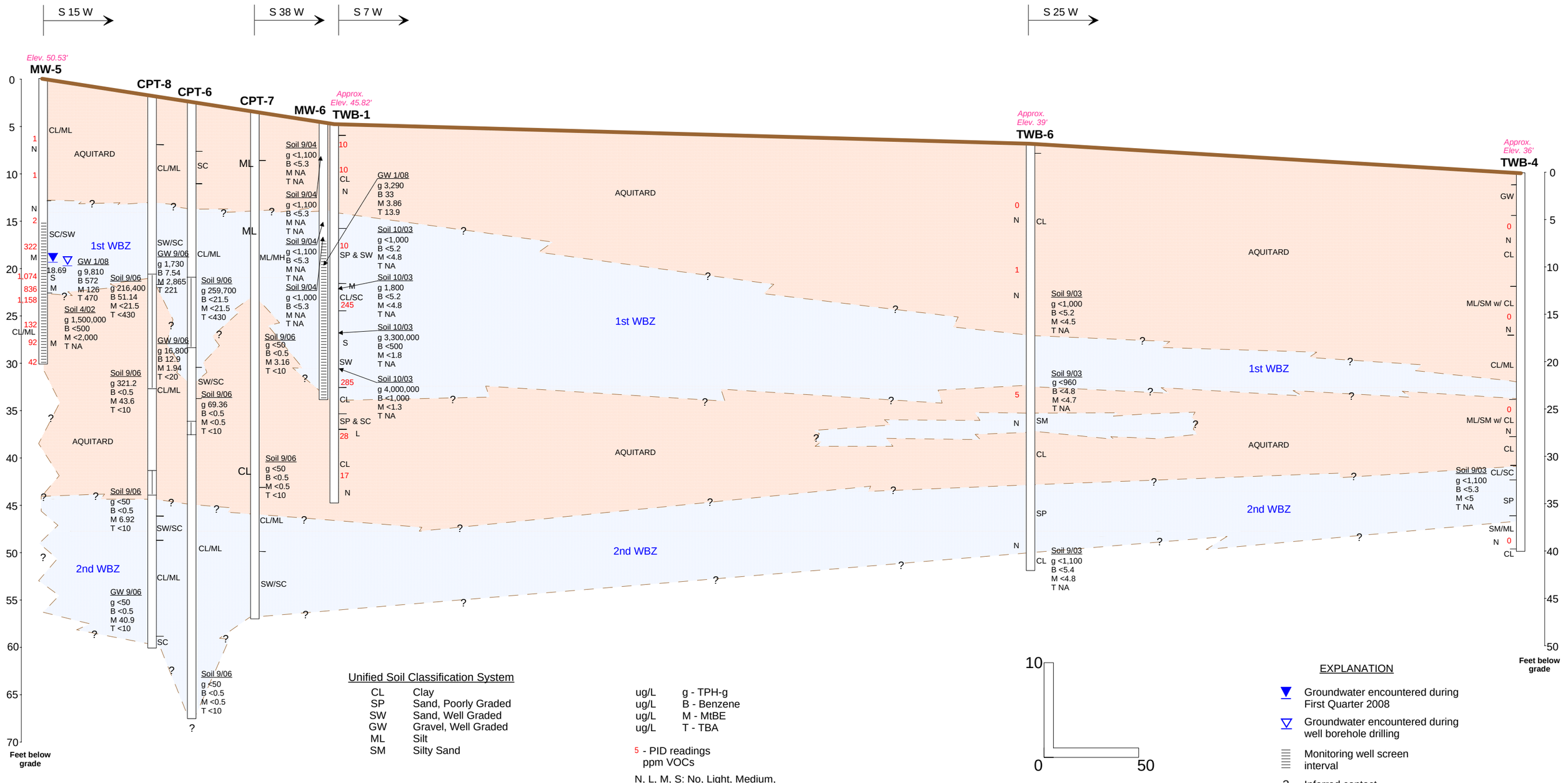
CL	Clay	CL-Sa	Sandy Clay
SP	Sand, Poorly Graded	CL-Si	Silty Clay
SW	Sand, Well Graded	CL-Gv	Gravelly Clay
GW	Gravel, Well Graded	GP-Sa	Sandy Gravel
ML	Silt		
SM	Silty Sand		

Figure 11: Geologic Cross-Section BB'

SOMA ENVIRONMENTAL ENGINEERING, INC.

C

C'



Unified Soil Classification System

CL	Clay
SP	Sand, Poorly Graded
SW	Sand, Well Graded
GW	Gravel, Well Graded
ML	Silt
SM	Silty Sand

ug/L g - TPH-g
ug/L B - Benzene
ug/L M - MtBE
ug/L T - TBA

5 - PID readings ppm VOCs

N, L, M, S: No, Light, Medium, Strong PHC odor

Membrane Interface Probe (MIP) PID + FID Response Interval

10
0 50
approximate scale in feet

EXPLANATION

- Groundwater encountered during First Quarter 2008
- Groundwater encountered during well borehole drilling
- Monitoring well screen interval
- ? Inferred contact

Note: Analytical Soil and groundwater Data for CPT borings taken from Soil borings (GS)

Figure 12: Geologic Cross-Section CC'

ENVIRONMENTAL ENGINEERING, INC

N

CPT/MIP-1
DPS-1
DPW-1

HSA

MW-1D

MW-1

SB-4

CPT/MIP-3
DPS-3
DPW-3

CPT/MIP-4
DPS-4
DPW-4

DISPENSER ISLANDS

SB-1

USTs

MW-3D

MW-2

MW-3

SB-2

SB-3

Site Boundary

STATION BUILDING

CPT/MIP-2
DPS-2
DPW-2

DISPENSER ISLANDS

SB-5

MW-4

MW-4D

CPT/MIP-5
DPS-5
DPW-5

MW-5

CPT/MIP-6
DPS-6
DPW-6

CPT/MIP-8
DPS-8
DPW-8

CPT/MIP-7
DPS-7
DPW-7

TWB-1

MW-6

TWB-2

MW-7

FAIRMONT DRIVE

LIBERTY ST

TWB-5

MW-9

MW-8

TWB-3

ORIOLE AVENUE

TWB-6

TWB-4

1573 153rd Street

RESIDENTIAL AREA

151 st AVENUE

FREEDOM AVENUE

INTERSTATE 580 ONRAMP

COMMERCIAL AREA

152 nd AVENUE

LARK AVENUE

153 rd AVENUE

INTERSTATE 580

Monitoring Wells 1st WBZ

Monitoring Wells 2nd WBZ

Irrigation Well

Soil Borings drilled July, 2001

Temporary Well Borehole
Drilled by SOMA September 2003

HSA Borehole

CPT/MIP Borehole

GS Borehole

Dissolved-Phase Hydrocarbons in First WBZ

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 70 140

Figure 13: Lateral extent of groundwater contaminants in the First WBZ

SOMA ENVIRONMENTAL ENGINEERING, INC.

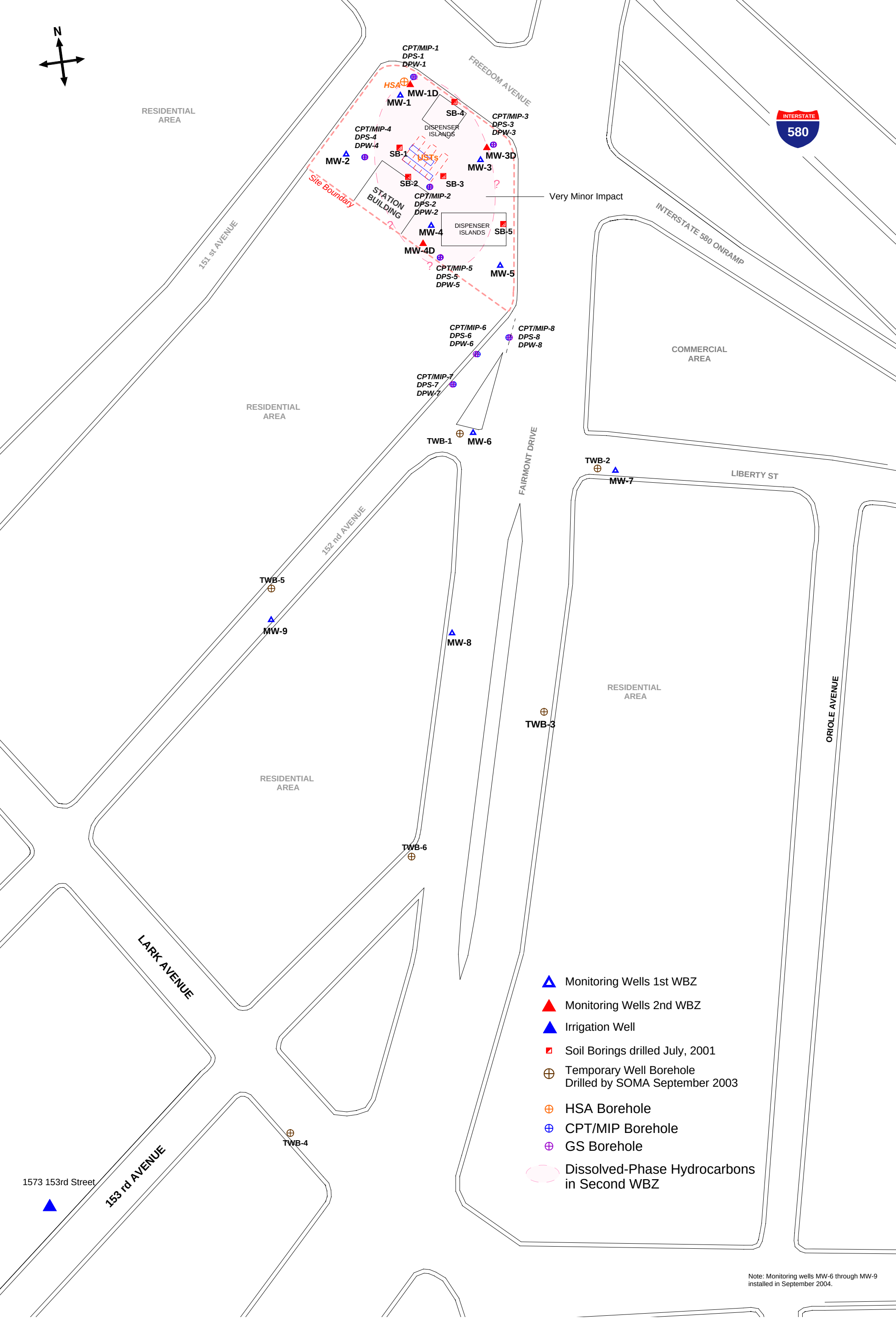


Figure 14: Lateral extent of groundwater contaminants in the Second WBZ

SOMA ENVIRONMENTAL ENGINEERING, INC.

Creeks

Former creeks, buried or drained, and bay shoreline, circa 1850. Creeks are dashed where location is less certain.

Underground culverts & storm drains

Engineered channels

Source:

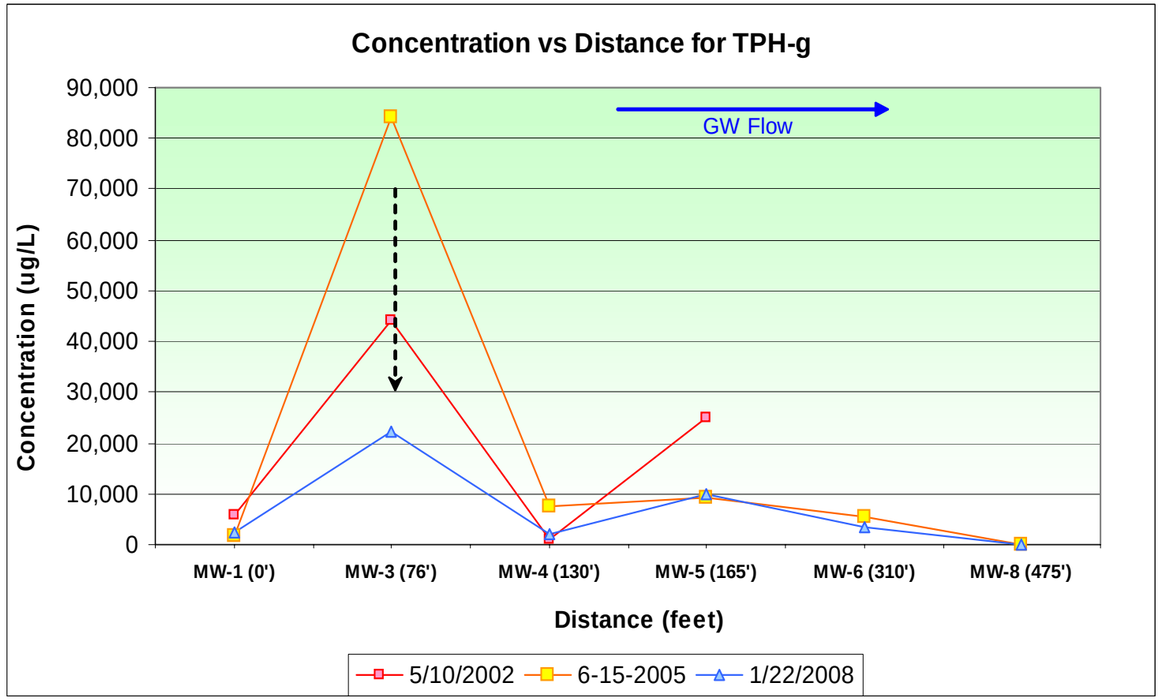
CREEK & WATERSHED MAP of Hayward & San Leandro

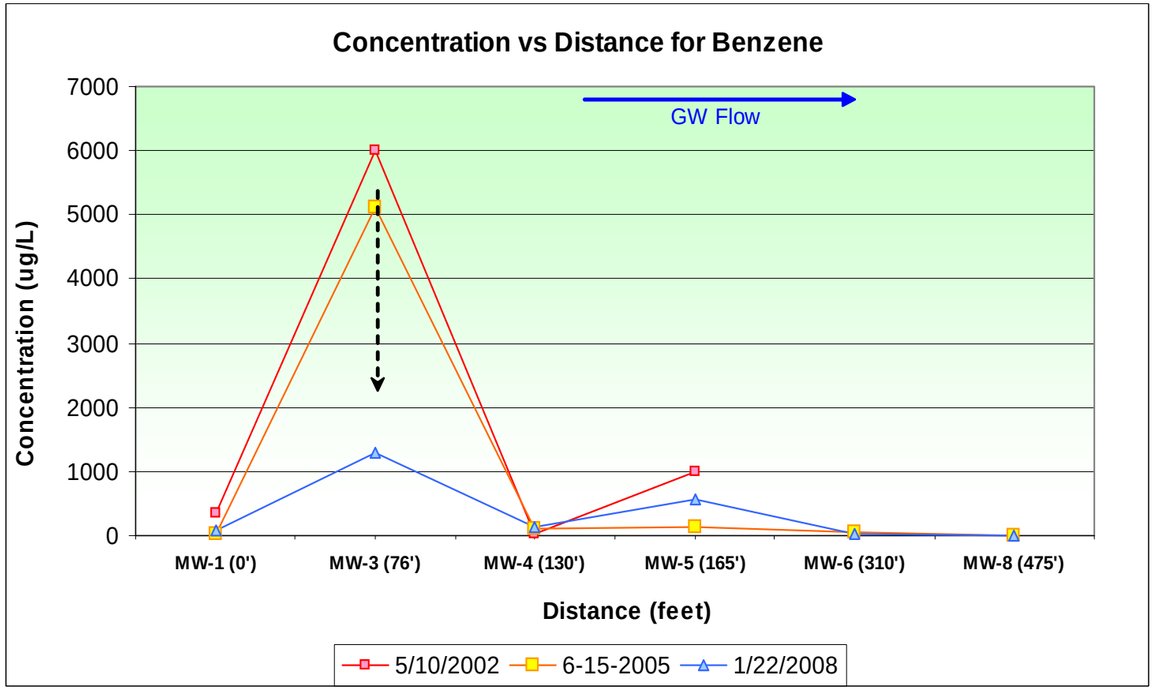
By Janet M. Sowers, William Lettis & Associates, Inc.
Historical wetlands research by the San Francisco Estuary Institute

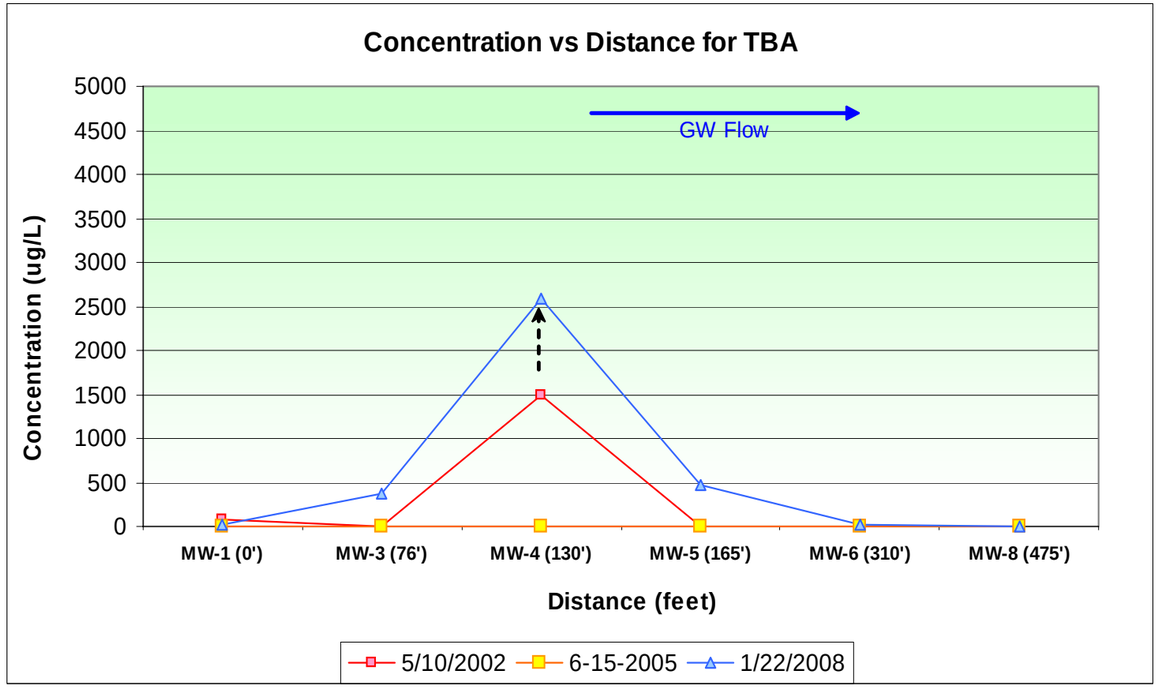
not to scale

Figure 15: Location of historical watercourse and present time flood control channel

SOMA ENVIRONMENTAL ENGINEERING, INC.







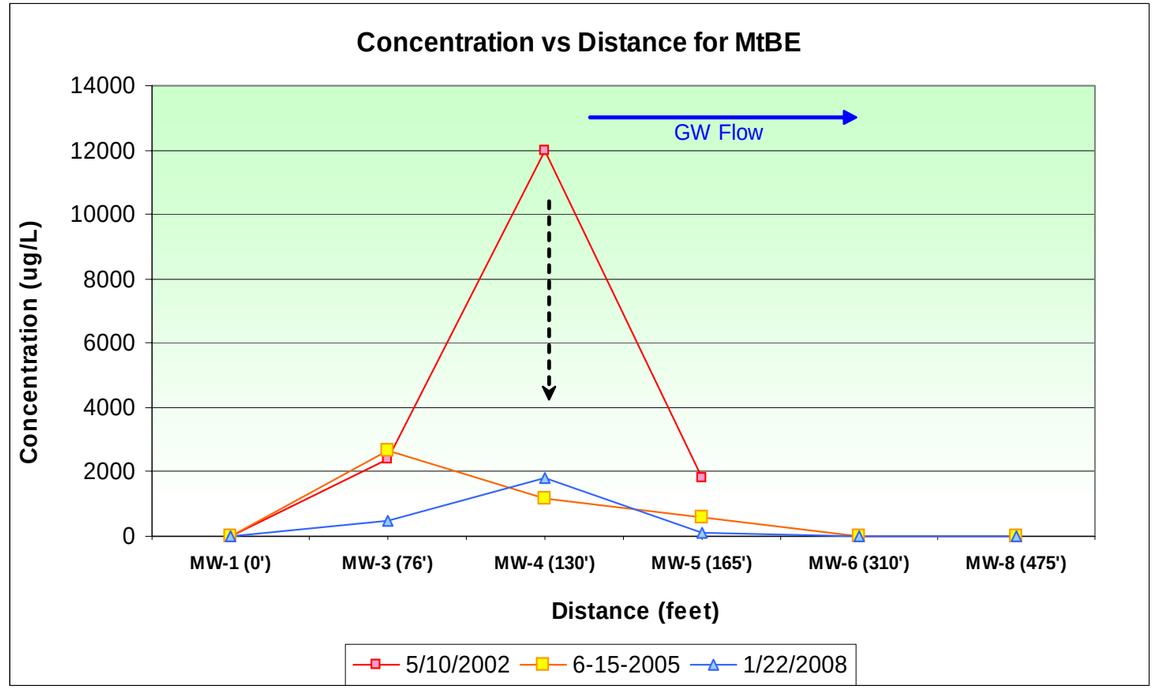
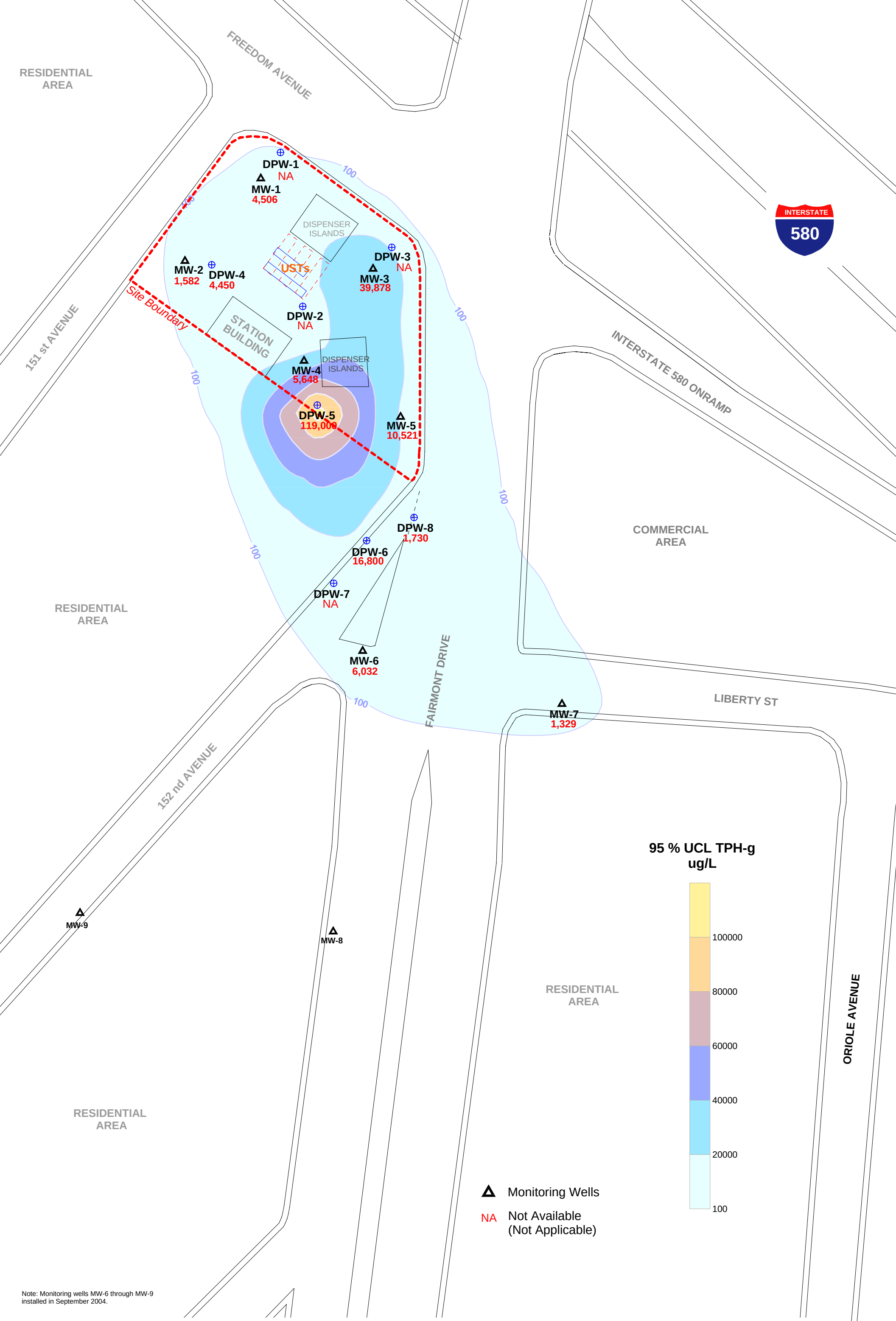


Figure 16: TPH=g, benzene , MtBE and TBA concentrations in First WBZ versus distance



Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 50 100

Figure 17: TPH-g plume in First WBZ

ENVIRONMENTAL ENGINEERING, INC.

RESIDENTIAL AREA

FREEDOM AVENUE

151 st AVENUE

DPW-1
NA
MW-1
325

10

DISPENSER ISLANDS

USTs

3000

DPW-3
NA
MW-3
4,688

MW-2
1

DPW-4
84

Site Boundary

DPW-2
NA

STATION BUILDING

DISPENSER ISLANDS

MW-4
199

DPW-5
3,930

MW-5
449

INTERSTATE
580

INTERSTATE 580 ONRAMP

COMMERCIAL AREA

DPW-8
8

DPW-6
13

DPW-7
NA

RESIDENTIAL AREA

MW-6
47

FAIRMONT DRIVE

LIBERTY ST

MW-7
1

152 nd AVENUE

MW-9

MW-8

RESIDENTIAL AREA

RESIDENTIAL AREA

ORIOLE AVENUE

95 % UCL Benzene ug/L

- 4200
- 3600
- 3000
- 2400
- 1800
- 1200
- 600
- 10

Monitoring Wells

NA Not Available (Not Applicable)

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 50 100

Figure 18: Benzene plume in First WBZ

ENVIRONMENTAL ENGINEERING, INC.

RESIDENTIAL AREA

FREEDOM AVENUE

151 st AVENUE

INTERSTATE 580

INTERSTATE 580 ONRAMP

COMMERCIAL AREA

RESIDENTIAL AREA

152 nd AVENUE

FAIRMONT DRIVE

LIBERTY ST

RESIDENTIAL AREA

ORIOLE AVENUE

RESIDENTIAL AREA

153 rd AVENUE

Site Boundary

DISPENSER ISLANDS

USTs

STATION BUILDING

DISPENSER ISLANDS

DPW-1
NA
MW-1
7

MW-2
0

DPW-4
0

DPW-3
NA
MW-3
3,372

DPW-2
NA

MW-4
2,801

DPW-5
338

MW-5
1,868

DPW-8
2,860

DPW-6
2

DPW-7
NA

MW-6
11

MW-7
9

MW-9

MW-8

5

25

95 % UCL MtBE ug/L

3,000
2,500
2,000
1,500
1,000
500
5

Monitoring Wells

NA Not Available (Not Applicable)

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 50 100

Figure 19: MtBE plume in First WBZ

ENVIRONMENTAL ENGINEERING, INC.

RESIDENTIAL AREA

FREEDOM AVENUE

DPW-1
NA
MW-1
42

120

DISPENSER ISLANDS

120

DPW-3
NA
MW-3
872

MW-2
0

DPW-4
0

USTs

Site Boundary

DPW-2
NA

STATION BUILDING

DISPENSER ISLANDS

MW-4
2,406

120

DPW-5
0

MW-5
905

120

151 st AVENUE

INTERSTATE 580 ONRAMP

INTERSTATE
580

DPW-8
221

DPW-6
0

DPW-7
NA

RESIDENTIAL AREA

COMMERCIAL AREA

MW-6
7

FAIRMONT DRIVE

LIBERTY ST

MW-7
2

152 nd AVENUE

MW-9

MW-8

RESIDENTIAL AREA

ORIOLE AVENUE

RESIDENTIAL AREA

95 % UCL TBA
ug/L

2,000
1,600
1,200
800
400
120

Monitoring Wells

NA Not Available
(Not Applicable)

153 rd AVENUE

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 50 100

Figure 20: TBA plume in First WBZ

ENVIRONMENTAL ENGINEERING, INC.

TABLES

Table 1
Historical Soil Sample Analytical Results
Comparison with Environmental Screening Levels (ESLs) and Upper Confidence Limits
15101 Freedom Avenue
San Leandro, California

SAMPLE DATE	SAMPLE ID	8260B	8015 DRO	8260B						
		TPH-g[3] mg/kg	TPH-d[3] mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Xylenes mg/kg	MTBE mg/kg	TAME mg/kg	TBA mg/kg
FIRST WATER-BEARING ZONE										
4/22/2002	MW-1 @ 26'	23	NA	0.054	0.04[E]	0.22	0.207	<0.0052	NA	NA
4/22/2002	MW-2 @ 21'	55	NA	<0.0053	0.19[E]	0.72	0.167[E]	<0.0048	NA	NA
4/22/2002	MW-3 @ 25'	910	NA	0.75	2.9	15	65	<1	NA	NA
4/22/2002	MW-4 @ 26'	66	NA	0.18	0.03[E]	0.54	2.35	<0.0052	NA	NA
4/22/2002	MW-5 @ 23.5'	1,500	NA	<0.5	5.2	20	67	<2	NA	NA
10/1/2003	TWB-1 @ 16-16.5	<1	NA	<0.0052	<0.0052	<0.0052	<0.0052	<0.0048	NA	NA
10/1/2003	TWB-1 @ 18-18.5	1.8[E]	NA	<0.0052	<0.0052	<0.0052	<0.0052	<0.0048	NA	NA
10/1/2003	TWB-1 @ 21.5-22	**3,300**	NA	<0.50	<0.50	56.00	182.00	<1.8	NA	NA
10/1/2003	TWB-1 @ 24-24.5	**4,000**	NA	<1	12.00	84.00	365.00	<0.0013	NA	NA
10/1/2003	TWB-2 @ 22-20.5	29[E]	NA	<0.025	<0.025	0.05	0.288[C]	<0.0048	NA	NA
10/1/2003	TWB-2 @ 29.5-30	<0.99	NA	<0.005	<0.005	<0.005	<0.005	<0.0045	NA	NA
10/1/2003	TWB-2 @ 31-31.5	1.6	NA	<0.0053	<0.0053	0.0097[D]	0.01	<0.0046	NA	NA
10/1/2003	TWB-2 @ 33-33.25	<1.1	NA	<0.0054	<0.0054	<0.0054	<0.0054	<0.0046	NA	NA
9/17/2003	TWB-3 @ 20-20.5	<1	NA	<0.0052	<0.0052	<0.0052	<0.0052	<0.0049	NA	NA
9/16/2003	TWB-4A @ 33-33.5	<1.1	NA	<0.0053	<0.0053	<0.0053	<0.0053	<0.005	NA	NA
9/16/2003	TWB-5 @ 32-32.5	<1.1	NA	<0.0053	<0.0053	<0.0053	<0.0053	<0.0044	NA	NA
9/16/2003	TWB-6 @ 20-20.5	<1	NA	<0.0052	<0.0052	<0.0052	<0.0052	<0.0045	NA	NA

Table 1
Historical Soil Sample Analytical Results
Comparison with Environmental Screening Levels (ESLs) and Upper Confidence Limits
15101 Freedom Avenue
San Leandro, California

SAMPLE DATE	SAMPLE ID	8260B	8015 DRO	8260B						
		TPH-g[3]	TPH-d[3]	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	TAME	TBA
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
9/16/2003	TWB-6 @ 28-30	<0.96	NA	<0.0048	<0.0048	<0.0048	<0.0048	<0.0047	NA	NA
8/25/2004	MW-6 (5.5-6)	<1.1	<0.005	<0.0053	<0.0053	<0.0053	<0.0053	<0.0048	<0.0048	<0.096
8/25/2004	MW-6 (6-6.5)	<1.1	<0.005	<0.0053	<0.0053	<0.0053	<0.0053	<0.0045	<0.0045	<0.089
8/25/2004	MW-6 (8.5-9)	<1.1	<0.005	<0.0053	<0.0053	<0.0053	<0.0053	<0.0048	<0.0048	<0.096
8/25/2004	MW-6 (9-9.5)	<1.0	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0045	<0.0045	<0.089
September-04	MW-6 (5.5-6)	<1.1	NA	<0.0053	<0.0053	<0.0053	<0.0053	NA	NA	NA
September-04	MW-6 (6-6.5)	<1.1	NA	<0.0053	<0.0053	<0.0053	<0.0053	NA	NA	NA
September-04	MW-6 (8.5-9)	<1.1	NA	<0.0053	<0.0053	<0.0053	<0.0053	NA	NA	NA
September-04	MW-6 (9-9.5)	<1	NA	<0.0053	<0.0053	<0.0053	<0.0053	NA	NA	NA
9/19/2006	DPS-1 (26-27)	157	114[(a)(b)]	<0.0215	1.034	0.7130	0.7636	<0.0215	<0.086	<0.43
9/20/2006	DPS-2 (26-27)	14.08	56.5[(a)(b)]	0.04641	0.9296	0.1202	0.2677	<0.0215	<0.086	<0.43
9/19/2006	DPS-3 (27-28)	<0.05	<50.0	0.0008800	0.0009	0.002560	0.001850	0.0183	0.00219	0.0137
9/19/2006	DPS-4 (27-28)	<0.05	<50.0	<0.0005	<0.002	0.002450	<0.001	<0.0005	<0.002	<0.01
9/20/2006	DPS-5 (22-23)	241.1	292[(a)(b)]	0.03463	1.195	0.9731	2.261	<0.0215	<0.086	<0.43
9/18/2006	DPS-6 (29-30)	0.06936	<50.0	<0.0005	<0.002	0.002520	0.00051	<0.0005	<0.002	<0.01
9/18/2006	DPS-6 (21-22)	259.7	<50.0	<0.0215	1.039	4.327	6.431	<0.0215	<0.086	<0.43
9/18/2006	DPS-8 (20-21)	216.4	71.1[(a)(b)]	0.05114	1.152	0.9010	1.6515	<0.0215	<0.086	<0.43
Maximum		***4,000***	***292.0000***	***0.7500***	***12.0000***	***84.0000***	***365.0000***	***3.0000***	***0.0022***	***0.0137***
Sample Size		***36***	***14.0000***	***36.0000***	***36.0000***	***36.0000***	***36.0000***	***32.0000***	***14.0000***	***14.0000***
Average		***299***	***38.1143***	***0.0310***	***0.7142***	***5.0997***	***19.2610***	***0.1194***	***0.0002***	***0.0010***
Standard Deviation		***877***	***81.4152***	***0.1275***	***2.1837***	***16.8206***	***67.9838***	***0.5443***	***0.0006***	***0.0037***
95% Confidence		***287***	***42.6471***	***0.0417***	***0.7133***	***5.4946***	***22.2076***	***0.1886***	***0.0003***	***0.0019***
95% Uppler Confidence		***586***	***80.7614***	***0.0727***	***1.4275***	***10.5943***	***41.4687***	***0.3080***	***0.0005***	***0.0029***

Table 1
Historical Soil Sample Analytical Results
Comparison with Environmental Screening Levels (ESLs) and Upper Confidence Limits
15101 Freedom Avenue
San Leandro, California

SAMPLE DATE	SAMPLE ID	8260B	8015 DRO	8260B						
		TPH-g[3] mg/kg	TPH-d[3] mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Xylenes mg/kg	MTBE mg/kg	TAME mg/kg	TBA mg/kg
AQUITARD										
9/16/2003	TWB-6 @ 38-39	<1.1	NA	<0.0054	<0.0054	<0.0054	<0.0054	<0.0048	NA	NA
9/20/2006	DPS-5 (31-32)	0.4901	<50.0	0.002750	0.009260	0.01158	0.04261	0.00710	<0.002	<0.01
9/18/2006	DPS-7 (24-25)	<0.05	<50.0	<0.0005	<0.002	0.002300	<0.001	0.00316	<0.002	<0.01
9/18/2006	DPS-7 (34-35)	<0.05	<50.0	<0.0005	<0.002	0.002190	<0.001	<0.0005	<0.002	<0.01
9/18/2006	DPS-8 (30-31)	0.3212	<50.0	<0.0005	0.002970	0.003320	0.002700	**0.0436**	0.00320	<0.01
9/18/2006	DPS-8 (40.5-41)	<0.05	<50.0	<0.0005	<0.002	0.002600	0.001740	0.00692	<0.002	<0.01
Maximum		***0.4901***	***0.0000***	***0.0028***	***0.0093***	***0.0116***	***0.0426***	***0.0436***	***0.0032***	***0.0000***
Sample Size		***6.0000***	***5.0000***	***6.0000***	***6.0000***	***6.0000***	***6.0000***	***6.0000***	***5.0000***	***5.0000***
Average		***0.1519***	***0.0000***	***0.0005***	***0.0020***	***0.0037***	***0.0078***	***0.0101***	***0.0006***	***0.0000***
Standard Deviation		***0.2073***	***0.0000***	***0.0011***	***0.0037***	***0.0040***	***0.0171***	***0.0167***	***0.0014***	***0.0000***
95% Confidence		***0.1659***	***0.0000***	***0.0009***	***0.0030***	***0.0032***	***0.0137***	***0.0134***	***0.0013***	***0.0000***
95% Uppler Confidence		***0.3178***	***0.0000***	***0.0014***	***0.0050***	***0.0069***	***0.0215***	***0.0235***	***0.0019***	***0.0000***
SECOND WATER-BEARING ZONE										
9/19/2006	DPS-4 (39-40)	<0.05	<50.0	<0.0005	<0.002	<0.0005	<0.001	<0.0005	<0.002	<0.01
9/19/2006	DPS-1 (53-54)	<0.05	<50.0	<0.0005	<0.002	0.002100	<0.001	<0.0005	<0.002	<0.01
9/20/2006	DPS-2 (42-43)	0.3721	<50.0	0.002830	0.004150	0.003620	0.02352	**0.0848**	<0.002	**0.107**
9/19/2006	DPS-3 (57-58)	<0.05	<50.0	<0.0005	<0.002	0.002060	<0.001	<0.0005	<0.002	<0.01
9/20/2006	DPS-5 (41-42)	0.2573	<50.0	0.00052	0.003180	0.006190	0.01938	<0.0005	<0.002	<0.01
9/18/2006	DPS-6 (58-60)	<0.05	<50.0	<0.0005	<0.002	0.002040	0.004830	<0.0005	<0.002	<0.01
12/17/2007	MW-1D @ 60'	0.0598	NA	<0.0005	<0.002	<0.0005	<0.002	<0.0005	<0.002	<0.002
12/18/2007	MW-3D @ 60'	0.0554	NA	<0.0005	<0.002	<0.0005	<0.002	<0.0005	<0.002	<0.002
12/18/2007	MW-4D @ 60'	0.0528	NA	<0.0005	<0.002	<0.0005	<0.002	<0.0005	<0.002	<0.002

Table 1
Historical Soil Sample Analytical Results
Comparison with Environmental Screening Levels (ESLs) and Upper Confidence Limits
15101 Freedom Avenue
San Leandro, California

SAMPLE DATE	SAMPLE ID	8260B	8015 DRO	8260B						
		TPH-g[3] mg/kg	TPH-d[3] mg/kg	Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Xylenes mg/kg	MTBE mg/kg	TAME mg/kg	TBA mg/kg
Maximum		***0.3721***	***0.0000***	***0.0028***	***0.0042***	***0.0062***	***0.0235***	***0.0848***	***0.0000***	***0.1070***
Sample Size		***9.0000***	***6.0000***	***9.0000***	***9.0000***	***9.0000***	***9.0000***	***9.0000***	***9.0000***	***9.0000***
Average		***0.0886***	***0.0000***	***0.0004***	***0.0008***	***0.0018***	***0.0053***	***0.0094***	***0.0000***	***0.0119***
Standard Deviation		***0.1339***	***0.0000***	***0.0009***	***0.0016***	***0.0021***	***0.0093***	***0.0283***	***0.0000***	***0.0357***
95% Confidence		***0.0875***	***0.0000***	***0.0006***	***0.0011***	***0.0014***	***0.0061***	***0.0185***	***0.0000***	***0.0233***
95% Uppler Confidence		***0.1761***	***0.0000***	***0.0010***	***0.0019***	***0.0032***	***0.0114***	***0.0279***	***0.0000***	***0.0352***
ESLs*		**83.00**	**83.00**	**0.044**	**2.90**	**3.30**	**2.30**	**0.023**	**NL**	**NL**

Notes:

(a) The sample chromatographic pattern does not resemble the fuel standard for quantiation
(b) Unidentified hydrocarbon C9-C16
(c) Environmental Screening Levels
(d) Sample exhibits chromatographic pattern that does not resemble standard
(e) Presence confirmed but RPD between columns exceeds 40%
ESLs *Environmental Screening Levels per CRWQCB SFBay Region, Interim Final November 2007, Table C-1 (Deep Soil Screening levels(<3m bgs) Residential Use, potentially contaminated groundwater is a curent or potential drinking water resource)*

NA Not Analyzed
NL ESL not listed in Table C-1 (Deep Soil Screening levels(<3m bgs) Residential Use, potentially contaminated groundwater is a curent or potential drinking water resource)

Table 2

Groundwater Analytical Data
Table 2A: Historical Data

15101 Freedom Avenue
San Leandro, California

Well/ Boring	Date	Top of casing elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* (µg/L) EPA 8260B	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
FIRST WATER-BEARING ZONE															
TWB-1	10/1/2003	NA	NA	NA	410,000	NA	2200[Z]	2200[Z]	9,400	25,700	<20	NA	NA	NA	NA
TWB-2	10/1/2003	NA	NA	NA	1,700	NA	<0.5	<0.5	31	51	34	NA	NA	NA	NA
TWB-3	9/17/2003	NA	NA	NA	150 [H)(Y)]	NA	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA
TWB-4	9/11/2003	NA	NA	NA	<50	NA	<0.5	<0.5	<0.5	<0.5	2	NA	NA	NA	NA
TWB-5	9/16/2003	NA	NA	NA	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA
TWB-6	9/17/2003	NA	NA	NA	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA
DPW-4 (24-28)	9/19/2006	NA	NA	NA	4450	3600 (a)(b)(c)(d)	84.2	<8.60	244	222.49	<2.15	<43.0	<2.15	<2.15	<8.60
DPW-5 (18-22)	9/20/2006	NA	NA	NA	119000	22000 (a)(b)	3930	6910	6030	14260	338	<430	<21.5	<21.5	109
DPW-6 (20-22)	9/18/2006	NA	NA	NA	16800	5090 (a)(b)(c)(d)	12.9	4.11	602	639	1.94	<20.0	<1.0	<1.0	<4.0
DPW-8 (16-20)	9/18/2006	NA	NA	NA	1730	1060 (a)(b)	7.54	<22.0	49.7	92.1	2860	221	<5.50	6.22	252
DPW-8 (52.5-56.5)	9/18/2006	NA	NA	NA	<50.0	82.0 (a)(b)	<0.500	<2.0	2.45	0.5	40.9	<10.0	<0.5	<0.5	2.43
MW-1	5/10/2002	51.71	22.85	28.86	5,700	NA	360	4.5	340	450	2	NA	NA	NA	NA
	8/8/2002	51.71	23.31	28.40	9,100	NA	590	2.6	830	362	<1.3	78	<1.3	<1.3	<1.3
	11/8/2002	51.71	23.58	28.13	7,900	NA	570	3.1	680	392	< 1.0	42	< 1.0	< 1.0	< 1.0
	2/21/2003	51.71	22.62	29.09	2,900	NA	160	1.6 C	170	211	<0.5	47	<0.5	<0.5	<0.5
	5/28/2003	51.71	22.43	29.28	1,700	NA	55	<0.5	90	115	2.00	25	<0.5	<0.5	<0.5
	8/12/2003	51.71	21.30	30.41	2,600	NA	2.5	<0.5	190	130	<0.5	<10	<0.5	<0.5	<0.5
	10/9/2003	51.71	23.49	28.22	9,200	NA	560.0	2.7 C	670	648	<1.0	70	<1.0	<1.0	<1.0
	1/15/2004	51.71	22.43	29.28	5,500	NA	190	<1.0	220	124.4	<0.5	55	<0.5	<0.5	<0.5
	5/25/2004	51.71	22.94	28.77	8,000	NA	400	1.50	420	393	3.40	62	<0.7	<0.7	<0.7
	9/21/2004	54.46	23.49	30.97	9,300	NA	580	9.30	690	683	4.60	<10	<0.5	<0.5	<0.5
	12/14/2004	54.46	23.01	31.45	7,360	NA	337	<4.3	731	633	<4.3	<21.5	<4.3	<4.3	<17.2
	3/11/2005	54.46	21.48	32.98	2,510	NA	45.2	<0.5	23.2	39.63	2.80	81	<0.5	<0.5	<2.0
	6/15/2005	54.46	22.42	32.04	1,690	NA	36.3	<2.0	59.5	28.73	2.01	<10	<0.5	<0.5	<2.0
	8/26/2005	54.46	23.00	31.46	7,310	NA	318	<8.60	475	316	5.15	68.9	<2.15	<2.15	<8.6
	11/11/2005	54.46	21.40	33.06	9,640	NA	341	<8.6	467	329.7	6.04	46	<2.15	<2.15	<8.6
	2/9/2006	54.46	21.81	32.65	775	NA	14	<2.0	12.6	10.32	4.01	11.3	<0.5	<0.5	<2.0
	5/9/2006	54.46	21.68	32.78	444	NA	7.80	<2.0	12.1	6.31	1.75	<10	<0.5	<0.5	<2.0
	8/10/2006	54.46	22.79	31.67	5,090	NA	324	<8.60	108	59.9	8.24	<43	<2.15	<2.15	<8.60
MW-2	5/10/2002	49.66	22.83	26.83 *	3,100	NA	67	8	250	215	56	NA	NA	NA	NA
	8/8/2002	49.66	21.41	28.25	2,700	NA	4.6	<0.5	310	140	<0.5	21	<0.5	<0.5	<0.5
	11/8/2002	49.66	21.79	27.87	3,400	NA	4.6	< 0.5	310	160	< 0.5	15	<0.5	<0.5	<0.5
	2/21/2003	49.66	20.51	29.15	890	NA	1.7 C	0.80 C	68	38.92 C	<0.5	12	<0.5	<0.5	<0.5
	5/28/2003	49.66	20.33	29.33	2,700	NA	5.2 C	<0.5	120	140	1.2	31	<0.5	<0.5	<0.5
	8/12/2003	49.66	23.18	26.48*	8,500	NA	640	<2.5	560	659	<0.8	69	<0.8	<0.8	<0.8
	10/9/2003	49.66	21.71	27.95	3100 H	NA	4.3 C	<0.5	210	160	<0.5	12	<0.5	<0.5	<0.5
	1/15/2004	49.66	20.31	29.35	660 H	NA	1.5 C	<0.5	8.9	25	<0.5	<10	<0.5	<0.5	<0.5
	5/25/2004	49.66	21.09	28.57	4,500	NA	5.1 C	<0.5	190	230	0.70	14	<0.5	<0.5	<0.5
	9/21/2004	52.41	21.71	30.70	370	NA	0.76 C	<0.5	25	16	0.50	<10	<0.5	<0.5	<0.5
	12/14/2004	52.41	21.20	31.21	880	NA	1.0	<0.5	66	52	<0.5	<2.5	<0.5	<0.5	<2.0
	3/11/2005	52.41	19.15	33.26	564	NA	<0.5	<0.5	21	11.9	<0.5	<2.5	<0.5	<0.5	<2.0
	6/15/2005	52.41	20.30	32.11	2,040	NA	1.2	<2.0	78.2	22	<0.5	<10	<0.5	<0.5	<2.0
	8/26/2005	52.41	20.97	31.44	1,500	NA	0.930	<2.00	87.6	21	0.86	<10	<0.5	<0.5	<2.0
	11/11/2005	52.41	25.30	27.11	2,140	NA	1.08	<2.0	104	29	0.79	<10	<0.5	<0.5	<2.0
	2/9/2006	52.41	19.41	33.00	1,410	NA	<0.5	<2.0	99.6	21.4	0.72	<10	<0.5	<0.5	<2.0
	5/9/2006	52.41	19.41	33.00	1,100	NA	<0.5	<2.0	86.5	17	<0.5	<10	<0.5	<0.5	<2.0
	8/10/2006	52.41	20.8	31.61	3,180	NA	2.87	<2.0	88.9	24.8	<0.50	<10	<0.5	<0.5	<2.0
MW-3	5/10/2002	51.16	22.28	28.88	44,000	NA	6,000	900	1,500	6,200	2,400	NA	NA	NA	NA
	8/8/2002	51.16	22.88	28.28	40,000	NA	5,800	1,100	1,600	6,500	1,300	<330	<8.3	<8.3	330
	11/8/2002	51.16	23.19	27.97	47,000	NA	5,300	1,200	2,200	8,600	1,000	85	< 1.3	<1.3	220
	2/21/2003	51.16	22.02	29.14	39,000	NA	5,500	1,500	2,000	8,600	1,300	140	<5.0	<5.0	320
	5/28/2003	51.16	21.89	29.27	52,000	NA	7,300	3,000	2,800	12,700	2,100	520	<10	<10	530
	8/12/2003	51.16	22.66	28.50	31,000	NA	6,100	860	1,500	6,900	1,200	180	<4.2	<4.2	270
	10/9/2003	51.16	23.06	28.10	41,000	NA	6,100	1,100	2,200	10,200	960	<170	<8.3	<8.3	200
	1/15/2004	51.16	21.85	29.31	51,000	NA	4,100	1,100	2,000	8,400	590	<100	<5.0	<5.0	150
	5/25/2004	51.16	22.55	28.61	65,000	NA	4,300	1,300	2,500	10,500	720	<100	<5.0	<5.0	270
	9/21/2004	53.91	23.08	30.83	42,000	NA	4,900	890	2,200	8,700	480	<140	<7.1	<7.1	110
	12/14/2004	53.91	22.52	31.39	35,151	NA	4,066	972	2,942	13,032	491	<100	<20	<20	154
	3/11/2005	53.91	20.90	33.01	42,600	NA	3,040	1,100	1,530	6,670	968	<215	<43	<43	256
	6/15/2005	53.91	21.85	32.06	84,100	NA	5,110	2,160	3,030	8,800	2,670	<215	<10.8	<10.8	374
	8/26/2005	53.91	22.49	31.42	43,500	NA	3,630	1,080	2,500	6,830	1,440	699	<21.5	<21.5	277
	11/11/2005	53.91	22.81	31.10	47,700	NA	4,240	520	2,170	6,320	1,390	<430	<21.5	<21.5	171
	2/9/2006	53.91	21.12	32.79	44,500	NA	5,070	1360	1,920	4,840	3,280	<430	<21.5	<21.5	620
	5/9/2006	53.91	21.09	32.82	48,100	NA	2,510	1,140	1,950	5,030	2,210	367	<10.8	<10.8	594
	8/10/2006	53.91	22.26	31.65	42,100	NA	3,450	869	1,760	5,650	3,570	365	<10.8	<10.8	727

Table 2

Groundwater Analytical Data
Table 2A: Historical Data

15101 Freedom Avenue
San Leandro, California

Well/ Boring	Date	Top of casing elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* (µg/L) EPA 8260B	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-4	5/10/2002	50.54	21.78	28.76	880	NA	25	1.0C	110	52	12,000	NA	NA	NA	NA
	8/8/2002	50.54	22.50	28.04	3,800	NA	70	<5.0	300	115	4,800	1500	<17	<17	18
	11/8/2002	50.54	22.81	27.73	5,100	NA	150	10	460	258	2,400	580	< 5.0	6	13
	2/21/2003	50.54	21.48	29.06	3,200	NA	98	66	220	360	6,600	1600	<20	22	<20
	5/28/2003	50.54	21.24	29.30	6,200	NA	140	46	200	790	2,300	690	<8.3	<8.3	17
	8/12/2003	50.54	22.32	28.22	7,500	NA	180	57	220	1450	1,900	550	<7.1	7.3	18
	10/9/2003	50.54	22.74	27.80	5,800	NA	250	32	300	970	7,800	1400	<31	50	<31
	1/15/2004	50.54	21.19	29.35	5,900	NA	270	17 C	150	640	7,300	1,300	<20	25	21
	5/25/2004	50.54	22.03	28.51	9,100	NA	210	51	200	1190	1800	560	<8.3	<8.3	24
	9/21/2004	53.31	22.76	30.55	5,200	NA	290	12	370	600	7300	1,300	<50	<50	<50
	12/14/2004	53.31	21.99	31.32	8,937	NA	538	114	416	2379	5021	826	<10.75	21	49
	3/11/2005	53.31	20.01	33.30	12,300	NA	225	39.6	80.1	1465	3870	1,110	<10.8	12.1	<43
	6/15/2005	53.31	21.25	32.06	7,690	NA	114	32.6	77.1	555	1150	<110	<5.5	<5.5	22.9
	8/26/2005	53.31	22.03	31.28	8,850	NA	175	24.6	150	851	1380	902	<5.50	<5.50	37.4
	11/11/2005	53.31	22.43	30.88	9,990	NA	356	<43	196	700	3,640	884	<10.8	<10.8	<43
	2/9/2006	53.31	20.31	33.00	6,850	NA	205	<43	67.2	255.2	5,120	769	<10.8	16.4	45.6
	5/9/2006	53.31	20.33	32.98	1,290	NA	18.1	<8.6	12.9	25.87	799	405	<2.15	2.95	31.3
	8/10/2006	53.31	21.74	31.57	7,830	NA	118	<8.60	25.3	174.6	919	306	<2.15	<2.15	35.3
MW-5	5/10/2002	47.79	19.02	28.77	25,000	NA	1,000	1200	1,100	3,060	1,800	NA	NA	NA	NA
	8/8/2002	47.79	19.80	27.99	18,000	NA	1,000	660	950	1,720	1,500	<250	<6.3	<6.3	510
	11/8/2002	47.79	20.14	27.65	16,000	NA	1,300	380	930	1,550	1,200	66	< 2.0	< 2.0	560
	2/21/2003	47.79	18.70	29.09	12,000	NA	390	71	770	1,100	860	<63	<3.1	<3.1	280
	5/28/2003	47.79	18.52	29.27	9,100	NA	210	31	560	790	600	<33	<1.7	<1.7	110
	8/12/2003	47.79	19.54	28.25	12,000	NA	660	75	660	1,110	1,000	130	<3.6	<3.6	270
	10/9/2003	47.79	20.06	27.73	15,000	NA	1,000	130	1,000	1,430	1,700	<100	<5.0	<5.0	740
	1/15/2004	47.79	18.42	29.37	9,900	NA	450 C	16	500	431	1,100	<63	<3.1	<3.1	300
	5/25/2004	47.79	19.30	28.49	9,200	NA	380	24	490	536	720	<100	<5.0	<5.0	210
	9/21/2004	50.53	20.15	30.38	10,000	NA	980	71	560	770	1200	<130	<6.3	<6.3	550
	12/14/2004	50.53	19.30	31.23	10,502	NA	587	64	1040	1133	1015	40	<5.5	<5.5	444
	3/11/2005	50.53	17.20	33.33	8,390	NA	407	<5.5	83	42.5	1530	88.8	<5.5	<5.5	448
	6/15/2005	50.53	18.54	31.99	9,350	NA	147	18.3	435	146.2	573	<43	<2.15	<2.15	88.1
	8/26/2005	50.53	19.31	31.22	9,500	NA	261	<22	726	321.3	749	274	<5.50	<5.50	195
	11/11/2005	50.53	19.75	30.78	10,000	NA	443	41.5	527	278.5	1,430	192	<5.50	<5.50	360
	2/9/2006	50.53	17.58	32.95	7,640	NA	237	<22	187	50.2	2,050	218	<5.50	<5.50	523
	5/9/2006	50.53	17.54	32.99	8,360	NA	111	<8.6	300	75.84	566	91.8	<2.15	<2.15	163
	8/10/2006	50.53	19.02	31.51	16,100	NA	250	<22	455	187.4	1,590	138	<5.50	<5.50	342
MW-6	9/21/2004	45.82	17.64	28.18	34,000	NA	150	130	2200	8100	0.6	<10	<0.5	<0.5	<0.5
	12/14/2004	45.82	15.75	30.07	5,161	NA	137	7	436	1136	<5.5	<5.5	<5.5	<5.5	<22
	3/11/2005	45.82	13.80	32.02	6,040	NA	125	3.22	260	722.1	4.94	2.54	<0.5	<0.5	<2.0
	6/15/2005	45.82	14.78	31.04	5,590	NA	44.3	6.60	272	382	5.85	<20	<1.0	<1.0	<4.0
	8/26/2005	45.82	15.91	29.91	6,130	NA	99	<8.6	378	492.9	5.66	<43	<2.15	<2.15	<8.6
	11/11/2005	45.82	16.55	29.27	11,400	NA	101	<8.6	645	834.7	4.33	<43	<2.15	<2.15	<8.6
	2/9/2006	45.82	13.92	31.90	2,790	NA	32.3	<8.6	131	131.22	7.30	<43	<2.15	<2.15	<8.6
	5/9/2006	45.82	13.95	31.87	3,730	NA	25	<2.0	213	207.82	5.87	<10	<0.5	<0.5	<2.0
	8/10/2006	45.82	15.28	30.54	4,800	NA	41.9	<2.0	201	189	10.4	<10	<0.5	<0.5	<2.0
MW-7	9/21/2004	44.74	15.21	29.53	2,900	NA	<0.5	<0.5	52	61	8.1	<10	<0.5	<0.5	1.5
	12/14/2004	44.74	13.90	30.84	<50	NA	1.6	<0.5	29	58	6.0	<2.5	<0.5	<0.5	<2.0
	3/11/2005	44.74	11.46	33.28	2,230	NA	<2.5	<2.5	39.4	51.4	12.4	<12.5	<2.5	<2.5	<10
	6/15/2005	44.74	12.97	31.77	2,940	NA	0.85	<2.0	50.6	31.9	13.7	<10	<0.5	<0.5	2.23
	8/26/2005	44.74	14.10	30.64	2,310	NA	<0.50	<2.0	55.7	29.6	4.01	<10	<0.5	<0.5	<2.0
	11/11/2005	44.74	14.59	30.15	3,030	NA	<0.5	<2.0	66.5	42.3	9.76	<10	<0.5	<0.5	<2.0
	2/9/2006	44.74	NM	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/9/2006	44.74	12.02	32.72	1,400	NA	<0.5	<2.0	19.8	12.4	2.30	<10	<0.5	<0.5	<2.0
	8/10/2006	44.74	13.72	31.02	604	NA	<0.50	<2.0	6.2	4.63	1.42	<10	<0.5	<0.5	<2.0
MW-8	9/21/2004	41.14	12.98	28.16	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5
	12/14/2004	41.14	11.22	29.92	<50	NA	<0.5	<0.5	<0.5	<1.0	<0.5	<2.5	<0.5	<0.5	<2.0
	3/11/2005	41.14	NM	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/15/2005	41.14	10.46	30.68	<200	NA	0.53	<2.0	<0.5	<1.0	<0.5	<10	<0.5	<0.5	<2.0
	8/26/2005	41.14	11.53	29.61	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	11/11/2005	41.14	11.92	29.22	<50	NA	<0.5	<2.0	1.36	1.8	<0.5	<10	<0.5	<0.5	<2.0
	2/9/2006	41.14	9.74	31.40	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	5/9/2006	41.14	9.90	31.24	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	8/10/2006	41.14	10.9	30.24	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0

Table 2

Groundwater Analytical Data
Table 2A: Historical Data

15101 Freedom Avenue
San Leandro, California

Well/ Boring	Date	Top of casing elevation (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* (µg/L) EPA 8260B	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-9	9/21/2004	40.26	12.18	28.08	<50	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<10	<0.5	<0.5	<0.5
	12/14/2004	40.26	10.91	29.35	<50	NA	<0.5	<0.5	<0.5	<1.0	<0.5	<2.5	<0.5	<0.5	<2.0
	3/11/2005	40.26	10.52	29.74	<200	NA	<0.5	<0.5	<0.5	<1.0	<0.5	<2.5	<0.5	<0.5	<2.0
	6/15/2005	40.26	14.73	25.53	<200	NA	<0.5	<2.0	<0.5	<1.0	<0.5	<10	<0.5	<0.5	<2.0
	8/26/2005	40.26	10.59	29.67	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	11/11/2005	40.26	11.25	29.01	<50	NA	<0.5	<2.0	<0.5	<1.0	<0.5	<10	<0.5	<0.5	<2.0
	2/9/2006	40.26	10.05	30.21	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	5/9/2006	40.26	9.06	31.20	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	8/10/2006	40.26	10.01	30.25	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
Maximum					410,000	22,000	7,300	6,910	9,400	25,700	12,000	1,600	0	50	740
Sample Size					134	5	133	135	135	130	135	124	124	124	124
Average					14,631	6,366	845	257	618	1,785	954	155	0	1	100
Standard Deviation					38,937	8,963	1,693	764	1,154	3,752	1,838	341	0	6	179
95% Confidence					6,592.6	7,856.3	287.7	128.9	194.7	645.0	310.1	60.1		1.0	31.4
95% Uppler Confidence Limit					21,224	14,223	1,133	386	813	2,430	1,264	215		2	131
ESLs					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**120**	**NL**	**NL**	**NL**
SECOND WATER-BEARING ZONE															
DPW-1 (55-59)	9/19/2006				374	209(a)(b)(c)(d)	1.95	<2.0	9.62	11.48	2.28	<10.0	<0.5	<0.5	<2.0
DPW-3 (56-60)	9/19/2006				1760	202(a)(b)(c)(d)	22.6	<22.0	35.7	86.1	3330	537	<5.50	<5.50	944
DPW-8 (52.5-56.5)	9/18/2006				<50.0	82.0(a)(b)	<0.500	<2.0	2.45	0.5	40.9	<10.0	<0.5	<0.5	2.43
MW-1D	1/3/2008	54.42		-	<50	NA	<0.50	<2.0	<0.50	<2.0	<0.50	111	<0.5	<0.5	<2.0
	1/22/2008	**54.42**	**22.85**	**31.57**	**<50**	NA	**<0.50**	**<2.0**	**<0.50**	**<2.0**	**<0.50**	**12.9**	**<0.5**	**<0.5**	**<2.0**
MW-3D	1/3/2008	54.10		-	<50	NA	<0.50	<2.0	<0.50	<2.0	87.6	37.3	<0.5	3.12	15.3
	1/22/2008	**54.10**	**22.31**	**31.79**	**<50**	NA	**<0.50**	**<2.0**	**<0.50**	**<2.0**	**88.3**	**15.6**	**<0.5**	**3.1**	**15.3**
MW-4D	**1/4/2008**	53.12		**-**	<50	NA	<0.50	<2.0	<0.50	<2.0	<0.50	25	<0.5	<0.5	<2.0
	1/22/2008	**53.12**	**21.11**	**32.01**	**91.5**	NA	**18.7**	**<2.0**	**7.08**	**11.42**	**219**	**124**	**<0.5**	**4.9**	**3.32**
Maximum					1,760	209	23	0	36	86	3,330	537	0	5	944
Sample Size					9	3	9	8	9	9	9	9	9	9	9
Average					247	164	5	0	6	12	419	96	0	1	109
Standard Deviation					580	71	9	0	12	28	1,094	172	0	2	313
95% Confidence					379.2	80.8	5.9	-	7.6	18.4	714.8	112.2	-	1.3	204.6
95% Uppler Confidence Limit					627	245	11	0	14	31	1,133	208	0	2	314
ESLs					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**120**	**NL**	**NL**	**NL**

Notes:
August 8, 2002 was the first time that samples were analyzed for Gasoline Oxygenates
<: Not detected above the laboratory reporting limit.
NA: Not Analyzed or Not Aplicable. Well MW-8 was inaccessible during the 1Q05 & well MW-7 (1Q06) car was parked over each well.
(a) The sample chromatographic pattern does not resemble the fuel standard for quantiation
(b) Unidentified hydrocarbon C9-C16
(c) The sample was filtered prior to analysis
(d) Only 500 milliliters available for analysis after filtration
(e) Environmental Screening Levels
NL No level
(H) heavier hydrocarbons contributed to the quantitation
(Y) Sample exhibits chromatographic pattern that does not resemble standard
(Z) Presence confirmed but RPD between columns exceeds 40%
Environmental Screening Levels per CRWQCB SFBay Region, February 2005, Summary Table C (soil >3m, residential land use, groundwater is potential drinking source)
NL No level
TBA: tert-Butyl Alcohol
DIPE: Isopropyl Ether
ETBE: Ethyl tert-Butyl Ether
TAME: Methyl tert-Amyl Ether
EDC: 1,2-dichloroethane
EDB: 1,2-dibromomethane

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
FIRST WATER-BEARING ZONE												
TWB-1	10/1/2003	410000.0	NA	2200.0	2200.0	9400.0	25700.0	0.0	NA	NA	NA	NA
TWB-2	10/1/2003	1700.0	NA	0.0	0.0	31.0	51.0	34.0	NA	NA	NA	NA
TWB-3	9/17/2003	150.0	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	NA
TWB-4	9/11/2003	0.0	NA	0.0	0.0	0.0	0.0	2.0	NA	NA	NA	NA
TWB-5	9/16/2003	0.0	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	NA
TWB-6	9/17/2003	0.0	NA	0.0	0.0	0.0	0.0	0.0	NA	NA	NA	NA
DPW-4 (24-28)	9/19/2006	4450.0	3600.0	84.2	0.0	244.0	222.5	0.0	0.0	0.0	0.0	0.0
DPW-5 (18-22)	9/20/2006	119000.0	22000.0	3930.0	6910.0	6030.0	14260.0	338.0	0.0	0.0	0.0	109.0
DPW-6 (20-22)	9/18/2006	16800.0	5090.0	12.9	4.1	602.0	639.0	1.9	0.0	0.0	0.0	0.0
DPW-8 (16-20)	9/18/2006	1730.0	1060.0	7.5	0.0	49.7	92.1	2860.0	221.0	0.0	6.2	252.0
DPW-8 (52.5-56.5)	9/18/2006	0.0	82.0	0.0	0.0	2.5	0.5	40.9	0.0	0.0	0.0	2.4
MW-1	2/9/2006	775.0	NA	14.0	<2.0	12.6	10.3	4.0	11.3	<0.5	<0.5	<2.0
	5/9/2006	444.0	NA	7.8	<2.0	12.1	6.3	1.8	<10	<0.5	<0.5	<2.0
	8/10/2006	5090.0	NA	324.0	<8.60	108.0	59.9	8.2	<43	<2.15	<2.15	<8.60
	10/26/2006	6950.0	NA	556.0	<4.0	190.0	136.1	8.6	39.4	<1.0	<1.0	<4.0
	1/25/2007	2640.0	NA	196.0	<2.0	105.0	25.5	7.9	41.4	<0.5	<0.5	<2.0
	4/26/2007	861.0	NA	95.5	<2.0	17.0	6.4	4.0	39.6	<0.5	<0.5	<2.0
	7/25/2007	4520.0	NA	412.0	<4.0	182.0	77.9	7.5	46.5	<1.0	<1.0	<4.0
	10/23/2007	3900.0	NA	117.0	<2.0	87.1	23.9	4.5	53.7	<0.5	<0.5	<2.0
	1/22/2008	**2260.0**	**NA**	**81.3**	**<2.0**	**17.5**	**<2.0**	**4.2**	**23.8**	**<0.5**	**<0.5**	**2.2**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
Maximum		6950.0	0.0	556.0	0.0	190.0	136.1	8.6	53.7	0.0	0.0	2.2
Sample Size		9.0	0.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Average		3048.9	0.0	200.4	0.0	81.3	38.5	5.6	28.4	0.0	0.0	0.2
Standard Deviation		2230.6	0.0	190.6	0.0	71.6	45.1	2.4	20.3	0.0	0.0	0.7
95% Confidence		1457.3	0.0	124.5	0.0	46.8	29.5	1.6	13.3	0.0	0.0	0.5
95% Uppler Confidence Limit		4506.2	0.0	324.9	0.0	128.0	67.9	7.2	41.7	0.0	0.0	0.7

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-2	2/9/2006	1410.0	NA	<0.5	<2.0	99.6	21.4	0.7	<10	<0.5	<0.5	<2.0
	5/9/2006	1100.0	NA	<0.5	<2.0	86.5	17.0	<0.5	<10	<0.5	<0.5	<2.0
	8/10/2006	3180.0	NA	2.9	<2.0	88.9	24.8	<0.50	<10	<0.5	<0.5	<2.0
	10/26/2006	1200.0	NA	<0.5	<2.0	23.5	4.8	0.6	<10	<0.5	<0.5	<2.0
	1/25/2007	623.0	NA	0.6	<2.0	42.4	4.4	0.7	<2.0	<0.5	<0.5	<2.0
	4/26/2007	169.0	NA	<0.5	<2.0	15.2	2.3	<0.5	<2.0	<0.5	<0.5	<2.0
	7/25/2007	276.0	NA	0.8	<2.0	22.1	4.0	<0.5	<2.0	<0.5	<0.5	<2.0
	10/23/2007	535.0	NA	<0.5	<2.0	18.0	5.1	<0.5	<2.0	<0.5	<0.5	<2.0
	1/22/2008	**132.0**	**NA**	**<0.5**	**<2.0**	**12.2**	**<2.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**<2.0**
Maximum		**3180.0**	**0.0**	**2.9**	**0.0**	**99.6**	**24.8**	**0.7**	**0.0**	**0.0**	**0.0**	**0.0**
Sample Size		**9.0**	**0.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**
Average		**958.3**	**0.0**	**0.5**	**0.0**	**45.4**	**9.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**
Standard Deviation		**954.0**	**0.0**	**0.9**	**0.0**	**35.9**	**9.2**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**
95% Confidence		**623.3**	**0.0**	**0.6**	**0.0**	**23.5**	**6.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**
95% Uppler Confidence Limit		**1581.6**	**0.0**	**1.1**	**0.0**	**68.8**	**15.3**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-3	2/9/2006	44500.0	NA	5070.0	1360.0	1920.0	4840.0	3280.0	<430	<21.5	<21.5	620.0
	5/9/2006	48100.0	NA	2510.0	1140.0	1950.0	5030.0	2210.0	367.0	<10.8	<10.8	594.0
	8/10/2006	42100.0	NA	3450.0	869.0	1760.0	5650.0	3570.0	365.0	<10.8	<10.8	727.0
	10/26/2006	33400.0	NA	4800.0	331.0	1170.0	3510.0	4790.0	591.0	<10.8	<10.8	899.0
	1/25/2007	19300.0	NA	4820.0	167.0	1540.0	3740.0	3430.0	711.0	<10.8	<10.8	768.0
	4/26/2007	30700.0	NA	2350.0	158.0	1470.0	4320.0	1330.0	690.0	<10.8	<10.8	369.0
	7/25/2007	34900.0	NA	5400.0	364.0	2080.0	6360.0	1980.0	1340.0	<10.8	<10.8	565.0
	10/23/2007	22600.0	NA	4070.0	<86	1120.0	3095.0	970.0	1050.0	<21.5	<21.5	301.0
	1/22/2008	**22100.0**	**NA**	**1280.0**	**453.0**	**1330.0**	**3520.0**	**490.0**	**373.0**	**<10.8**	**<10.8**	**170.0**
Maximum		**48100.0**	**0.0**	**5400.0**	**1360.0**	**2080.0**	**6360.0**	**4790.0**	**1340.0**	**0.8**	**0.8**	**899.0**
Sample Size		**9.0**	**0.0**	**9.0**	**8.0**	**9.0**	**9.0**	**9.0**	**9.0**	**8.0**	**8.0**	**9.0**
Average		**33077.8**	**0.0**	**3750.0**	**605.3**	**1593.3**	**4451.7**	**2450.0**	**609.7**	**0.5**	**0.5**	**557.0**
Standard Deviation		**10408.7**	**0.0**	**1436.3**	**458.9**	**351.6**	**1100.1**	**1411.7**	**401.7**	**0.4**	**0.4**	**236.2**
95% Confidence		**6800.3**	**0.0**	**938.4**	**318.0**	**229.7**	**718.7**	**922.3**	**262.4**	**0.3**	**0.3**	**154.3**
95% Uppler Confidence Limit		**39878.0**	**0.0**	**4688.4**	**923.2**	**1823.1**	**5170.4**	**3372.3**	**872.1**	**0.8**	**0.8**	**711.3**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-4	2/9/2006	6850.0	NA	205.0	<43	67.2	255.2	5120.0	769.0	<10.8	16.4	45.6
	5/9/2006	1290.0	NA	18.1	<8.6	12.9	25.9	799.0	405.0	<2.15	3.0	31.3
	8/10/2006	7830.0	NA	118.0	<8.60	25.3	174.6	919.0	306.0	<2.15	<2.15	35.3
	10/26/2006	1540.0	NA	81.9	<43	96.0	46.4	3610.0	3430.0	<10.8	13.8	<43
	1/25/2007	4370.0	NA	163.0	<8.6	85.1	269.1	1050.0	822.0	<2.15	2.4	28.0
	4/26/2007	4380.0	NA	140.0	<8.6	67.0	276.8	576.0	556.0	<2.15	2.3	29.2
	7/25/2007	4970.0	NA	220.0	<8.60	198.0	241.5	1040.0	1860.0	<2.15	9.9	24.0
	10/23/2007	4200.0	NA	267.0	<8.6	147.0	155.5	1220.0	3400.0	<2.15	18.4	25.9
	1/22/2008	**2180.0**	**NA**	**133.0**	**<22.0**	**43.1**	**32.2**	**1800.0**	**2580.0**	**<5.50**	**64.7**	**<22**
Maximum		**7830.0**	**0.0**	**267.0**	**0.0**	**198.0**	**276.8**	**5120.0**	**3430.0**	**0.8**	**64.7**	**45.6**
Sample Size		**9.0**	**0.0**	**9.0**	**3.0**	**9.0**	**9.0**	**9.0**	**9.0**	**4.0**	**9.0**	**7.0**
Average		**4178.9**	**0.0**	**149.6**	**0.0**	**82.4**	**164.1**	**1792.7**	**1569.8**	**0.2**	**14.5**	**31.3**
Standard Deviation		**2249.3**	**0.0**	**75.2**	**0.0**	**59.0**	**105.2**	**1543.2**	**1279.5**	**0.4**	**20.0**	**7.3**
95% Confidence		**1469.5**	**0.0**	**49.1**	**0.0**	**38.5**	**68.7**	**1008.2**	**835.9**	**0.4**	**13.1**	**5.4**
95% Uppler Confidence Limit		**5648.4**	**0.0**	**198.7**	**0.0**	**120.9**	**232.9**	**2800.8**	**2405.7**	**0.6**	**27.6**	**36.7**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-5	2/9/2006	7640.0	NA	237.0	<22	187.0	50.2	2050.0	218.0	<5.50	<5.50	523.0
	5/9/2006	8360.0	NA	111.0	<8.6	300.0	75.8	566.0	91.8	<2.15	<2.15	163.0
	8/10/2006	16100.0	NA	250.0	<22	455.0	187.4	1590.0	138.0	<5.50	<5.50	342.0
	10/26/2006	10100.0	NA	430.0	<22	375.0	192.6	3060.0	322.0	<5.50	<5.50	712.0
	1/25/2007	3960.0	NA	340.0	<22	323.0	150.1	1740.0	878.0	<5.50	<5.50	552.0
	4/26/2007	4590.0	NA	187.0	<8.6	307.0	116.5	861.0	708.0	<2.15	<2.15	310.0
	7/25/2007	6490.0	NA	419.0	21.8	413.0	223.2	913.0	1020.0	<2.15	<2.15	356.0
	10/23/2007	6120.0	NA	550.0	11.0	284.0	141.4	433.0	1510.0	<2.15	<2.15	181.0
	1/22/2008	**9810.0**	**NA**	**572.0**	**22.0**	**574.0**	**184.1**	**126.0**	**470.0**	**<0.5**	**4.6**	**62.1**
Maximum		**16100.0**	**0.0**	**572.0**	**22.0**	**574.0**	**223.2**	**3060.0**	**1510.0**	**0.0**	**4.6**	**712.0**
Sample Size		**9.0**	**0.0**	**9.0**	**6.0**	**9.0**	**9.0**	**9.0**	**9.0**	**4.0**	**4.0**	**9.0**
Average		**8130.0**	**0.0**	**344.0**	**9.1**	**357.6**	**146.8**	**1259.9**	**595.1**	**0.0**	**1.1**	**355.7**
Standard Deviation		**3660.0**	**0.0**	**160.7**	**10.8**	**112.5**	**57.3**	**931.0**	**475.0**	**0.0**	**2.3**	**209.0**
95% Confidence		**2391.2**	**0.0**	**105.0**	**8.6**	**73.5**	**37.5**	**608.3**	**310.3**	**0.0**	**2.2**	**136.6**
95% Uppler Confidence Limit		**10521.2**	**0.0**	**449.0**	**17.7**	**431.1**	**184.3**	**1868.2**	**905.4**	**0.0**	**3.4**	**492.3**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-6	2/9/2006	2790.0	NA	32.3	<8.6	131.0	131.2	7.3	<43	<2.15	<2.15	<8.6
	5/9/2006	3730.0	NA	25.0	<2.0	213.0	207.8	5.9	<10	<0.5	<0.5	<2.0
	8/10/2006	4800.0	NA	41.9	<2.0	201.0	189.0	10.4	<10	<0.5	<0.5	<2.0
	10/26/2006	6080.0	NA	37.4	<2.0	116.0	183.0	9.8	<10	<0.5	<0.5	<2.0
	1/25/2007	3220.0	NA	25.2	<2.0	219.0	174.0	14.7	<2.0	<0.5	<0.5	<2.0
	4/26/2007	3110.0	NA	28.0	<2.0	165.0	138.5	14.6	7.2	<0.5	<0.5	<2.0
	7/25/2007	4960.0	NA	54.1	<2.0	199.0	255.9	8.1	5.7	<0.5	<0.5	<2.0
	10/23/2007	9610.0	NA	64.3	<2.0	188.0	302.6	5.8	6.7	<0.5	<0.5	<2.0
	1/21/2008	**3290.0**	**NA**	**33.0**	**<2.0**	**149.0**	**131.3**	**3.9**	**13.9**	**<0.5**	**<0.5**	**<2.0**
Maximum		**9610.0**	**0.0**	**64.3**	**0.0**	**219.0**	**302.6**	**14.7**	**13.9**	**0.0**	**0.0**	**0.0**
Sample Size		**9.0**	**0.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**
Average		**4621.1**	**0.0**	**37.9**	**0.0**	**175.7**	**190.4**	**8.9**	**3.7**	**0.0**	**0.0**	**0.0**
Standard Deviation		**2160.1**	**0.0**	**13.5**	**0.0**	**37.1**	**58.3**	**3.8**	**5.0**	**0.0**	**0.0**	**0.0**
95% Confidence		**1411.3**	**0.0**	**8.8**	**0.0**	**24.2**	**38.1**	**2.5**	**3.2**	**0.0**	**0.0**	**0.0**
95% Uppler Confidence Limit		**6032.4**	**0.0**	**46.7**	**0.0**	**199.9**	**228.5**	**11.4**	**7.0**	**0.0**	**0.0**	**0.0**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-7	2/9/2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/9/2006	1400.0	NA	<0.5	<2.0	19.8	12.4	2.3	<10	<0.5	<0.5	<2.0
	8/10/2006	604.0	NA	<0.50	<2.0	6.2	4.6	1.4	<10	<0.5	<0.5	<2.0
	10/26/2006	1350.0	NA	<0.50	<2.0	16.6	10.8	1.9	<10	<0.5	<0.5	<2.0
	1/25/2007	340.0	NA	<0.5	<2.0	6.8	2.4	1.6	<2.0	<0.5	<0.5	<2.0
	4/26/2007	552.0	NA	<0.5	<2.0	11.4	6.1	4.1	<2.0	<0.5	<0.5	<2.0
	7/25/2007	1230.0	NA	<0.5	<2.0	27.0	19.2	3.2	<2.0	<0.5	<0.5	<2.0
	10/23/2007	1730.0	NA	0.7	<2.0	20.7	17.3	8.4	6.5	<0.5	<0.5	2.6
	1/21/2008	**610.0**	**NA**	**1.2**	**<2.0**	**8.4**	**4.3**	**17.2**	**<2.0**	**<0.5**	**<0.5**	**6.0**
Maximum		**1730.0**	**0.0**	**1.2**	**0.0**	**27.0**	**19.2**	**17.2**	**6.5**	**0.0**	**0.0**	**6.0**
Sample Size		**8.0**	**0.0**	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**
Average		**977.0**	**0.0**	**0.2**	**0.0**	**14.6**	**9.7**	**5.0**	**0.8**	**0.0**	**0.0**	**1.1**
Standard Deviation		**508.4**	**0.0**	**0.4**	**0.0**	**7.6**	**6.3**	**5.4**	**2.3**	**0.0**	**0.0**	**2.2**
95% Confidence		**352.3**	**0.0**	**0.3**	**0.0**	**5.2**	**4.4**	**3.8**	**1.6**	**0.0**	**0.0**	**1.5**
95% Uppler Confidence Limit		**1329.3**	**0.0**	**0.5**	**0.0**	**19.9**	**14.0**	**8.8**	**2.4**	**0.0**	**0.0**	**2.6**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-8	2/9/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	5/9/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	8/10/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	10/26/2006	<50	NA	<0.50	<2.0	3.4	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	1/25/2007	<50	NA	<0.5	<2.0	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	4/26/2007	<50	NA	<0.5	<2.0	4.3	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	7/25/2007	<50	NA	<0.5	<2.0	4.4	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	10/23/2007	<50	NA	<0.5	<2.0	4.3	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	1/21/2008	**<50**	**NA**	**<0.5**	**<2.0**	**<0.5**	**<2.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**<2.0**
Maximum		**0.0**	**0.0**	**0.0**	**0.0**	**4.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Sample Size		**9.0**	**0.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**
Average		**0.0**	**0.0**	**0.0**	**0.0**	**1.8**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Standard Deviation		**0.0**	**0.0**	**0.0**	**0.0**	**2.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
95% Confidence		**0.0**	**0.0**	**0.0**	**0.0**	**1.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
95% Uppler Confidence Limit		**0.0**	**0.0**	**0.0**	**0.0**	**3.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-9	2/9/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	5/9/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	8/10/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	10/26/2006	<50	NA	<0.50	<2.0	<0.50	<1.0	<0.50	<10	<0.5	<0.5	<2.0
	1/25/2007	<50	NA	<0.5	<2.0	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	4/26/2007	<50	NA	<0.5	<2.0	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	7/25/2007	<50	NA	<0.5	<2.0	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	10/23/2007	<50	NA	<0.5	<2.0	<0.5	<2.0	<0.5	<2.0	<0.5	<0.5	<2.0
	1/21/2008	**<50**	**NA**	**<0.5**	**<2.0**	**<0.5**	**<2.0**	**<0.5**	**<2.0**	**<0.5**	**<0.5**	**<2.0**
Maximum		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Sample Size		**9.0**	**0.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**
Average		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Standard Deviation		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
95% Confidence		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
95% Uppler Confidence Limit		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
SECOND WATER-BEARING ZONE												
MW-1D	1/3/2008	<50	NA	<0.50	<2.0	<0.50	<2.0	<0.50	111.0	<0.5	<0.5	<2.0
	1/22/2008	**<50**	**NA**	**<0.50**	**<2.0**	**<0.50**	**<2.0**	**<0.50**	**12.9**	**<0.5**	**<0.5**	**<2.0**
MW-3D	1/3/2008	<50	NA	<0.50	<2.0	<0.50	<2.0	87.6	37.3	<0.5	3.1	15.3
	1/22/2008	**<50**	**NA**	**<0.50**	**<2.0**	**<0.50**	**<2.0**	**88.3**	**15.6**	**<0.5**	**3.1**	**15.3**

Table 2
Groundwater Analytical Data
Table 2B: Data for 2006-2008

15101 Freedom Avenue, San Leandro, CA

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MtBE 8260B [2] (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)
MW-4D	1/4/2008	<50	NA	<0.50	<2.0	<0.50	<2.0	<0.50	25.0	<0.5	<0.5	<2.0
	1/22/2008	91.5	NA	18.7	<2.0	7.1	11.4	219.0	124.0	<0.5	4.9	3.3
ESL (ug/L)	-	100.0	NA	1.0	40.0	30.0	20.0	5.0	NA	NA	NA	NA

Notes:

The first time SOMA monitored this Site was in May 2002.

[2] MtBE analyzed by EPA Method 8021B, and confirmed by EPA Method 8260B.

<: Not detected above the laboratory reporting limit.

[c] Presence confirmed, but confirmation concentration differed by more than a factor of two.

C: Presence confirmed, but RPD between columns exceeds 40%.

H: Heavier hydrocarbons contributed to the quantitation.

NA: Not Analyzed. Not Available

NM: Not Measured.

Not Measured.

The first time SOMA monitored wells MW-6 to MW-9 was in September 2004.

EB-PMP/EB-PRB: Equipment Blanks for Pump and Probe

ESL: Environmental Screening Levels per CRWQCB SFBay Region Interim Final Nov. 2007;
Table F-1a,Groundwater Screening Levels (groundwater is a current or potential drinking water resource)

Table 3
Soil Vapor Analytical Results / November 2007
15101 Freedom Ave
San Leandro, California

Compound	Sample ID					Shallow Soil Gas Screening Levels	
	SGS-1 (ug/m^3)	SGS-2 (ug/m^3)	SGS-3 (ug/m^3)	SGS-4 (ug/m^3)	SGS-4 Lab Duplicate (ug/m^3)	Commersial/ Industrial [1] (ug/m^3)	Residential [2] (ug/m^3)
TPH-g	2.1	2.3	1.4	0.42	0.44	29,000	10,000
2-Propanol	<7.6	<7.6	<6.9	<8.1	-	NL	NL
MtBE	<2.8	<2.8	<2.5	<3.0	-	31,000	9,400
Benzene	9.6	5.7	6.6	<2.6	-	280	84
Toluene	65	32	190	16	-	180,000	63,000
Ethyl Benzene	29	15	13	<3.6	-	580,000	210,000
m,p-Xylene	110	60	41	9.7	-	58,000	21,000
o-Xylene	40	21	12	<3.6	-		
tert-Butyl alcohol	<9.4	<9.4	<8.5	<9.9	-	NL	NL
Ethyl-tert-butyl ether	<13	<13	<12	<14	-	NL	NL
Isopropyl ether	<13	<13	<12	<14	-	NL	NL
tert-Amyl methyl ether	<13	<13	<12	<14	-	NL	NL

Laboratory Note:

J- Estimated Value

Note

NL- Not Listed

< - Less Than Laboratory Reporting lLimit

ESLs Environmental Screening Levels per CRWQCB SFBay Region, Interim Final November 2007, Table E-2 (Shallow Soil Gas Screening levels for evaluation of Potential Vapor Intrusion Concerns

[1] Lowest Commercial/Industrial Land Use

[2] Lowest Residential

Table 4

November 2007 MPE Pilot Test
Operational Data

15101 Freedom Avenue
San Leandro, California

DATE	TIME	PID (ppmv)	WELL MANIFOLD VACUUM (In of Hg)	OXIDIZER TEMPERATURE (^{0}F)	WELL FIELD VAPOR FLOW RATE (scfm)	TOTAL SYSTEM VAPOR FLOW RATE (scfm)	DILUTION AIR FLOW RATE (scfm)	SYSTEM (BLOWER) VACUUM (In of Hg)	SYSTEM TOTALIZER READING (gallons)	MW-1		MW-2		MW-3		MW-4		MW-5		COMMENTS
										DTW (feet, bgs)	Vacuum (In of $H_2$0)	DTW (feet, bgs)	Vacuum (In of $H_2$0)	DTW (feet, bgs)	Vacuum (In of $H_2$0)	DTW (feet, bgs)	Vacuum (In of $H_2$0)	DTW (feet, bgs)	Vacuum (In of $H_2$0)	
11/12/2007																				proposed start date;
																				generator down; taken to shop for repair
11/13/2007	1100									DTW=23.13, TDW=30		DTW=22, TDW=30		DTW=23, TDW=29.83		DTW=22.66, TDW=30		DTW=20,TDW=30		begin extraction from MW-3; collected Pre-GW samples
	1130	9,400	26.2	1,580	9	9	0	28.8	0											
	1200	6,450	24	1,609	1	31	30	27.4	75	-	0	-	0			-	0	-	0	
	1230	12,000	25.6	1,665	16	16	0	28.4	152	-	-	-	-			-	-	-	-	
	1300	11,840	25.6	1,671	6	16	10	28.4	228	-	0	-	0			-	0	-	0	
	1430	6,580	24.2	1,638	15	25	10	27.8	417	-	0	-	0			-	0	-	0	
	1500	17,550	24.2	1,674	5	25	20	27.8	493	-	0	-	0			-	0	-	0	
	1530	17,300	24.2	1,694	12	12	0	28.6	569	-	-	-	-			-	-	-	-	
	1600	17,230	26	1,693	12	12	0	28.6	607	-	0	-	0			-	0	-	0	
	1700	16,600	25.4	1,699	12	12	0	28.6	756		0		0				0		0	
11/14/2007	700	10,300	25.6	1,589	12	12	0	28.6	2,352	23.75	0	21.77	0			22.85	0	20.13	0	
	800	10,300	25.6	1,589	12	12	0	28.6	2,460	-	-	-	-			-	-	-	-	
	900	10,300	25.6	1,589	19	19	0	28.2	2,578	-	-	-	-			-	-	-	-	
	1000	10,200	25.8	1,617	19	19	0	28.2	2,688	-	0	-	0			-	0	-	0	
	1200	10,150	25.8	1,658	19	19	0	28.2	2,910	-	-	-	-			-	-	-	-	
	1300	10,150	25.6	1,656	19	19	0	28.2	3,055	-	0	-	0			-	0	-	0	
	1400	10,360	25.6	1,661	19	19	0	28.2	3,164	-	-	-	-			-	-	-	-	
	1500	10,320	25.6	1,668	16	16	0	28.4	3,293	-	-	-	-			-	-	-	-	
	1600	10,050	25.6	1,660	19	19	0	28.2	3,403	-	0	-	0			-	0	-	0	
11/15/2007	700	8,000	25.6	1,631	12	12	0	28.6	5,153	-	0	-	0			-	0.03	-	0.04	
	800	8,650	25.6	1,647	16	16	0	28.4	5,274	23.85	-	21.83	-			22.95	-	20.25	-	end extraction from MW-3;
	1000									23.7	0	21.8	0	23.6	0	22.9	0	20.25	0	begin extraction from MW-5
	1030	5,670	26.2	1,613	12	12	0	28.6	5,310	-	-	-	-	-	-	-	-			
	1100	6,700	26.2	1,630	12	12	0	28.6	5,411	-	0	-	0	-	0.02	-	0.03			
	1130	6,810	26.2	1,639	9	9	0	28.8	5,445	-	-	-	-	-	-	-	-			
	1200	6,480	26.2	1,636	12	12	0	28.6	5,519	-	0	-	0	-	0.02	-	0.03			
	1400	5,490	26.2	1,629	12	12	0	28.6	5,775	-	0	-	0	-	0.02	-	0.03			
11/16/2007	1030	5,000	26.1	1,623	11	11	0	28.7	6,159	-	0	-	0	-	0.02	-	0.03			
	1100	4,930	26	1,616	11	11	0	28.7	6,231	-	0	-	0	-	0.02	-	0.03			
	1200	4,940	26	1,612	12	12	0	28.6	6,302	-	0	-	0	-	0.02	-	0.03			
	1300	4,840	26	1,602	12	12	0	28.6	6,445	23.81	0	21.85	0	23.67	0.02	22.97	0.03			end extraction from MW-5 collected Post-GW samples at MW-3/5

Totalizer readings = 6,445 gallons
Total time of test = 4,320 minutes = 72 hours = 3 days

Notes

ppmv	parts per million vapor
In of Hg	inches of mercury
In of $H_2$0	inches of water
^{0}F	degrees Fahrenheit
scfm	standard cubic feet per minute
bgs	below ground surface
DTW	depth to water
TDW	total depth of well

Table 5

November 2007 MPE Pilot Test
Extraction Data and VOC Mass Removal Rate

15101 Freedom Avenue
San Leandro, California

WELL	COMMENT	DATE	CLOCK TIME	INCREMENTAL TIME	ELAPSED TIME	Q			PID		MASS REMOVAL		
				minutes	minutes	SCFM	ft^3 of extracted air	Moles of extracted air	ppmv as hexane	VOC mole %	lb VOC mass removal as hexane	lbs/min	lbs/day
MW-3	START	11/13/2007	1100	0	0								
	STEADY-STATE		1130	30	30	9	276	0.7284	9,400	0.0094	0.5902	0.0197	28
			1200	30	60	31	943	2.4868	6,450	0.0065	1.3826	0.0461	66
			1230	30	90	16	466	1.2308	12,000	0.0120	1.2731	0.0424	61
			1300	30	120	16	466	1.2308	11,840	0.0118	1.2561	0.0419	60
			1430	90	210	25	2,256	5.9532	6,580	0.0066	3.3766	0.0375	54
			1500	30	240	25	752	1.9844	17,550	0.0176	3.0020	0.1001	144
			1530	30	270	12	371	0.9796	17,300	0.0173	1.4608	0.0487	70
			1600	30	300	12	371	0.9796	17,230	0.0172	1.4549	0.0485	70
			1700	60	360	12	743	1.9591	16,600	0.0166	2.8034	0.0467	67
		11/14/2007	700	840	1,200	12	10,395	27.4279	10,300	0.0103	24.3521	0.0290	42
			800	60	1,260	12	743	1.9591	10,300	0.0103	1.7394	0.0290	42
			900	60	1,320	19	1,123	2.9640	10,300	0.0103	2.6316	0.0439	63
			1000	60	1,380	19	1,123	2.9640	10,200	0.0102	2.6060	0.0434	63
			1200	120	1,500	19	2,247	5.9279	10,150	0.0102	5.1865	0.0432	62
			1300	60	1,560	19	1,123	2.9640	10,150	0.0102	2.5933	0.0432	62
			1400	60	1,620	19	1,123	2.9640	10,360	0.0104	2.6469	0.0441	64
			1500	60	1,680	16	933	2.4616	10,320	0.0103	2.1898	0.0365	53
			1600	60	1,740	19	1,123	2.9640	10,050	0.0101	2.5677	0.0428	62
		11/15/2007	700	900	2,640	12	11,138	29.3870	8,000	0.0080	20.2653	0.0225	32
	STOP		800	60	2,700	16	933	2.4616	8,650	0.0087	1.8354	0.0306	44
	TOTAL				2,700		38,649	102			85	0.0316	45
	MEDIAN					16			10,300	0.0103			

Notes

Q	volumetric flow rate
SCFM	standard cubic feet per minute
ft^3	cubic feet per minute
VOC	volatile organic compounds
PID	photo-ionization detector
ppmv	parts per million vapor

DERIVATION OF MASS REMOVAL RATE

ppmv as hexane/1,000,000 = VOC mole %
ft3 of extracted air/(379 ft3 air/lb-mole air) = moles of extracted air
(moles of extracted air)(VOC mole %)(86.2 lb/lb-mole hexane) = lbs of VOC removed as hexane
(lbs of VOC mass removed as hexane)(elapsed time) = lbs/min of VOC removed as hexane
(lbs/min of VOC removed as hexane)(60 min/1 hour)(24 hours/1 day) = lbs/day of VOC removed as hexane

Table 6

November 2007 MPE Pilot Test
Extraction Data and VOC Mass Removal Rate

15101 Freedom Avenue
San Leandro, California

WELL	COMMENT	DATE	CLOCK TIME	INCREMENTAL TIME	ELAPSED TIME	Q			PID		MASS REMOVAL		
				minutes	minutes	SCFM	ft^3 of extracted air	Moles of extracted air	ppmv as hexane	VOC mole %	lb VOC mass removal as hexane	lbs/min	lbs/day
MW-5	START	11/15/2007	1000	0	0								
	STEADY-STATE		1030	30	30	12	371	0.9796	5,670	0.0057	0.4788	0.0160	23
			1100	30	60	12	371	0.9796	6,700	0.0067	0.5657	0.0189	27
			1130	30	90	9	276	0.7284	6,810	0.0068	0.4276	0.0143	21
			1200	30	120	12	371	0.9796	6,480	0.0065	0.5472	0.0182	26
			1400	120	240	12	1,485	3.9183	5,490	0.0055	1.8543	0.0155	22
		11/16/2007	1030	1230	1,470	11	13,270	35.0125	5,000	0.0050	15.0904	0.0123	18
			1100	30	1,500	11	324	0.8540	4,930	0.0049	0.3629	0.0121	17
			1200	60	1,560	12	743	1.9591	4,940	0.0049	0.8343	0.0139	20
	STOP		1300	60	1,620	12	743	1.9591	4,840	0.0048	0.8174	0.0136	20
	TOTAL				**1,620**		**17,953**	**47**			**21**	**0.0129**	**19**
	MEDIAN					**12**			**5,490**	**0.0055**			

Notes

Q	volumetric flow rate
SCFM	standard cubic feet per minute
ft^3	cubic feet per minute
VOC	volatile organic compounds
PID	photo-ionization detector
ppmv	parts per million vapor

DERIVATION OF MASS REMOVAL RATE

ppmv as hexane/1,000,000 = VOC mole %
ft3 of extracted air/(379 ft3 air/lb-mole air) = moles of extracted air
(moles of extracted air)(VOC mole %)(86.2 lb/lb-mole hexane) = lbs of VOC removed as hexane
(lbs of VOC mass removed as hexane)(elapsed time) = lbs/min of VOC removed as hexane
(lbs/min of VOC removed as hexane)(60 min/1 hour)(24 hours/1 day) = lbs/day of VOC removed as hexane

Table 7

Sample Identifier and Analytical Results
Pre- and Post-MPE Pilot Test

15101 Freedom Avenue
San Leandro, California

Monitoring Well	Date	MPE Event	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)	MtBE (µg/L)
MW-3	11/12/2007	Pilot Test	37,200	2,230	83.6	2,040	4,500	682
	11/16/2007	Pilot Test	5,530	3,820	99.4	333	715	797
MW-5	11/12/2007	Pilot Test	5,090	732	13.5	281	127.5	315
	11/16/2007	Pilot Test	1,570	1,830	<43	51.5	61	4,140

Notes:
TPHg = Total petroleum hydrocarbons as gasoline
MTBE = methyl-tertiary-butyl ether
ug/l - Micrograms per liter

Table 8

November 2007 MPE Pilot Test
Total Mass of Contaminants Extracted

15101 Freedom Avenue
San Leandro, California

Extraction Well	Vapor Sample ID	Collection Date/Time	USEPA TO-3 MODIFIED	USEPA TO-15 MODIFIED									Q (CFM)	Mass Removal Rate (lbs/day) (TPHg/benzene/MtBE)	Total Test time (minutes/days)	Total Mass Removed (lbs) (TPHg/benzene/MtBE)
			TPHg (ug/m^3)	Benzene (ug/m^3)	MtBE (ug/m^3)	Toluene (ug/m^3)	Ethyl benzene (ug/m^3)	Total Xylenes (ug/m^3)	DIPE (ug/m^3)	ETBE (ug/m^3)	TAME (ug/m^3)	TBA (ug/m^3)				
MW-3	Influent	11/14/07 @ 0655	32,000,000(a)	210,000(b)	13,000(b)	51,000(b)	49,000(b)	137,000(b)	<4,500(b)	<4,500(b)	<4,500(b)	<3,300(b)	12	34.45/0.23/0.01	4,320/3	**103.35(e) / 0.68(e) / 0.04(e)**
MW-3	Stack	11/14/07 @ 0650	510(c)	<3.3(d)	<3.8(d)	130(d)	16(d)	102(d)	<17(d)	<17(d)	<17(d)	13(d)	12	N/A	N/A	N/A
		REMOVAL EFFICIENCIES	99.9984%	99.9984%	99.9708%	99.7451%	99.9673%	99.9255%	99.6222%	99.6222%	99.6222%	99.9606%				

Notes

CFM	cubic feet per minute
lbs/day	pounds per day
ug/m^3	micrograms per cubic meter
DIPE	di-isopropyl ether
ETBE	ethyl tertiary butyl ether
TAME	methyl tertiary amyl ether
TBA	tertiary butyl alcohol
(a)	dilution factor 571
(b)	dilution factor 539
(c)	dilution factor 1
(d)	dilution factor 2.09
(e)	average value

DERIVATION OF MASS REMOVAL RATE

(ug/m^3) [(1mg/1000ug) ($1m^3$/1000 L)] = mg/L
(mg/L) (28.32 L/1 ft^3) ([Q] ft^3/min) = mg/min
(mg/min)(1g/1000mg)(1kg/1000g)(60min/1hr)(24hr/1day) = kg/day
(kg/day)(2.2lbs/1kg) = lbs/day

DERIVATION OF TOTAL MASS REMOVED

Total time of test = days (Tables 1, 2 and 3)
(mass removal rate [lbs/day])(total time of test [days]) = Total Removed (lbs)

DERIVATION OF REMOVAL EFFICIENCIES
Influent sample concentration / STACK sample concentration

Table 9
Comparison of Operation of MPE Costs Under Two Options
15101 Freedom Avenue, San Leandro, California

Continuous Operation

Item		Cost
Installation Costs:		
420 CFM Electric Calytic Oxidizer		**$65,200**
New Source of power (PG&E)		**$45,000**
Water Pre-treatment Skid		**$15,200**
Installation, Trenching and Electrical Work		**$25,000**
	Subtotal	**$150,000**
Anuual Operation Costs:		
Operation and Maintenance and Reporting		**$40,000**
Yearly power cost		**$40,000**
	Subtotal	**$80,000**
	Total	**$230,000**

Intermittent Operation (5-day Events)

Item		Cost
Daily Rental Unit ($2,500 x 5)		**$12,500**
Labor and Reporting		**$3,500**
	Total	**$16,000**

APPENDIX A

Drilling Permits

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 11/20/2007 By vickyh1

Permit Numbers: W2007-1180
Permits Valid from 11/27/2007 to 11/28/2007

Application Id: 1195157024092
Site Location: 15101 Freedom Ave
Project Start Date: 11/27/2007

City of Project Site: San Leandro
Completion Date: 11/28/2007

Applicant: SOMA Environmental Engineering - Elena Manzo
6620 Owens Drive, Suite A, Pleasanton, CA 94588
Phone: 925-734-6400

Property Owner: Pazdel Mohammad
1770 Pistacia Court, Fairfield, CA 94533
Phone: --

Client: ** same as Property Owner **

Total Due: $200.00
Receipt Number: WR2007-0517 **Total Amount Paid:** $200.00
Payer Name : SOMA Environmental Paid By: CHECK **PAID IN FULL**

Engineering

Works Requesting Permits:

Borehole(s) for Investigation-Contamination Study - 4 Boreholes
Driller: Vironex - Lic #: 705927 - Method: DP

Work Total: $200.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2007-1180	11/20/2007	02/25/2008	4	1.50 in.	5.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

Alameda County Public Works Agency - Water Resources Well Permit

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

7. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 12/05/2007 By jamesy

Permit Numbers: W2007-1218 to W2007-1220
Permits Valid from 12/10/2007 to 12/15/2007

Application Id: 1196270571267
City of Project Site: San Leandro
Site Location: Arco Service Station
15101 Freedom Avenue
San Leandro, CA
Project Start Date: 12/10/2007
Completion Date: 12/15/2007

Applicant: SOMA Environmental Engineering - Richard McKinney
6620 Owens Drive, Suite A, Pleasanton, CA 94588
Phone: 925-734-6400

Property Owner: Mohammad Pazdel
1770 Pistacia Court, Fairfield, CA 94533
Phone: --

Client: ** same as Property Owner **

Total Due: $900.00
Receipt Number: WR2007-0538 **Total Amount Paid:** $900.00
Payer Name : Mansour Sepehr Paid By: CHECK **PAID IN FULL**

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 3 Wells
Driller: Woodward Drilling - Lic #: 710079 - Method: hstem **Work Total: $900.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-1218	12/05/2007	03/09/2008	MW-1D	10.00 in.	2.00 in.	45.00 ft	60.00 ft
W2007-1219	12/05/2007	03/09/2008	MW-3D	10.00 in.	2.00 in.	45.00 ft	60.00 ft
W2007-1220	12/05/2007	03/09/2008	MW-4D	10.00 in.	2.00 in.	45.00 ft	60.00 ft

Specific Work Permit Conditions

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

2. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the

permits and requirements have been approved or obtained.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 or email to vickyh@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

7. Minimum surface seal thickness is two inches of cement grout placed by tremie

8. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.

9. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

PROGRAMS AND SERVICES

Well Standards Program

The Alameda County Public Works Agency, Water Resources is located at:
399 Elmhurst Street
Hayward, CA 94544
For Driving Directions or General Info, Please Contact 510-670-5480 or wells@acpwa.org
For Drilling Permit information and process contact James Yoo at
Phone: 510-670-6633
FAX: 510-782-1939
Email: Jamesy@acpwa.org

Alameda County Public Works is the administering agency of General Ordinance Code, Chapter 6.88 . The purpose of this chapter is to provide for the regulation of groundwater wells and exploratory holes as required by California Water Code. The provisions of these laws are administered and enforced by Alameda County Public Works Agency through its Well Standards Program.

Drilling Permit Jurisdictions in Alameda County: There are four jurisdictions in Alameda County.

Location: Agency with Jurisdiction Contact Number

Berkeley City of Berkeley Ph: 510-981-7460
Fax: 510-540-5672

Fremont, Newark, Union City Alameda County Water District Ph: 510-668-4460
Fax: 510-651-1760

Pleasanton, Dublin, Livermore, Sunol Zone 7 Water Agency Ph: 925-454-5000
Fax: 510-454-5728

The Alameda County Public Works Agency, Water Resources has the responsibility and authority to issue drilling permits and to enforce the County Water Well Ordinance 73-68. This jurisdiction covers the western Alameda County area of **Oakland, Alameda,Piedmont, Emeryville, Albany, San Leandro, San Lorenzo, Castro Valley,** and **Hayward** . The purpose of the drilling permits are to ensure that any new well or the destruction of wells, including geotechnical investigations and environmental sampling within the above jurisdiction and within Alameda County will not cause pollution or contamination of ground water or otherwise jeopardize the health, safety or welfare of the people of Alameda County.

Permits are required for all work pertaining to wells and exploratory holes at any depth within the jurisdiction of the Well Standards Program. A completed permit application *(30 Kb)** , along with a site map, should be submitted at least **ten (10) working days prior to the planned start of work**. Submittals should be sent to the address or fax number provided on the application form. When submitting an application via fax, please use a high resolution scan to retain legibility.

Fees
Beginning April 11, 2005 , the following fees shall apply:

A permit to construct, rehabilitate, or destroy wells, including cathodic protection wells, but excluding dewatering wells (*Horizontal hillside dewatering and dewatering for construction period only), shall cost $300.00 per well.

A permit to bore exploratory holes, including temporary test wells, shall cost $200 per site. A site includes the project parcel as well as any adjoining parcels.

Please make checks payable to: **Treasurer, County of Alameda**

Permit Fees are exempt to State & Federal Projects
Applicants shall submit a letter from the agency requesting the fee exemption.

Scheduling Work/Inspections:
Alameda County Public Works Agency (ACPWA), Water Resources Section requires scheduling and inspection of permitted work. All drilling activities must be scheduled in advance. Availability of inspections will vary from week to week and will come on a first come, first served bases. To ensure inspection availability on your desired or driller scheduled date, the following procedures are required:

Please contact **James Yoo at 510-670-6633** to schedule the inspection date and time (You must have drilling permit approved prior to scheduling).

Schedule the work as far in advance as possible (at least 5 days in advance); and confirm the scheduled drilling date(s) at least 24 hours prior to drilling.

Once the work has been scheduled, an ACPWA Inspector will coordinate the inspection requirements as well as how the Inspector can be reached if they are not at the site when Inspection is required. Expect for special circumstances given, all work will require the inspection to be conducted during the working hours of 8:30am to 2:30pm., Monday to Friday, excluding holidays.

Request for Permit Extension:
Permits are only valid from the start date to the completion date as stated on the drilling permit application and Conditions of Approval. To request an extension of a drilling permit application, applicants must request in writing prior to the completion date as set forth in the Conditions of Approval of the drilling permit application. Please send fax or email to Water Resources Section, Fax 510-782-1939 or email at wells@acpwa.org. There are no additional fees for permit extensions or for re-scheduling inspection dates. You may not extend your drilling permit dates beyond 90 days from the approval date of the permit application. **NO refunds** shall be given back after 90 days and the permit shall be deemed voided.

Cancel a Drilling Permit:
Applicants may cancel a drilling permit only in writing by mail, fax or email to Water Resources Section, Fax 510-782-1939 or email at wells@acpwa.org. If you do not cancel your drilling permit application before the drilling completion date or notify in writing within 90 days, Alameda County Public Works Agency, Water Resources Section may void the permit and No refunds may be given back.

Refunds/Service Charge:
A service charge of $25.00 dollars for the first check returned and $35.00 dollars for each subsequent check returned.

Applicants who cancel a drilling permit application **before** we issue the approved permit(s), will receive a **FULL** refund (at any amount) and will be mailed back within two weeks.

Applicants who cancel a drilling permit application **after** a permit has been issued will then be charged a service fee of $50.00 (fifty Dollars).

To collect the remaining funds will be determined by the amount of the refund to be refunded (see process below).

Board of Supervisors Minute Order, File No. 9763, dated January 9, 1996, gives blanket authority to the Auditor-Controller to process claims, from all County departments for the refund of fees which do not exceed $500 (Five Hundred Dollars)(with the exception of the County Clerk whose limit is $1,500).

Refunds over the amounts must be authorized by the Board of Supervisors Minute Order, File No. 9763 require specific approval by the Board of Supervisors. The forms to request for refunds under $500.00 (Five Hundred Dollars) are available at this office or any County Offices. If the amount is exceeded, a Board letter and Minute Order must accompany the claim. Applicant shall fill out the request form and the County Fiscal department will process the request.

Enforcement
Penalty. Any person who does any work for which a permit is required by this chapter and who fails to obtain a permit shall be guilty of a misdemeanor punishable by fine not exceeding Five Hundred Dollars ($500.00) or by imprisonment not exceeding six months, or by both such fine and imprisonment, and such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any such

violation is committed, continued, or permitted, and shall be subject to the same punishment as for the original offense. (Prior gen. code §3-160.6)

Enforcement actions will be determined by this office on a case-by-case basis
Drilling without a permit shall be the cost of the permit(s) and a fine of $500.00 (Five Hundred Dollars).

Well Completion Reports (State DWR-188 forms) must be filed with the Well Standards Program within 60 days of completing work. Staff will review the report, assign a state well number, and then forward it to the California Department of Water Resources (DWR). Drillers should not send completed reports to DWR directly. Failure to file a Well Completion Report or deliberate falsification of the information is a misdemeanor; it is also grounds for disciplinary action by the Contractors' State License Board. Also note that filed Well Completion Reports are considered private record protected by state law and can only be released to the well owner or those specifically authorized by government agencies.

See our website (www.acgov.org/pwa/wells/index.shtml) for links to additional forms.

APPENDIX B

Soil Borings and Groundwater Monitoring Well Logs

ENVIRONMENTAL ENGINEERING, INC

GEOLOGIC LOG OF BOREHOLE MW-1D

PROJECT: 2552
SITE LOCATION: 15101 Freedom Ave., San Leandro, CA
DRILLING METHOD: Hollow Stem Auger
DRILLER: Woodward Drilling
BORING DIAMETER: 15"
LOGGED BY: E. Hightower

DATE DRILLED: December 14, 2007 & December 17, 2007
CASING ELEVATION: 54.42 ft.
DEPTH TO GW: 54' (Driller Estimate) See Notes
T.O.C. TO SCREEN: 45'
SCREEN LENGTH: 15'
APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED (split spoon / core)	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
				4" Asphalt				10" Cement Grout; Conductor Casing Set to 45 ft.; Cement Grout; 2" Schedule 40 PVC; Cement Grout; Conductor Casing Set to 45ft.; Cement Grout
				Hand Auger to 5' Soil descriptions from HSA soil cuttings to 45'				
			CL	CLAY (CL): Black; soft; moist; no petroleum hydrocarbon (PHC) odor.				
	5							
			CL	CLAY (CL): Black; medium stiff; moist; no PHC odor.				
	10							
			CL	SILTY CLAY (CL): Brown; soft; moist; some fine-grained sand; no PHC odor.				
	15							
			CL	Sandy Clay (CL): Brownish-green; soft; moist; fine- to medium-grained sand; some fine- to coarse-grained gravel; no PHC odor.				
	20							
			CL	Sandy Clay (CL): Brownish-green; soft; moist; no PHC; fine- to medium-grained sand; no PHC odor.				
	25			PHC odor slight @ 25'		▼		

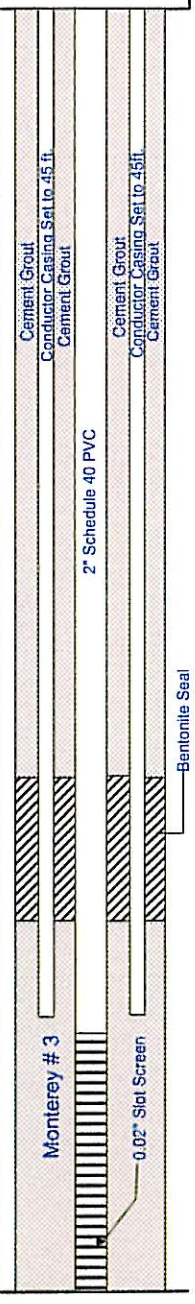
COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter, used bottom sample from split spoon.
Static water level on 1/3/08 was 24.80 ft. TD @ 60'

ENVIRONMENTAL ENGINEERING, INC.	GEOLOGIC LOG OF BOREHOLE MW-1D	PAGE 2 OF 3

PROJECT: 2552
SITE LOCATION: 15101 Freedom Ave., San Leandro, CA
DRILLING METHOD: Hollow Stem Auger
DRILLER: Woodward Drilling
BORING DIAMETER: 15"
LOGGED BY: E. Hightower

DATE DRILLED: December 14, 2007 & December 17, 2007
CASING ELEVATION: 54.42 ft.
DEPTH TO GW: 54' (Driller Estimate) See Notes
T.O.C. TO SCREEN: 45'
SCREEN LENGTH: 15'
APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED: split spoon	SAMPLED: core	GW LEVEL	BLOWCOUNTS
			CL	SANDY CLAY (CL): Brownish-green; soft; moist; fine- to medium-grained sand; no PHC odor.				
	30		CL	SANDY CLAY (CL): Brownish-green; medium stiff; moist; fine- to medium-grained sand; slight PHC odor.				
	35		CL	SANDY CLAY (CL): Brownish-green; medium stiff; moist; fine- to medium-grained sand; slight PHC odor.				
	40							
	45		CL	SANDY CLAY (CL): Light brown; soft; saturated; fine- to medium-grained sand; slight PHC odor.				
			ML	SILTY CLAY (ML): Light orange-brown; hard; dry; no PHC odor.			12 33 50/5"	
	50							



COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter, used bottom sample from split spoon (18").
Static water level on 1/3/08 was 24.80 ft. TD @ 60'

ENVIRONMENTAL ENGINEERING, INC.

GEOLOGIC LOG OF BOREHOLE MW-1D

PROJECT: 2552

SITE LOCATION: 15101 Freedom Ave., San Leandro, CA

DRILLING METHOD: Hollow Stem Auger

DRILLER: Woodward Drilling

BORING DIAMETER: 15"

LOGGED BY: E. Hightower

DATE DRILLED: 12/14 & 17/2007

CASING ELEVATION: 54.42 ft.

DEPTH TO GW: 54' (Driller estimate) See Notes

T.O.C. TO SCREEN: 45'

SCREEN LENGTH: 15'

APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED (split spoon / core)	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
	55		CL	SILTY CLAY (CL): Orangish-brown; very stiff; saturated; no PHC odor.		▽	25 40 50/5"	Monterey # 3 20" Slot Screen
	60		CL	SILTY CLAY (CL): Orange-brown; with medium-grained gravel; wet; no PHC odor.			29 50/4"	
	65							
	70							
	75							

COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter, used bottom sample from split spoon.
Static water level on 1/3/08 was 24.80 ft. TD @ 60'

ENVIRONMENTAL ENGINEERING, INC.

GEOLOGIC LOG OF BOREHOLE MW-3D

PROJECT: 2552

SITE LOCATION: 15101 Freedom Ave., San Leandro, CA

DRILLING METHOD: Hollow Stem Auger

DRILLER: Woodward Drilling

BORING DIAMETER: 15"

LOGGED BY: E. Hightower

DATE DRILLED: 12/14 & 18/2007

CASING ELEVATION: 54.10 ft.

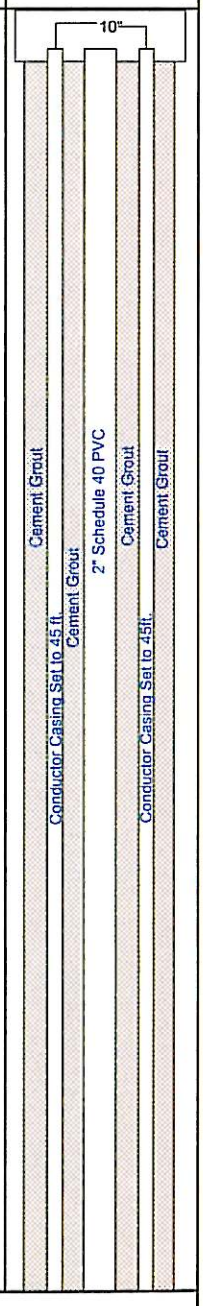
DEPTH TO GW: 53' (Driller estimate) See Notes

T.O.C. TO SCREEN: 45'

SCREEN LENGTH: 15'

APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED: split spoon	SAMPLED: core	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
				4" Asphalt					
				Hand Augered to 5' Soil descriptions from HSA soil cuttings to 45'					
			GW	SANDY GRAVEL (GW): Dark brown; loose; dry; medium-grained sand; fine- to coarse-grained gravel; no petroleum hydrocarbon (PHC) odor.					
	5		CL	SANDY CLAY (CL): Dark brown; soft; dry; medium-grained sand; no PHC odor.					
	10		CL	SANDY CLAY (CL): Brown; soft; moist; fine- to medium-grained sand; no PHC odor.					
	15		CL	SANDY CLAY (CL): Brown; soft; moist; fine- to medium-grained sand; some fine- to coarse-grained gravel; no PHC odor.					
	20		CL	SANDY CLAY (CL): Brownish-green; soft; moist; fine- to medium-grained sand; some fine- to coarse-grained gravel; slight PHC odor.					
	25								



COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter used bottom sample from split spoon (18")
Static water level on 1/3/08 was 24.1'.

ENVIRONMENTAL ENGINEERING, INC.

GEOLOGIC LOG OF BOREHOLE MW-3D

PROJECT: 2552

SITE LOCATION: 15101 Freedom Ave., San Leandro, CA

DRILLING METHOD: Hollow Stem Auger

DRILLER: Woodward Drilling

BORING DIAMETER: 15"

LOGGED BY: E. Hightower

DATE DRILLED: 12/14 & 18/2007

CASING ELEVATION: 54.10 ft.

DEPTH TO GW: 53' (Driller estimate) See Notes

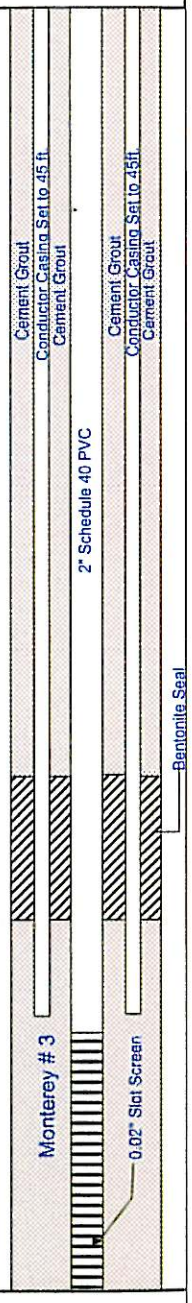
T.O.C. TO SCREEN: 45'

SCREEN LENGTH: 15'

APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED: split spoon	SAMPLED: core	GW LEVEL	BLOWCOUNTS
			CL	SANDY CLAY (CL): Brownish-green; soft; moist; fine- to medium-grained sand; with some fine- to coarse-grained gravel; slight PHC odor.				
	30		CL	SANDY CLAY (CL): Brownish-green; soft; moist; fine- to medium-grained sand; PHC odor.				
	35		CL	SANDY CLAY (CL): Light brownish-green; soft; saturated; fine- to medium-grained sand; PHC odor.				
	40		CL	SANDY CLAY (CL): Light brown; soft; moist; fine- to medium-grained sand; slight PHC odor.				
	45		CL	SILTY CLAY (CL): Orange brown; very stiff; dry; with some medium-grained gravel; no PHC odor.				15 26 37/5"
	50							

WELL DIAGRAM



COMMENTS: Samples in 6" metal sleeve, 1.5" diameter, used bottom sample from split spoon (18"). Static water level on 1/3/08 was 24.1'.

ENVIRONMENTAL ENGINEERING, INC.

GEOLOGIC LOG OF BOREHOLE MW-3D

PROJECT: 2552

SITE LOCATION: 15101 Freedom Ave., San Leandro, CA

DRILLING METHOD: Hollow Stem Auger

DRILLER: Woodward Drilling

BORING DIAMETER: 15"

LOGGED BY: E. Hightower

DATE DRILLED: 12/14 & 18/2007

CASING ELEVATION: 54.10 ft.

DEPTH TO GW: 53' (Driller Estimate) See Notes

T.O.C. TO SCREEN: 45'

SCREEN LENGTH: 15'

APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED (split spoon / core)	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
	55		CL	SILTY CLAY (CL): Orange-brown; stiff; wet; with medium- to coarse-grained sand and medium-grained gravel; no PHC odor.		▽	14 27 50/4"	Monterey # 3 20" Slot Screen
				As above.				
	60						18 50/6"	
	65							
	70							
	75							

COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter, used bottom sample from split spoon.
Static water level on 1/3/08 was 24.10 ft. TD @ 60'

ENVIRONMENTAL ENGINEERING, INC

GEOLOGIC LOG OF BOREHOLE MW-4D

PROJECT: 2552
SITE LOCATION: 15101 Freedom Ave., San Leandro, CA
DRILLING METHOD: Hollow Stem Auger
DRILLER: Woodward Drilling
BORING DIAMETER: 15"
LOGGED BY: E. Hightower

DATE DRILLED: 12/13 & 18/2007
CASING ELEVATION: 53.12 ft.
DEPTH TO GW: 53' (Driller Estimate) See Notes
T.O.C. TO SCREEN: 40'
SCREEN LENGTH: 20'
APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED (split spoon / core)	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
				4" Asphalt				10" Cement Grout; Conductor Casing Set to 40 ft.; Cement Grout; 2" Schedule 40 PVC; Cement Grout; Conductor Casing Set to 40ft.; Cement Grout
				Hand Auger to 5' Soil descriptions from HSA soil cuttings to 40'				
			CL	SILTY CLAY (CL) : Greenish - brown; soft; moist; no petroleum hydrocarbon (PHC) odor.				
	5							
			CL	GRAVELLY CLAY (CL): Dark brown; soft; moist; fine-grained gravel; no PHC odor.				
	10							
			CL	SILTY CLAY (CL): Dark brown; soft; moist; some medium-grained sand; no PHC odor.				
	15							
			CL	SILTY CLAY (CL): Dark greenish-brown; soft; moist; some medium-grained sand; no PHC odor.				
	20							
				As above.				
	25							

COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter used bottom sample from split spoon (18")
Static water level on 1/4/08 was 24.50'

ENVIRONMENTAL ENGINEERING, INC.

GEOLOGIC LOG OF BOREHOLE MW-4D

PROJECT: 2552

SITE LOCATION: 15101 Freedom Ave., San Leandro, CA

DRILLING METHOD: Hollow Stem Auger

DRILLER: Woodward Drilling

BORING DIAMETER: 15"

LOGGED BY: E. Hightower

DATE DRILLED: 12/13 & 18/2007

CASING ELEVATION: 53.12 ft.

DEPTH TO GW: 53' (Driller Estimate) See Notes

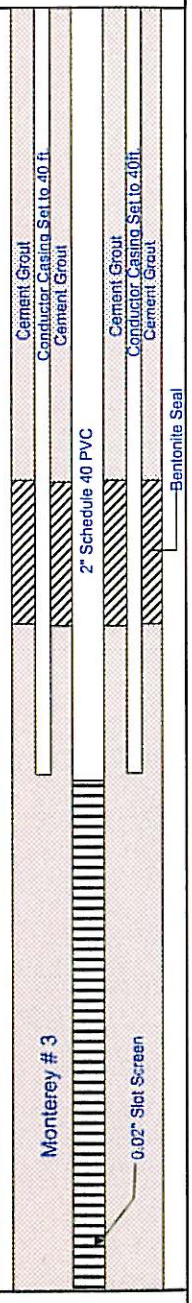
T.O.C. TO SCREEN: 40'

SCREEN LENGTH: 20'

APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED (split spoon / core)	GW LEVEL	BLOWCOUNTS
	30		CL	SANDY CLAY (CL): Dark greenish-brown; stiff; saturated; medium- to coarse-grained sand; PHC odor.			
	35		CL	SANDY CLAY (CL): Dark greenish-brown; firm; moist; medium- to coarse-grained sand; PHC odor.			
	40		CL	SANDY CLAY (CL): Orange-brown; with fine-grained gravel; very stiff; moist; fine- to coarse-grained sand; no PHC odor.			15 40 50/4"
	45		CL	SANDY CLAY (CL): Orange-brown; with fine-grained gravel; very stiff; moist; fine to coarse grained sand; no PHC odor.			20 35 50/4"
	50						

WELL DIAGRAM



COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter used bottom sample from split spoon (18")
Static water level on 1/4/08 was 24.50'

ENVIRONMENTAL ENGINEERING, INC.

GEOLOGIC LOG OF BOREHOLE MW-4D

PROJECT: 2552
SITE LOCATION: 15101 Freedom Ave., San Leandro, CA
DRILLING METHOD: Hollow Stem Auger
DRILLER: Woodward Drilling
BORING DIAMETER: 15"
LOGGED BY: E. Hightower

DATE DRILLED: 12/13 & 18, 2007
CASING ELEVATION: 53.12 ft.
DEPTH TO GW: 53' (Driller Estimate) See Notes
T.O.C. TO SCREEN: 40'
SCREEN LENGTH: 20'
APPROVED BY: Rich Mckinney

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS.	GEOLOGIC DESCRIPTION	SAMPLED (split spoon / core)	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
	55			No Recovery - Empty Spoon		▽	50/3"	Monterey # 3; 20" Slot Screen
			GP	SANDY GRAVEL (GP): Dark brown; very dense; wet; fine- to medium-grained sand, medium-grained gravel; no PHC odor.				
	60						50/4"	
	65							
	70							
	75							

COMMENTS: Sampled in 6" metal sleeve, 1.5" diameter used bottom sample from split spoon (18")
Static water level on 1/4/08 was 24.50'

APPENDIX C

Well Survey Data

DATE: 1/08/2008
JOB NUMBER 0208101
DATE OF SURVEY 1/03/07
INSTRUMENT LIECA SR520

TABLE OF ELEVATIONS & COORDINATES
ON MONITORING WELLS
SOMA ENVIRONMENTAL, PROJECT 15101 FREEDOM DRIVE - SAN LEANDRO

WELL ID#	NORTHING (ft.) LATITUDE	EASTING (ft.) LONGITUDE	ELEVATION (ft.)	DESCRIPTION
MW-1D	2084371.23	6092127.90	54.42	NOTCH
	37.708104856	122.123200912	54.94	PUNCH
	37° 42' 29.1" N	122° 07' 23" W	54.74	PAV
MW-2	2084322.96	6092064.06	52.31	NOTCH
	37.707969266	122.123418684	53.76	PUNCH
	37° 42' 28.6" N	122° 07' 24" W		
MW-3	2084297.80	6092176.56	53.96	NOTCH
	37.707905553	122.123028312	54.20	PUNCH
	37° 42' 28.4" N	122° 07' 22" W		
MW-3D	2084303.98	6092183.53	54.10	NOTCH
	37.707922851	122.123004590	54.56	PUNCH
	37° 42' 28.5" N	122° 07' 22" W	54.47	PAV
MW-4	2084250.28	6092124.85	53.36	NOTCH
	37.707772581	122.123204220	53.53	PUNCH
	37° 42' 27.9" N	122° 07' 23" W		
MW-4D	2084222.77	6092116.37	53.12	NOTCH
	37.707696648	122.123231858	53.37	PUNCH
	37° 42' 27.7" N	122° 07' 23" W	53.39	PAV

BENCH MARK: NGS BENCH MARK NO. HT1871

3.0 KM (1.85 MI) NORTH FROM SAM LORENZO. 1.85 MILES NORTH ALONG INTERSTATE HIGHWAY 580 FROM THE JUNCTION OF STATE HIGHWAY 238 IN SAN LORENZO, IN THE WEST CORNER OF THE CROSSING OF 150TH AVENUE, IN TOP OF THE CONCRETE BRIDGE DECK, 15.5 FEET NORTHWEST OF THE SOUTHWEST BOUND LANES OF THE AVENUE, 10.9 FEET NORTHEAST OF THE SOUTH CORNER OF THE SOUTHWEST END OF THE NORTHWEST CONCRETE GUARDRAIL, 0.7 FOOT NORTHEAST OF THE SOUTHWEST EDGE OF THE DECK, 0.9 FOOT SOUTHEAST OF THE NORTHWEST CONCRETE GUARDRAIL, AND ABOUT LEVEL WITH THE HIGHWAY.

ELEVATION = 58.50 NAVD 88 DATUM

HORIZONTAL AND VERTICAL CONTROL BASED ON HARRINGTON SURVEY DATED 10-12-2004

FD CHABOT A, CALIFORNIA STATE PLAIN COORDINATE SYSTEM, NAD 83, ZONE 3. NORTH 2,088,584.99 EAST 6,093,351.39. LAT N 37°43'11.04190" LONG W 122°07'09.20691", ELEVATION 492.08 NAVD 88.

FD CHABOT B, CALIFORNIA STATE PLAIN COORDINATE SYSTEM, NAD 83, ZONE 3. NORTH 2,087,731.02 EAST 6,094,039.23. . LAT N 37°43'02.71762" LONG W 122°07'00.46339", ELEVATION 442.77 NAVD 88.

APPENDIX D

Waste Manifest

Probe # 5547
No. 24158

WORLD ENVIRONMENTAL & ENERGY, INC.
P.O. Box 256
West Sacramento, CA 95691
Tel: (916) 371-3617
Fax: (916) 371-3684

5940

JONES & JONE

NON-HAZARDOUS WASTE DATA FORM ACT

TO BE COMPLETED BY GENERATOR

NAME: TEXACO GASOLINE SERVICE STATION
EPA I.D. NO.: C A I 0 0 0 1 3 2 1 5 5 4 3
ADDRESS: 15101 FREEDOM AVE
CITY, STATE, ZIP: SAN LEANDRO, CA 94578
PHONE NO.: (707) 399-7723
CONTAINERS: No. _____ VOLUME/CY _____ WEIGHT/TONS _____
TYPE: ☐ TANK TRUCK ☐ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER Rolloff/Flash Cube Van
WASTE DESCRIPTION: Soil-Class II Cover P&G GENERATING PROCESS _____

COMPONENTS OF WASTE	PPM %	COMPONENTS OF WASTE	PPM %
1.		3.	
2.		4.	

VOC-OVA READINGS _____
SITE VERIFICATION: 15101 FREEDOM AVE SAN LEANDRO, CA 94578
PROPERTIES: pH: ____ ☐ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____
HANDLING INSTRUCTIONS: USE PROPER LANDFILL PPE ADVANCE CHEM TRANSPORT

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.
R. H. McKinney Sam A [signature] 1-30-08
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER I

NAME: WORLD ENVIRONMENTAL & ENERGY
EPA I.D. NO.: C A 0 0 0 1 3 2 1 5 5 4 3
ADDRESS: 3208 WEST CAPITOL AVENUE
SERVICE ORDER NO. _____
CITY, STATE, ZIP: WEST SACRAMENTO CA 95691
PICK UP DATE _____
PHONE NO.: (916) 371-3617
Kenneth Tates [signature] 1/30/08
TYPED OR PRINTED FULL NAME & SIGNATURE DATE
TRUCK, UNIT, I.D. NO.: 65 w/ 11

TRANSPORTER II

NAME _____
EPA I.D. NO. _____
ADDRESS _____
SERVICE ORDER NO. _____
CITY, STATE, ZIP _____
PICK UP DATE _____
PHONE NO. ( ) _____
TYPED OR PRINTED FULL NAME & SIGNATURE DATE
TRUCK, UNIT, I.D. NO.

TSD FACILITY

NAME: ALTAMONT LANDFILL - #5547 8700
EPA I.D. NO.: C A D 9 8 1 3 8 2 7 3 2
ADDRESS: 10840 ALTAMONT PASS ROAD
DISPOSAL METHOD
CITY, STATE, ZIP: LIVERMORE, CA 94550
☐ LANDFILL ☐ OTHER _____
PHONE NO.: (800) 449-6349
TYPED OR PRINTED FULL NAME & SIGNATURE 1/30 DATE

GEN	OLD/NEW	L A	TONS	
TRANS		S B		
C/O		RT/CD	HWDF NONE	

DISCREPANCY 781181

White & Yellow - TSD COPY Pink - GENERATOR COPY Blue - TRANSPORTER COPY I Goldenrod - TRANSPORTER COPY II

APPENDIX E

MPE Pilot Test, Field Data

Golden Gate Remediation Technology

SITE: Valero Gas Station and Mini Mart
ADDRESS: 15101 Freedom Ave., San Leandor, CA
PROJECT #: 2554

PERSONNEL: J. Acedillo, E. G-W

MTS MONITORING POINT DATA

DATE	TIME	WELL ID MW-1		WELL ID MW-2		WELL ID MW-3		WELL ID MW-4		WELL ID MW-5		WELL ID	
		VACCUM (IN WATER)	GW ELEVATION (FEET BELOW TOC)	VACCUM (IN WATER)	GW ELEVATION (FEET BELOW TOC)	VACCUM (IN WATER)	GW ELEVATION (FEET BELOW TOC)	VACCUM (IN WATER)	GW ELEVATION (FEET BELOW TOC)	VACCUM (IN WATER)	GW ELEVATION (FEET BELOW TOC)	VACCUM (IN WATER)	GW ELEVATION (FEET BELOW TOC)
11/13/2007		-	DTW = 23.13, TDW = 30	-	DTW = 22, TDW = 30	-	DTW = 23, TDW = 29.83	-	DTW = 22.66, TDW = 30	-	DTW = 20,TDW = 30		
	1200	0	-	0	-	extraction well		0	-	0	-		
	1300	0	-	0	-			0	-	0	-		
	1400	0	-	0	-			0	-	0	-		
	1500	0	-	0	-			0	-	0	-		
	1600	0	-	0	-			0	-	0	-		
	1700	0	-	0	-			0	-	0	-		
11/14/2007	630	0	23.75	0	21.77			0	22.85	0	20.13		
	700	0	-	0	-			0	-	0	-		
	1000	0	-	0	-			0	-	0	-		
	1300	0	-	0	-			0	-	0	-		
	1600	0	-	0	-			0	-	0	-		
11/15/2008	730	0	23.85	0	21.83			0.03	22.95	0.04	20.25		
	930	-	23.7	-	21.8	-	23.6	-	22.9	-	20.25		
	1100	0	-	0	-	0.02	-	0.03	-	extraction well			
	1200	0	-	0	-	0.02	-	0.03	-				
	1300	0	-	0	-	0.02	-	0.03	-				
	1400	0	-	0	-	0.02	-	0.03	-				
11/16/2007	1030	0	-	0	-	0.02	-	0.03	-				
	1100	0	-	0	-	0.02	-	0.03	-				
	1200	0	-	0	-	0.02	-	0.03	-				
	1300	0	23.81	0	21.85	0.02	23.6	0.03	22.97				

Golden Gate Remediation Technology

SITE: Valero Gas Station and Mini Mart
ADDRESS: 15101 Freedom Ave., San Leandro, CA
PROJECT #: 2554

PERSONNEL: Jesse Acedillo

MTS OPERATIONAL DATA

DATE	TIME	OXIDIZER TEMPERATURE (F)	PUMP/AIR TEMPERATURE (F)	STINGER VACUUM (IN-Hg)	PUMP VACUUM (IN-Hg)	TOTAL FLOW (SCFM)	DILUTION FLOW (SCFM)	WELL FLOW (SCFM)	INFLUENT CONCENTRATION (PPMV)	WATER TOTALIZER
11/12/2007	generator failed to start; contractor tried to repair it onsite to fail; will be taken to shop in the morning for repair									
	temporary fix was made while waiting for part to arrive from OEM; part to be installed next week									
11/13/2007	1100	Start Extraction MW-3; collected Pre-GW sample								
	1130	1580	168	26.2	28.8	9	0	9	9,400	0
	1200	1609	170	24	27.4	31	30	1	6,450	75
	1230	1665	168	25.6	28.4	16	0	16	12,000	152
	1300	1671	169	25.6	28.4	16	10	6	11,840	228
	1430	1638	171	24.2	27.8	25	10	15	6,580	417
	1500	1674	167	24.2	27.8	25	20	5	17,550	493
	1530	1694	168	24.2	28.6	12	0	12	17,300	569
	1600	1693	168	26	28.6	12	0	12	17,230	607
	1700	1699	168	25.4	28.6	12	0	12	16,600	756
11/14/2007	700	1589	165	25.6	28.6	12	0	12	10,300	2,352
	800	1589	165	25.6	28.6	12	0	12	10,300	2,460
	900	1589	165	25.6	28.2	19	0	19	10,300	2,578
	1000	1617	166	25.8	28.2	19	0	19	10,200	2,688
	1200	1658	168	25.8	28.2	19	0	19	10,150	2,910
	1300	1656	168	25.6	28.2	19	0	19	10,150	3,055
	1400	1661	169	25.6	28.2	19	0	19	10,360	3,164
	1500	1668	168	25.6	28.4	16	0	16	10,320	3,293
	1600	1660	169	25.6	28.2	19	0	19	10,050	3,403

Golden Gate Remediation Technology

SITE: Valero Gas Station and Mini Mart
ADDRESS: 15101 Freedom Ave., San Leandro, CA
PROJECT #: 2554

PERSONNEL: Jesse Acedillo

MTS OPERATIONAL DATA

DATE	TIME	OXIDIZER TEMPERATURE (F)	PUMP/AIR TEMPERATURE (F)	STINGER VACUUM (IN-Hg)	PUMP VACUUM (IN-Hg)	TOTAL FLOW (SCFM)	DILUTION FLOW (SCFM)	WELL FLOW (SCFM)	INFLUENT CONCENTRATION (PPMV)	WATER TOTALIZER
11/15/2007	700	1631	163	25.6	28.6	12	0	12	8,000	5,153
	800	1647	164	25.6	28.4	16	0	16	8,650	5,274
		end extraction from MW-3; begin extraction from MW-5								
	1000									
	1030	1613	167	26.2	28.6	12	0	12	5,670	5,310
	1100	1630	168	26.2	28.6	12	0	12	6,700	5,411
	1130	1639	169	26.2	28.8	9	0	9	6,810	5,445
	1200	1636	169	26.2	28.6	12	0	12	6,480	5,519
	1400	1629	169	26.2	28.6	12	0	12	5,490	5,775
11/16/2007	1030	1623	166	26.1	28.7	11	0	11	5,000	8,159
	1100	1616	166	26	28.7	11	0	11	4,930	8,231
	1200	1612	168	26	28.6	12	0	12	4,940	8,302
	1300	1602	169	26	28.6	12	0	12	4,840	8,445
		collected Post GW samples								

APPENDIX F

Chain of Custody Forms and Laboratory Reports

Chain of Custody Form and Laboratory Reports: Multi-Phase Extraction Sampling

CHAIN OF CUSTODY FORM

PAL Pacific Analytical Laboratory
851 West Midway Ave., Suite 201B
Alameda, CA 94501
510-864-0364 Telephone
510-864-0365 Fax

PAL Login# 71100006

Project No: 2554	Sampler: SA/EGW	Analyses/Method
Project Name: 1501 Freedom	Report To: Joyce Bobek	TPHg, BTEX/MTBE
	Company: SOMA Environmental Engineering, Inc.	
Turnaround Time: Standard	Tel: 925-734-6400 Fax: 925-734-6401	

Lab No.	Sample ID	Sampling Date	Time	Matrix: Soil	Water	Waste	# of Containers	Preservatives: HCL	H_2So4	HNO_3	ICE	Field Notes	TPHg	BTEX/MTBE
	MW-3	11-12-07	1115		X		4 VOAs	X			X		X	X
	MW-5	11-12-07	1120		X		4 VOAs	X			X		X	X

Sampler Remarks:	Relinquished by:	Date/Time:	Received by:	Date/Time:
	EGW 11-14-07 1000	11/14/07 1000		11/14/07 1000
	11-14-07	11-14-07 1046	V. Vasquez	11/14/07 10:46

PAL Pacific Analytical Laboratory
851 West Midway Ave. Suite 201
Alameda, CA 94501
Phone (510) 864-0364

20 November 2007

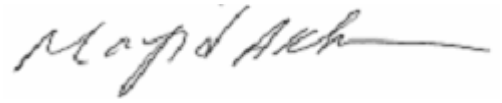
Mansour Sepehr
SOMA Environmental Engineering Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588

RE: 15101 Freedom Ave., San Leandro

Work Order Number: 7110006

This Laboratory report has been reviewed for technical correctness and completeness. This entire report was reviewed and approved by the Laboratory Director or the Director's designee, as verified by the following signature.

Sincerely,



Maiid Akhavan
Laboratorv Director

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	20-Nov-07 18:27

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	7110006-01	Water	12-Nov-07 11:15	14-Nov-07 10:16
MW-5	7110006-02	Water	12-Nov-07 11:20	14-Nov-07 10:16

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	20-Nov-07 18:27

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (7110006-01) Water Sampled: 12-Nov-07 11:15 Received: 14-Nov-07 10:16									
Gasoline (C6-C12)	**37200**	550	ug/l	11	BK71901	15-Nov-07	17-Nov-07	EPA 8260B	
Benzene	**2230**	5.50	"	"	"	"	"	"	
Ethylbenzene	**2040**	5.50	"	"	"	"	"	"	
m&p-Xylene	**3000**	22.0	"	"	"	"	"	"	
o-xylene	**1500**	5.50	"	"	"	"	"	"	
Toluene	**83.6**	22.0	"	"	"	"	"	"	
MTBE	**682**	5.50	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*107 %*		*70-130*		"	"	"	
Surrogate: Dibromofluoromethane		*108 %*		*70-130*		"	"	"	
Surrogate: Perdeuterotoluene		*104 %*		*70-130*		"	"	"	
MW-5 (7110006-02RE1) Water Sampled: 12-Nov-07 11:20 Received: 14-Nov-07 10:16									
Gasoline (C6-C12)	**5090**	215	ug/l	4.3	BK71901	15-Nov-07	19-Nov-07	EPA 8260B	
Benzene	**732**	2.15	"	"	"	"	"	"	
Ethylbenzene	**281**	2.15	"	"	"	"	"	"	
m&p-Xylene	**109**	8.60	"	"	"	"	"	"	
o-xylene	**18.5**	2.15	"	"	"	"	"	"	
Toluene	**13.5**	8.60	"	"	"	"	"	"	
MTBE	**315**	2.15	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*101 %*		*70-130*		"	"	"	
Surrogate: Dibromofluoromethane		*108 %*		*70-130*		"	"	"	
Surrogate: Perdeuterotoluene		*102 %*		*70-130*		"	"	"	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	20-Nov-07 18:27

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

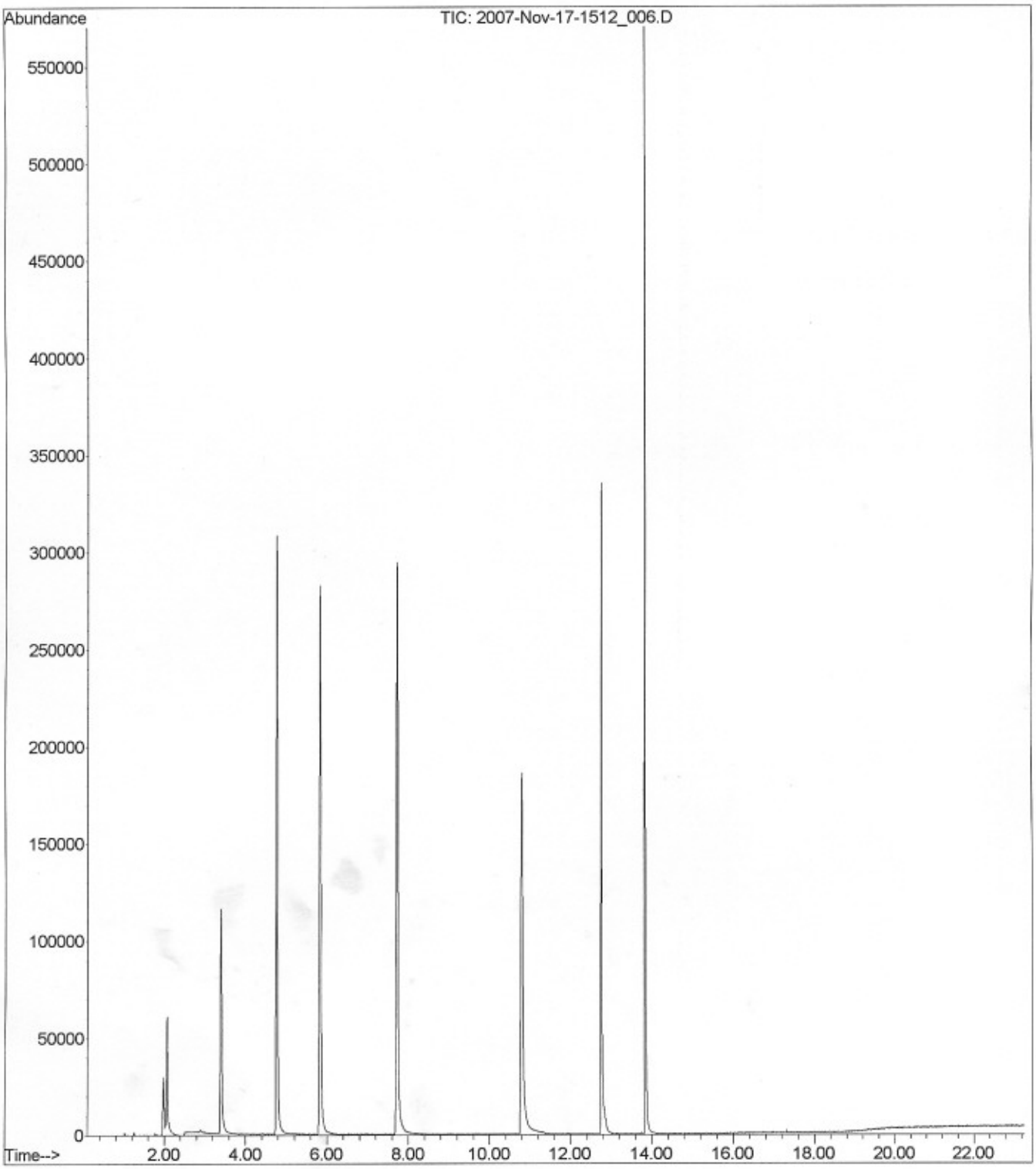
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BK71901 - EPA 5030 Water MS										
Blank (BK71901-BLK1)				Prepared & Analyzed: 19-Nov-07						
Surrogate: 4-Bromofluorobenzene	*42.8*		*ug/l*	*50.0*		*85.6*	*70-130*			
Surrogate: Dibromofluoromethane	*54.4*		*"*	*50.0*		*109*	*70-130*			
Surrogate: Perdeuterotoluene	*49.1*		*"*	*50.0*		*98.2*	*70-130*			
Gasoline (C6-C12)	ND	50.0	"							
Benzene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
m&p-Xylene	ND	2.00	"							
o-xylene	ND	0.500	"							
Toluene	ND	2.00	"							
MTBE	ND	0.500	"							
LCS (BK71901-BS1)				Prepared & Analyzed: 19-Nov-07						
Surrogate: 4-Bromofluorobenzene	*42.8*		*ug/l*	*50.0*		*85.6*	*70-130*			
Surrogate: Dibromofluoromethane	*39.2*		*"*	*50.0*		*78.4*	*70-130*			
Surrogate: Perdeuterotoluene	*50.4*		*"*	*50.0*		*101*	*70-130*			
Gasoline (C6-C12)	2180	50.0	"	2000		109	70-130			
Benzene	106	0.500	"	100		106	70-130			
Toluene	92.6	2.00	"	100		92.6	70-130			
MTBE	108	0.500	"	100		108	70-130			
LCS Dup (BK71901-BSD1)				Prepared & Analyzed: 19-Nov-07						
Surrogate: 4-Bromofluorobenzene	*41.2*		*ug/l*	*50.0*		*82.4*	*70-130*			
Surrogate: Dibromofluoromethane	*40.7*		*"*	*50.0*		*81.4*	*70-130*			
Surrogate: Perdeuterotoluene	*49.5*		*"*	*50.0*		*99.0*	*70-130*			
Gasoline (C6-C12)	1980	50.0	"	2000		99.0	70-130	9.62	20	
Benzene	113	0.500	"	100		113	70-130	6.39	20	
Toluene	99.5	2.00	"	100		99.5	70-130	7.18	20	
MTBE	106	0.500	"	100		106	70-130	1.87	20	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	20-Nov-07 18:27

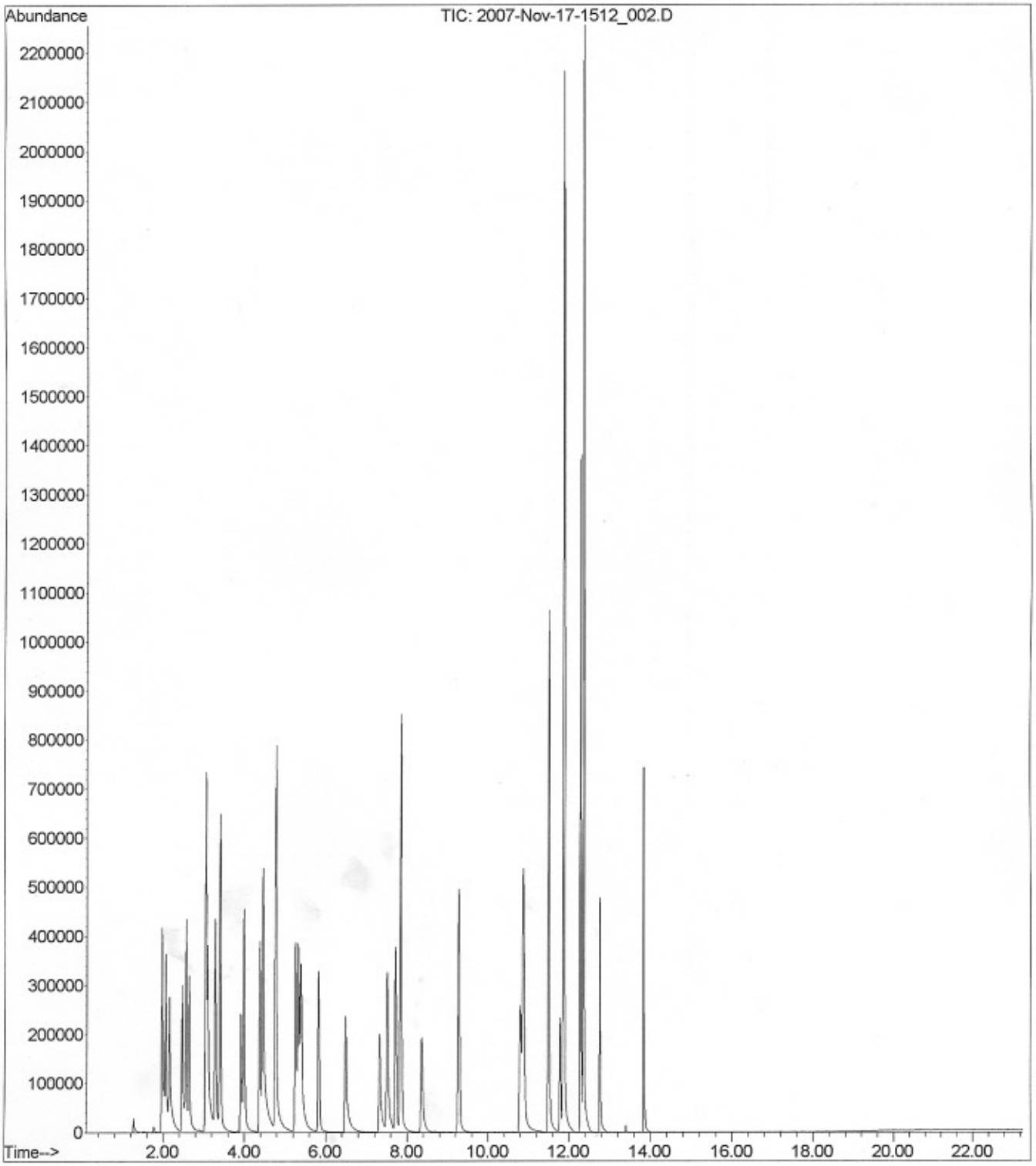
Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

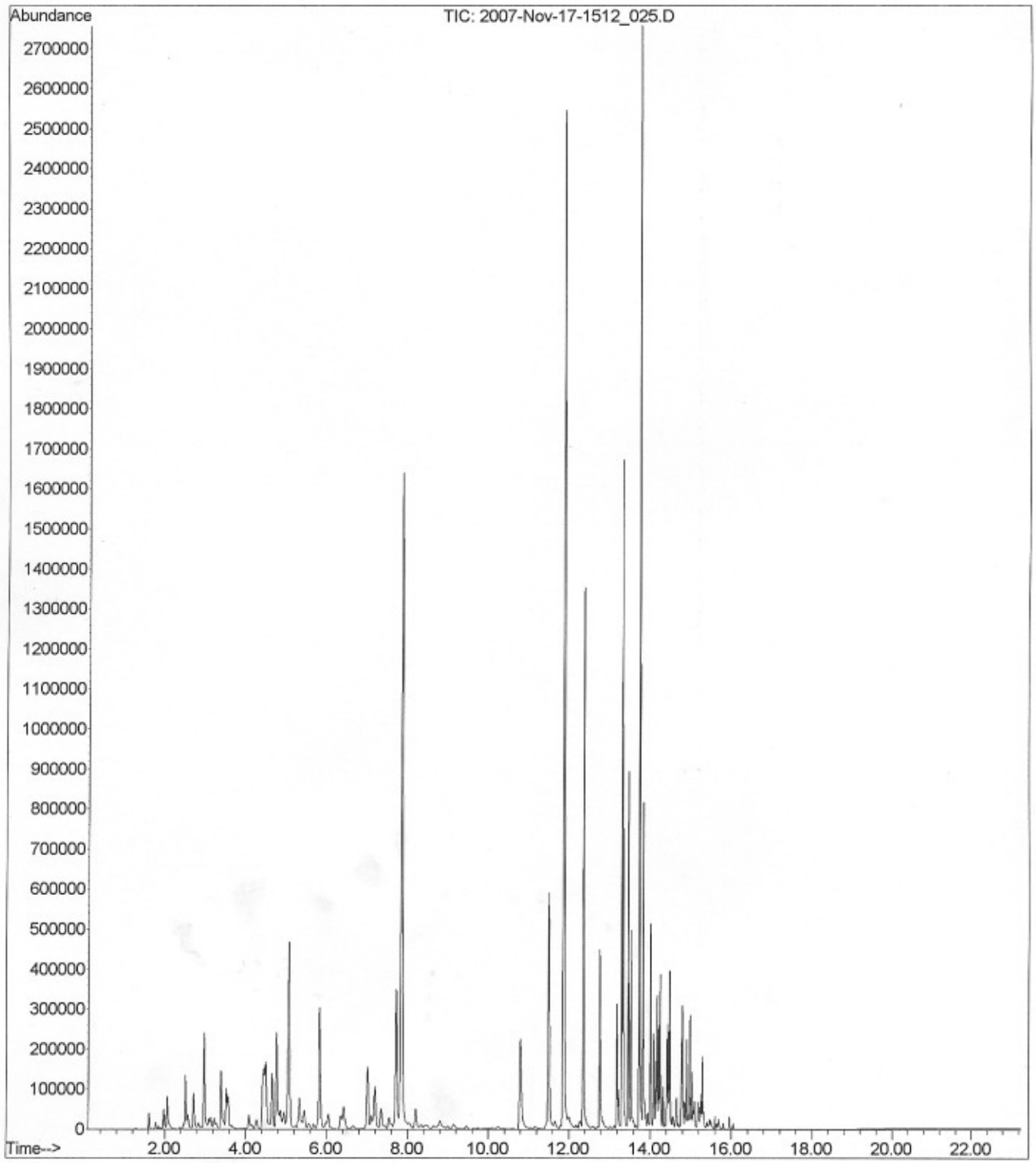
File :C:\MSDChem\1\DATA\2007-Nov-17-1512.b\2007-Nov-17-1512_006.D
Operator : dh
Acquired : 17 Nov 2007 6:33 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BK71901-BLK1
Misc Info :
Vial Number: 7



File :C:\MSDChem\1\DATA\2007-Nov-17-1512.b\2007-Nov-17-1512_002.D
Operator : dh
Acquired : 17 Nov 2007 4:28 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BK71901-BS1@voc
Misc Info :
Vial Number: 3



File :C:\MSDChem\1\DATA\2007-Nov-17-1512.b\2007-Nov-17-1512_025.D
Operator : dh
Acquired : 18 Nov 2007 4:26 am using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BK71901-BS1@gas
Misc Info :
Vial Number: 26



Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Mansour Sepehr
Collected by: (Print and Sign) J. Acedillo Bob Bobek for J. Acedillo
Company SOMA Environmental Email jbobek@somaenv.com
Address 6620 Owens Dr. Suite A City Pleasanton State CA Zip 94588
Phone (925) 734-6400 Fax (925) 734-6401

Project Info:
P.O. # 2554
Project # 2554
Project Name 15101 Freedom Ave.

Turn Around Time:
☐ Normal
☒ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	MW-3 Stack	1	11.14.07	0650	TO-3 ; TO-15				
02A	MW-3 Influent	1	11.14.07	0655	TO-3 ; TO-15				

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Bob Bobek	Nov 15,07 10:00am	[signature]	Nov 15,07 10:01am
[signature]	Nov 15,07 10:30am	[signature]	11/15/07 10:31am
[signature]	11/15/07 12:40pm	CM Work	11/15/07 1240

Notes: EDF req.

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Hir Delivery	240452	NA	Good	Yes No (None)	0711307

Form 1293 rev.11

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0711307A

Work Order Summary

CLIENT:	Mr. Jesse Acedillo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588	**BILL TO:**	Mr. Jesse Acedillo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588
PHONE:	925-734-6400	**P.O. #**	2554
FAX:	925-734-6401	**PROJECT #**	2554 15101 Freedom Ave.
DATE RECEIVED:	11/15/2007	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/30/2007		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	MW-3 Stack	Modified TO-15	Tedlar Bag
02A	MW-3 Influent	Modified TO-15	Tedlar Bag
03A	Lab Blank	Modified TO-15	NA
04A	CCV	Modified TO-15	NA
05A	LCS	Modified TO-15	NA

CERTIFIED BY: Linda D. Fruman DATE: 11/30/07

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
SOMA Environmental
Workorder# 0711307A

Two 1 Liter Tedlar Bag samples were received on November 15, 2007. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Daily CCV	+- 30% Difference	</= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Samples MW-3 Stack and MW-3 Influent were transferred from Tedlar bags into summa canisters to extend the hold time from 72 hours to 14 days. Canister pressurization resulted in a dilution factor which was applied to all analytical results.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

The recovery of surrogate 1,2-Dichloroethane-d4 in sample MW-3 Influent was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: MW-3 Stack

Lab ID#: 0711307A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	1.0	34	3.9	130
Ethyl Benzene	1.0	3.7	4.5	16
m,p-Xylene	1.0	15	4.5	66
o-Xylene	1.0	8.2	4.5	36

Client Sample ID: MW-3 Influent

Lab ID#: 0711307A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Methyl tert-butyl ether	270	3600	970	13000
Benzene	270	65000	860	210000
Toluene	270	13000	1000	51000
Ethyl Benzene	270	11000	1200	49000
m,p-Xylene	270	26000	1200	110000
o-Xylene	270	6200	1200	27000

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: MW-3 Stack

Lab ID#: 0711307A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t112723**	**Date of Collection: 11/14/07**	
Dil. Factor:	**2.09**	**Date of Analysis: 11/28/07 03:35 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Methyl tert-butyl ether	1.0	Not Detected	3.8	Not Detected
Benzene	1.0	Not Detected	3.3	Not Detected
Toluene	1.0	34	3.9	130
Ethyl Benzene	1.0	3.7	4.5	16
m,p-Xylene	1.0	15	4.5	66
o-Xylene	1.0	8.2	4.5	36
tert-Butyl alcohol	4.2	Not Detected	13	Not Detected
Isopropyl ether	4.2	Not Detected	17	Not Detected
Ethyl-tert-butyl ether	4.2	Not Detected	17	Not Detected
tert-Amyl methyl ether	4.2	Not Detected	17	Not Detected

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	103	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: MW-3 Influent

Lab ID#: 0711307A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t112725**	**Date of Collection: 11/14/07**	
Dil. Factor:	**539**	**Date of Analysis: 11/28/07 05:31 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Methyl tert-butyl ether	270	3600	970	13000
Benzene	270	65000	860	210000
Toluene	270	13000	1000	51000
Ethyl Benzene	270	11000	1200	49000
m,p-Xylene	270	26000	1200	110000
o-Xylene	270	6200	1200	27000
tert-Butyl alcohol	1100	Not Detected	3300	Not Detected
Isopropyl ether	1100	Not Detected	4500	Not Detected
Ethyl-tert-butyl ether	1100	Not Detected	4500	Not Detected
tert-Amyl methyl ether	1100	Not Detected	4500	Not Detected

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Toluene-d8	114	70-130
1,2-Dichloroethane-d4	150 Q	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0711307A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t112705**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/07 12:26 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
tert-Butyl alcohol	2.0	Not Detected	6.1	Not Detected
Isopropyl ether	2.0	Not Detected	8.4	Not Detected
Ethyl-tert-butyl ether	2.0	Not Detected	8.4	Not Detected
tert-Amyl methyl ether	2.0	Not Detected	8.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0711307A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t112702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/07 09:05 AM**	

Compound	%Recovery
Methyl tert-butyl ether	115
Benzene	107
Toluene	107
Ethyl Benzene	106
m,p-Xylene	107
o-Xylene	107
tert-Butyl alcohol	105
Isopropyl ether	106
Ethyl-tert-butyl ether	114
tert-Amyl methyl ether	112

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0711307A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**t112703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/27/07 09:51 AM**	

Compound	**%Recovery**
Methyl tert-butyl ether	109
Benzene	112
Toluene	116
Ethyl Benzene	109
m,p-Xylene	111
o-Xylene	111
tert-Butyl alcohol	Not Spiked
Isopropyl ether	Not Spiked
Ethyl-tert-butyl ether	Not Spiked
tert-Amyl methyl ether	Not Spiked

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	99	70-130

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Mansour Sepehr

Collected by: (Print and Sign) J. Acedillo for J. Acedillo

Company SOMA Environmental Email jbobek@somaenv.com

Address 680 Ahern Dr. Suite A City Pleasanton State CA Zip 94588

Phone (925) 734-6400 Fax (925) 734-6401

Project Info:
P.O. # 2554
Project # 2554
Project Name 1510 Freedom Ave.

Turn Around Time:
☐ Normal
☒ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt Final (psi)
01A	MW-3 Stack	1	11.14.07	0650	TO-3 ; TO-15			
02A	MW-3 Influent	1	11.14.07	0655	TO-3 ; TO-15			

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
	Nov 15,07 10:00am		Nov 15,07 10:01am
	NOV 15,07 10:30am		11/15/07 10:31am
	11/15/07 12:40pm		11/15/07 12:40

Notes: EDF req.

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Hr Delivery	240452	NA	Good	Yes No None	0711307

Form 1226 rev. 1

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0711307B

Work Order Summary

CLIENT:	Mr. Jesse Acedillo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588	**BILL TO:**	Mr. Jesse Acedillo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588
PHONE:	925-734-6400	**P.O. #**	2554
FAX:	925-734-6401	**PROJECT #**	2554 15101 Freedom Ave.
DATE RECEIVED:	11/15/2007	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/30/2007		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	MW-3 Stack	Modified TO-3	Tedlar Bag
02A	MW-3 Influent	Modified TO-3	Tedlar Bag
02AA	MW-3 Influent Lab Duplicate	Modified TO-3	Tedlar Bag
03A	Lab Blank	Modified TO-3	NA
04A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda D. Fruman DATE: 11/30/07

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-3
SOMA Environmental
Workorder# 0711307B

Two 1 Liter Tedlar Bag samples were received on November 15, 2007. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	***TO-3***	***ATL Modifications***
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The recovery of surrogate Fluorobenzene in samples MW-3 Influent and MW-3 Influent Lab Duplicate was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/FID

Client Sample ID: MW-3 Stack

Lab ID#: 0711307B-01A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.025	0.10	0.12	0.51

Client Sample ID: MW-3 Influent

Lab ID#: 0711307B-02A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	14	58	7800	32000

Client Sample ID: MW-3 Influent Lab Duplicate

Lab ID#: 0711307B-02AA

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	14	58	7900	32000

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: MW-3 Stack

Lab ID#: 0711307B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6111519**	**Date of Collection: 11/14/07**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/15/07 07:32 PM**	

Compound	**Rpt. Limit (ppmv)**	**Rpt. Limit (uG/L)**	**Amount (ppmv)**	**Amount (uG/L)**
TPH (Gasoline Range)	0.025	0.10	0.12	0.51

Container Type: 1 Liter Tedlar Bag

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	97	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: MW-3 Influent

Lab ID#: 0711307B-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6111520**	**Date of Collection: 11/14/07**	
Dil. Factor:	**571**	**Date of Analysis: 11/15/07 08:00 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	14	58	7800	32000

Q = Exceeds Quality Control limits, due to matrix effects. Matrix effects confirmed by re-analysis.

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	235 Q	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: MW-3 Influent Lab Duplicate

Lab ID#: 0711307B-02AA

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6111521**	**Date of Collection: 11/14/07**	
Dil. Factor:	**571**	**Date of Analysis: 11/15/07 08:35 PM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	14	58	7900	32000

Q = Exceeds Quality Control limits, due to matrix effects. Matrix effects confirmed by re-analysis.

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	238 Q	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0711307B-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6111503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/15/07 02:04 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	88	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0711307B-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6111523**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/15/07 09:43 PM**	

Compound	**%Recovery**
TPH (Gasoline Range)	80

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	103	75-150

CHAIN OF CUSTODY FORM

PAL Pacific Analytical Laboratory
851 West Midway Ave., Suite 201B
Alameda, CA 94501
510-864-0364 Telephone
510-864-0365 Fax

PAL
Login# 7110008

Project No: 2554	Sampler: Eric Gassner-Wollhage
Project Name: 15101 Freedom Ave San Leandro	Report To: Jesse Acedillo
	Company: SOMA Environmental Engineering, Inc.
Turnaround Time: Standard	Tel: 925-734-6400 Fax: 925-734-6401

Analyses/Method: TPH-g, BTEX, MtBE; Gas Ox. + Lead Scavengers

Lab No.	Sample ID	Sampling Date	Sampling Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	HCL	H_2SO_4	HNO_3	ICE	Field Notes	TPH-g, BTEX, MtBE	Gas Ox. + Lead Scavengers						
	MW-3	11/16/07	13:45		X		4 VOAs	X			X	Grab sample	X	X						
	MW-5	11/16/07	1350		X		4 VOAs	X			X	"								

Sampler Remarks:	Relinquished by:	Date/Time:	Received by:	Date/Time:
EDF Req'd	[signature]	11/16/07 @ 1630	V. Vasquez	11/20/07 11:50 Am
	Jape Bobek	11/20/07 11:50 Am		

PAL Pacific Analytical Laboratory
851 West Midway Ave. Suite 201
Alameda, CA 94501 Phone (510) 864-0364

28 November 2007

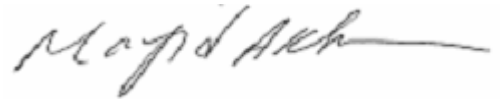
Mansour Sepehr
SOMA Environmental Engineering Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588

RE: 15101 Freedom Ave., San Leandro

Work Order Number: 7110008

This Laboratory report has been reviewed for technical correctness and completeness. This entire report was reviewed and approved by the Laboratory Director or the Director's designee, as verified by the following signature.

Sincerely,



Maiid Akhavan
Laboratory Director

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	28-Nov-07 18:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	7110008-01	Water	16-Nov-07 13:45	20-Nov-07 11:50
MW-5	7110008-02	Water	16-Nov-07 13:50	20-Nov-07 11:50

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	28-Nov-07 18:15

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (7110008-01) Water Sampled: 16-Nov-07 13:45 Received: 20-Nov-07 11:50									
Gasoline (C6-C12)	**5530**	1080	ug/l	21.5	BK72701	20-Nov-07	20-Nov-07	EPA 8260B	
Benzene	**3820**	10.8	"	"	"	"	"	"	
Ethylbenzene	**333**	10.8	"	"	"	"	"	"	
m&p-Xylene	**488**	43.0	"	"	"	"	"	"	
o-xylene	**227**	10.8	"	"	"	"	"	"	
Toluene	**99.4**	43.0	"	"	"	"	"	"	
MTBE	**797**	10.8	"	"	"	"	"	"	
DIPE	ND	10.8	"	"	"	"	"	"	
ETBE	ND	10.8	"	"	"	"	"	"	
TAME	**105**	43.0	"	"	"	"	"	"	
TBA	**458**	43.0	"	"	"	"	"	"	
1,2-Dibromoethan	ND	43.0	"	"	"	"	"	"	
1,2-dichloroethane	ND	10.8	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*77.4 %*		*70-130*		"	"	"	
Surrogate: Dibromofluoromethane		*77.8 %*		*70-130*		"	"	"	
Surrogate: Perdeuterotoluene		*88.0 %*		*70-130*		"	"	"	
MW-5 (7110008-02RE1) Water Sampled: 16-Nov-07 13:50 Received: 20-Nov-07 11:50									
Gasoline (C6-C12)	**1570**	1080	ug/l	21.5	BK72701	20-Nov-07	26-Nov-07	EPA 8260B	
Benzene	**1830**	10.8	"	"	"	"	"	"	
Ethylbenzene	**51.5**	10.8	"	"	"	"	"	"	
m&p-Xylene	ND	43.0	"	"	"	"	"	"	
o-xylene	**18.0**	10.8	"	"	"	"	"	"	
Toluene	ND	43.0	"	"	"	"	"	"	
MTBE	**4140**	10.8	"	"	"	"	"	"	
DIPE	ND	10.8	"	"	"	"	"	"	
ETBE	ND	10.8	"	"	"	"	"	"	
TAME	**1180**	43.0	"	"	"	"	"	"	
TBA	**5440**	43.0	"	"	"	"	"	"	
1,2-Dibromoethan	ND	43.0	"	"	"	"	"	"	
1,2-dichloroethane	ND	10.8	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*76.6 %*		*70-130*		"	"	"	
Surrogate: Dibromofluoromethane		*73.2 %*		*70-130*		"	"	"	
Surrogate: Perdeuterotoluene		*87.4 %*		*70-130*		"	"	"	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	28-Nov-07 18:15

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	28-Nov-07 18:15

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BK72701 - EPA 5030 Water MS										
Blank (BK72701-BLK1)				Prepared & Analyzed: 27-Nov-07						
Surrogate: 4-Bromofluorobenzene	*38.2*		*ug/l*	*50.0*		*76.4*	*70-130*			
Surrogate: Dibromofluoromethane	*39.4*		*"*	*50.0*		*78.8*	*70-130*			
Surrogate: Perdeuterotoluene	*45.9*		*"*	*50.0*		*91.8*	*70-130*			
MTBE	ND	0.500	"							
DIPE	ND	0.500	"							
ETBE	ND	0.500	"							
TAME	ND	2.00	"							
Gasoline (C6-C12)	ND	50.0	"							
TBA	ND	2.00	"							
1,2-Dibromoethan	ND	2.00	"							
1,2-dichloroethane	ND	0.500	"							
Benzene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
m&p-Xylene	ND	2.00	"							
o-xylene	ND	0.500	"							
Toluene	ND	2.00	"							
LCS (BK72701-BS1)				Prepared & Analyzed: 27-Nov-07						
Surrogate: 4-Bromofluorobenzene	*48.0*		*ug/l*	*50.0*		*96.0*	*70-130*			
Surrogate: Dibromofluoromethane	*38.6*		*"*	*50.0*		*77.2*	*70-130*			
Surrogate: Perdeuterotoluene	*51.7*		*"*	*50.0*		*103*	*70-130*			
MTBE	105	0.500	"	100		105	70-130			
ETBE	103	0.500	"	100		103	70-130			
Gasoline (C6-C12)	1760	50.0	"	2000		88.0	70-130			
TBA	484	2.00	"	500		96.8	70-130			
Benzene	103	0.500	"	100		103	70-130			
Toluene	88.0	2.00	"	100		88.0	70-130			

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	28-Nov-07 18:15

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

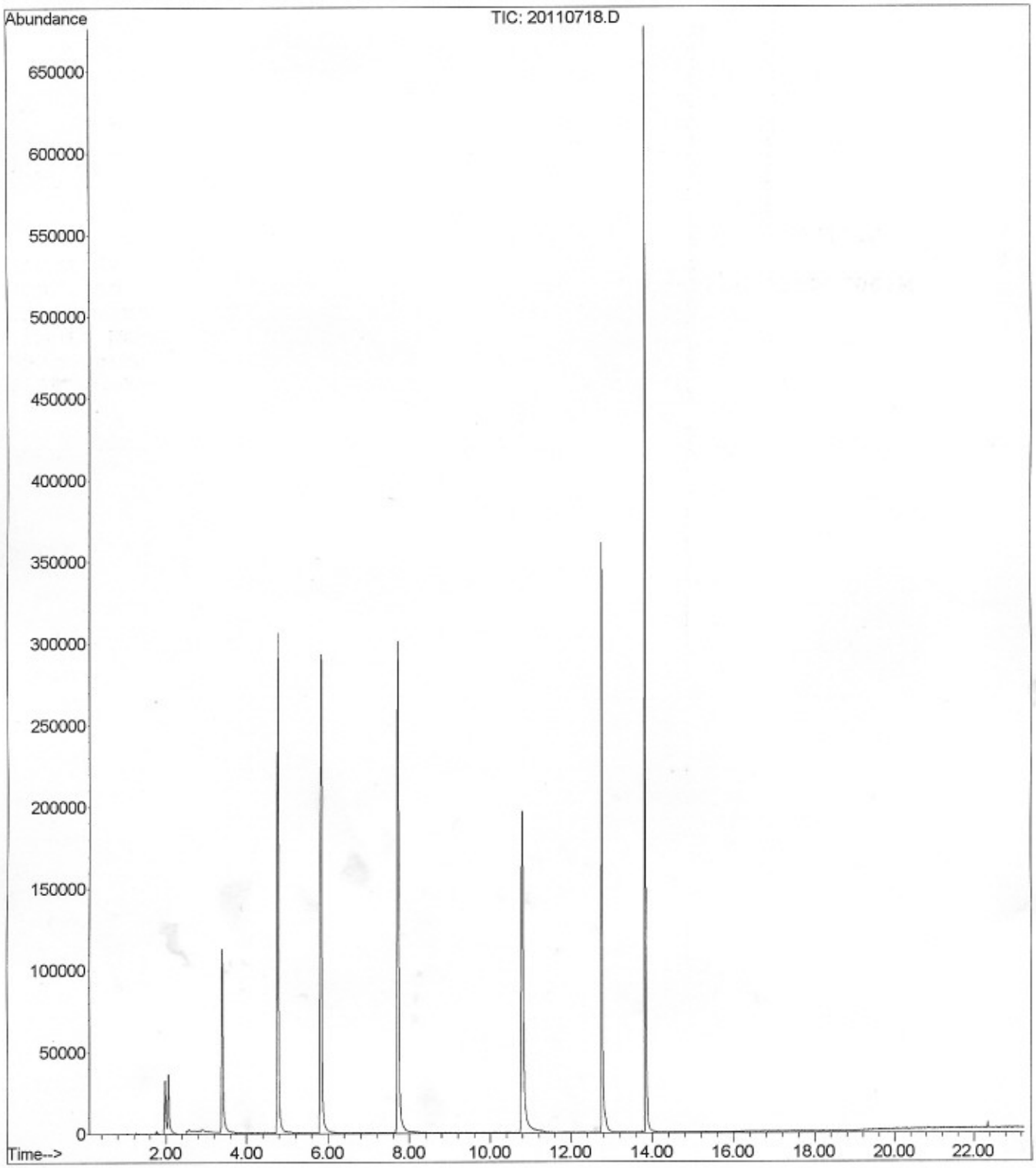
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BK72701 - EPA 5030 Water MS										
LCS Dup (BK72701-BSD1)				Prepared & Analyzed: 27-Nov-07						
Surrogate: 4-Bromofluorobenzene	*47.4*		*ug/l*	*50.0*		*94.8*	*70-130*			
Surrogate: Dibromofluoromethane	*41.1*		*"*	*50.0*		*82.2*	*70-130*			
Surrogate: Perdeuterotoluene	*51.3*		*"*	*50.0*		*103*	*70-130*			
MTBE	107	0.500	"	100		107	70-130	1.89	20	
ETBE	111	0.500	"	100		111	70-130	7.48	20	
TBA	523	2.00	"	500		105	70-130	7.75	20	
Gasoline (C6-C12)	2130	50.0	"	2000		106	70-130	19.0	20	
Benzene	120	0.500	"	100		120	70-130	15.2	20	
Toluene	104	2.00	"	100		104	70-130	16.7	20	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2554	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	28-Nov-07 18:15

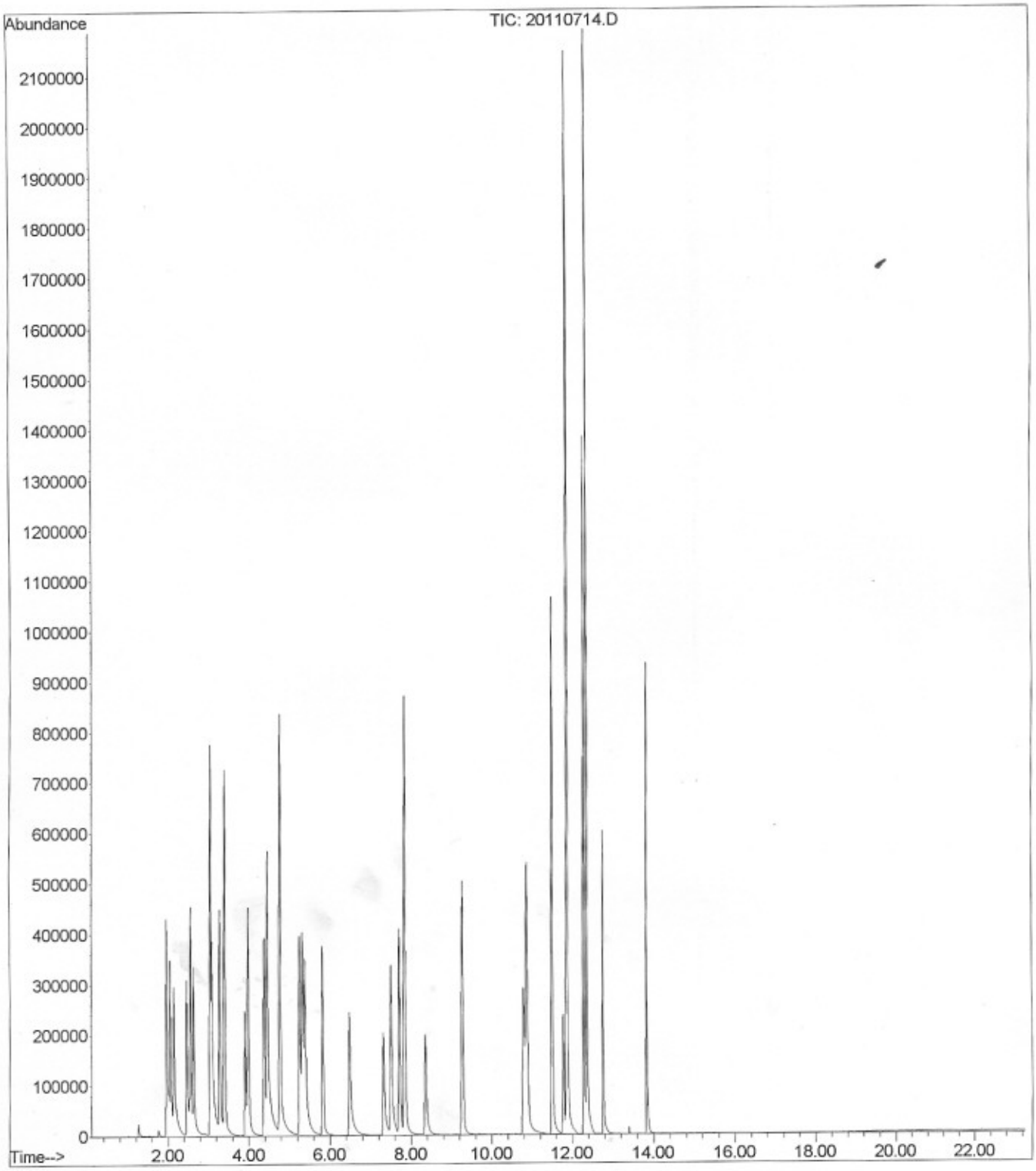
Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

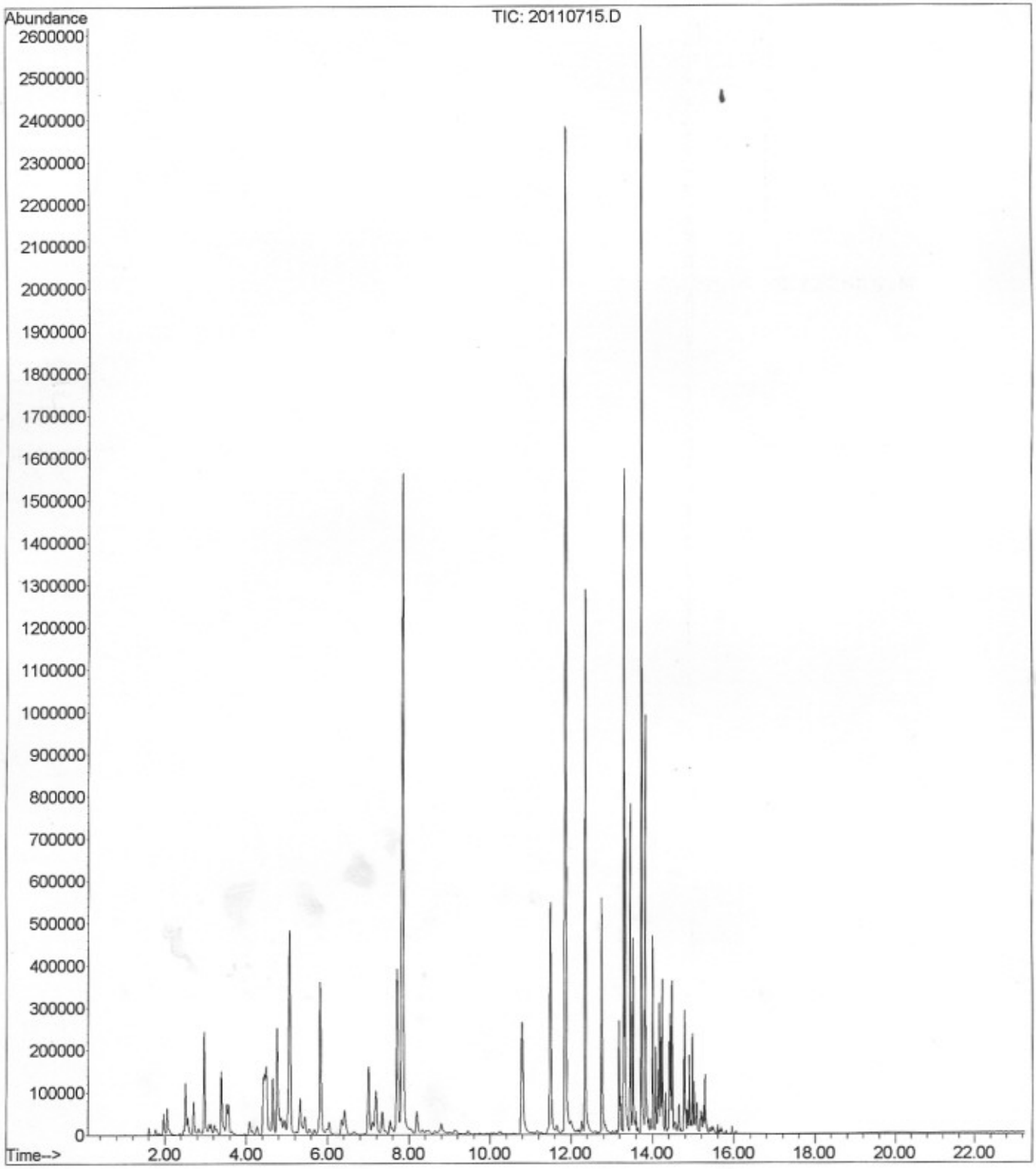
File :C:\MSDChem\1\DATA\2007-Nov-20-1718.b\20110718.D
Operator : dh
Acquired : 26 Nov 2007 9:01 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BK72701-BLK1
Misc Info :
Vial Number: 18



File :C:\MSDChem\1\DATA\2007-Nov-20-1718.b\20110714.D
Operator : dh
Acquired : 26 Nov 2007 6:57 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BK72701-BS1@voc
Misc Info :
Vial Number: 14



File :C:\MSDChem\1\DATA\2007-Nov-20-1718.b\20110715.D
Operator : dh
Acquired : 26 Nov 2007 7:28 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BK72701-BS1@gas
Misc Info :
Vial Number: 15



Chain of Custody Forms and Laboratory Reports: Additional Investigation Sampling

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager MANSOUR SEPEHR

Collected by: (Print and Sign) ERIC GASSNER-WOLLMAN

Company SOMA ENVIL ENGRNG STE Email egassner@wollmanc.com

Address 6620 OWENS DR, A City PLEASANTON State CA Zip 94588

Phone (925) 734-6400 Fax (925) 734-6401

Project Info:
2552
Project # 15101 Freedom Ave San Leandro.
Project Name

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab ID	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psig)
01A	SGS-1	437	11/27/07	12:26	TO-3 (TPH-g)				
	"	"	"	"	TO-15 (BTEX, MTBE, GasOx)				
02A	SGS-2	13850	"	14:10	"				
	"	"	"	"	"				
03A	SGS-3	409	"	14:40	"				
	"	"	"	"	"				
04A	SGS-4	35289	"	16:15	"				
	"	"	"	"	"				
	PURGER	15286			NONE				

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
	11/27/07 5:10 pm		11-27-07 5:10pm
	11-28-07 0935	Monica Gregson ATL	11/28/07 900

Notes:
TRACER - ISO PROPYL ALCOHOL 70%

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex	8527 7152 5929	NA	Good	Yes No None	0711580

Form 1298 rev.11

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0711580B

Work Order Summary

CLIENT:	Ms. Elena Manzo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588	**BILL TO:**	Ms. Elena Manzo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588
PHONE:	925-734-6400	**P.O. #**	
FAX:	925-734-6401	**PROJECT #**	2552 15101 Freedom Ave. San Leandro.
DATE RECEIVED:	11/29/2007	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	12/12/2007		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	SGS-1	Modified TO-3	4.0 "Hg
02A	SGS-2	Modified TO-3	4.0 "Hg
03A	SGS-3	Modified TO-3	1.5 "Hg
04A	SGS-4	Modified TO-3	5.5 "Hg
04AA	SGS-4 Lab Duplicate	Modified TO-3	5.5 "Hg
05A	Lab Blank	Modified TO-3	NA
06A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda J. Fruman DATE: 12/12/07

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
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LABORATORY NARRATIVE
Modified TO-3
SOMA Environmental
Workorder# 0711580B

Four 6 Liter Summa Canister samples were received on November 29, 2007. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	***TO-3***	***ATL Modifications***
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The hydrocarbon profile present in samples SGS-1, SGS-2, and SGS-3 was heavier than that of commercial gasoline. Results were calculated using the response factor derived from the current gasoline linear calibration.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-3 GC/FID

Client Sample ID: SGS-1

Lab ID#: 0711580B-01A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.039	0.16	0.52	2.1

Client Sample ID: SGS-2

Lab ID#: 0711580B-02A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.039	0.16	0.56	2.3

Client Sample ID: SGS-3

Lab ID#: 0711580B-03A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.035	0.14	0.34	1.4

Client Sample ID: SGS-4

Lab ID#: 0711580B-04A

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.041	0.17	0.10	0.42

Client Sample ID: SGS-4 Lab Duplicate

Lab ID#: 0711580B-04AA

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.041	0.17	0.11	0.44

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Client Sample ID: SGS-1

Lab ID#: 0711580B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120304**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.55**	**Date of Analysis: 12/3/07 02:13 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.039	0.16	0.52	2.1

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	91	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-2

Lab ID#: 0711580B-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120305**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.55**	**Date of Analysis: 12/3/07 02:41 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.039	0.16	0.56	2.3

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	96	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-3

Lab ID#: 0711580B-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120306**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.41**	**Date of Analysis: 12/3/07 03:10 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.035	0.14	0.34	1.4

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	93	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-4

Lab ID#: 0711580B-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120307**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.64**	**Date of Analysis: 12/3/07 03:37 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.041	0.17	0.10	0.42

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	90	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-4 Lab Duplicate

Lab ID#: 0711580B-04AA

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120308**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.64**	**Date of Analysis: 12/3/07 04:04 AM**	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.041	0.17	0.11	0.44

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	90	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0711580B-05A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/3/07 01:23 AM**	

Compound	**Rpt. Limit (ppmv)**	**Rpt. Limit (uG/L)**	**Amount (ppmv)**	**Amount (uG/L)**
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	103	75-150

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0711580B-06A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	**6120328**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/3/07 07:53 PM**	

Compound	**%Recovery**
TPH (Gasoline Range)	98

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Fluorobenzene (FID)	108	75-150

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager MANSOUR SEPEHR

Collected by: (Print and Sign) ERIC GASSNER-WOLLMAN

Company SOMA ENVIL ENGRNG STE Email egassner@wollmanc.com

Address 6620 OWENS DR, A City PLEASANTON State CA Zip 94588

Phone (925) 734-6400 Fax (925) 734-6401

Project Info:
2552
Project # 15101 Freedom Ave San Leandro.
Project Name

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N2 He

Lab ID	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psig)
01A	SGS-1	437	11/27/07	12:26	TO-3 (TPH-g)				
	"	"	"	"	TO-15 (BTEX, MTBE, GasOx)				
02A	SGS-2	13850	"	14:10	"				
	"	"	"	"	"				
03A	SGS-3	409	"	14:40	"				
	"	"	"	"	"				
04A	SGS-4	35289	"	16:15	"				
	"	"	"	"	"				
	PURGER	15286			NONE				

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
	11/27/07 5:10 pm		11-27-07 5:10pm
	11-28-07 0935	Monica Gregson ATL	11/28/07 900

Notes:
TRACER - ISO PROPYL ALCOHOL 70%

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex	8527 7152 5929	NA	Good	Yes No None	0711580

Form 1298 rev.11

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0711580A

Work Order Summary

CLIENT:	Ms. Elena Manzo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588	**BILL TO:**	Ms. Elena Manzo SOMA Environmental 6620 Owens Drive Suite A Pleasanton, CA 94588
PHONE:	925-734-6400	**P.O. #**	
FAX:	925-734-6401	**PROJECT #**	2552 15101 Freedom Ave. San Leandro.
DATE RECEIVED:	11/29/2007	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	12/13/2007		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	SGS-1	Modified TO-15	4.0 "Hg
02A	SGS-2	Modified TO-15	4.0 "Hg
03A	SGS-3	Modified TO-15	1.5 "Hg
04A	SGS-4	Modified TO-15	5.5 "Hg
05A	Lab Blank	Modified TO-15	NA
06A	CCV	Modified TO-15	NA
07A	LCS	Modified TO-15	NA

CERTIFIED BY: Linda J. Fruman DATE: 12/13/07

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/07, Expiration date: 06/30/08
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
SOMA Environmental
Workorder# 0711580A

Four 6 Liter Summa Canister samples were received on November 29, 2007. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Daily CCV	+- 30% Difference	</= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SGS-1

Lab ID#: 0711580A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.78	3.0	2.5	9.6
Toluene	0.78	17	2.9	65
Ethyl Benzene	0.78	6.8	3.4	29
m,p-Xylene	0.78	25	3.4	110
o-Xylene	0.78	9.2	3.4	40

Client Sample ID: SGS-2

Lab ID#: 0711580A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.78	1.8	2.5	5.7
Toluene	0.78	8.6	2.9	32
Ethyl Benzene	0.78	3.5	3.4	15
m,p-Xylene	0.78	14	3.4	60
o-Xylene	0.78	4.9	3.4	21

Client Sample ID: SGS-3

Lab ID#: 0711580A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	0.70	2.0	2.2	6.6
Toluene	0.70	50	2.6	190
Ethyl Benzene	0.70	3.0	3.1	13
m,p-Xylene	0.70	9.5	3.1	41
o-Xylene	0.70	2.9	3.1	12

Client Sample ID: SGS-4

Lab ID#: 0711580A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	0.82	4.3	3.1	16
m,p-Xylene	0.82	2.2	3.6	9.7

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-1

Lab ID#: 0711580A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121224**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.55**	**Date of Analysis: 12/13/07 05:27 AM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
2-Propanol	3.1	Not Detected	7.6	Not Detected
Methyl tert-butyl ether	0.78	Not Detected	2.8	Not Detected
Benzene	0.78	3.0	2.5	9.6
Toluene	0.78	17	2.9	65
Ethyl Benzene	0.78	6.8	3.4	29
m,p-Xylene	0.78	25	3.4	110
o-Xylene	0.78	9.2	3.4	40
tert-Butyl alcohol	3.1	Not Detected	9.4	Not Detected
Ethyl-tert-butyl ether	3.1	Not Detected	13	Not Detected
Isopropyl ether	3.1	Not Detected	13	Not Detected
tert-Amyl methyl ether	3.1	Not Detected	13	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	113	70-130
4-Bromofluorobenzene	104	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-2

Lab ID#: 0711580A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121225**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.55**	**Date of Analysis: 12/13/07 06:12 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	3.1	Not Detected	7.6	Not Detected
Methyl tert-butyl ether	0.78	Not Detected	2.8	Not Detected
Benzene	0.78	1.8	2.5	5.7
Toluene	0.78	8.6	2.9	32
Ethyl Benzene	0.78	3.5	3.4	15
m,p-Xylene	0.78	14	3.4	60
o-Xylene	0.78	4.9	3.4	21
tert-Butyl alcohol	3.1	Not Detected	9.4	Not Detected
Ethyl-tert-butyl ether	3.1	Not Detected	13	Not Detected
Isopropyl ether	3.1	Not Detected	13	Not Detected
tert-Amyl methyl ether	3.1	Not Detected	13	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	94	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	103	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-3

Lab ID#: 0711580A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121226**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.41**	**Date of Analysis: 12/13/07 07:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	2.8	Not Detected	6.9	Not Detected
Methyl tert-butyl ether	0.70	Not Detected	2.5	Not Detected
Benzene	0.70	2.0	2.2	6.6
Toluene	0.70	50	2.6	190
Ethyl Benzene	0.70	3.0	3.1	13
m,p-Xylene	0.70	9.5	3.1	41
o-Xylene	0.70	2.9	3.1	12
tert-Butyl alcohol	2.8	Not Detected	8.5	Not Detected
Ethyl-tert-butyl ether	2.8	Not Detected	12	Not Detected
Isopropyl ether	2.8	Not Detected	12	Not Detected
tert-Amyl methyl ether	2.8	Not Detected	12	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	103	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SGS-4

Lab ID#: 0711580A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121227**	**Date of Collection: 11/27/07**	
Dil. Factor:	**1.64**	**Date of Analysis: 12/13/07 08:00 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	3.3	Not Detected	8.1	Not Detected
Methyl tert-butyl ether	0.82	Not Detected	3.0	Not Detected
Benzene	0.82	Not Detected	2.6	Not Detected
Toluene	0.82	4.3	3.1	16
Ethyl Benzene	0.82	Not Detected	3.6	Not Detected
m,p-Xylene	0.82	2.2	3.6	9.7
o-Xylene	0.82	Not Detected	3.6	Not Detected
tert-Butyl alcohol	3.3	Not Detected	9.9	Not Detected
Ethyl-tert-butyl ether	3.3	Not Detected	14	Not Detected
Isopropyl ether	3.3	Not Detected	14	Not Detected
tert-Amyl methyl ether	3.3	Not Detected	14	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	95	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	101	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0711580A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121208**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/07 03:43 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	2.0	Not Detected	4.9	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
tert-Butyl alcohol	2.0	Not Detected	6.1	Not Detected
Ethyl-tert-butyl ether	2.0	Not Detected	8.4	Not Detected
Isopropyl ether	2.0	Not Detected	8.4	Not Detected
tert-Amyl methyl ether	2.0	Not Detected	8.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	92	70-130
1,2-Dichloroethane-d4	114	70-130
4-Bromofluorobenzene	106	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0711580A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121202**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/07 09:03 AM**	

Compound	**%Recovery**
2-Propanol	91
Methyl tert-butyl ether	96
Benzene	114
Toluene	108
Ethyl Benzene	103
m,p-Xylene	105
o-Xylene	104
tert-Butyl alcohol	110
Ethyl-tert-butyl ether	115
Isopropyl ether	110
tert-Amyl methyl ether	117

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	112	70-130
4-Bromofluorobenzene	107	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0711580A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**7121204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/12/07 11:26 AM**	

Compound	**%Recovery**
2-Propanol	60
Methyl tert-butyl ether	111
Benzene	125
Toluene	121
Ethyl Benzene	108
m,p-Xylene	110
o-Xylene	110
tert-Butyl alcohol	Not Spiked
Ethyl-tert-butyl ether	Not Spiked
Isopropyl ether	Not Spiked
tert-Amyl methyl ether	Not Spiked

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	108	70-130

CHAIN OF CUSTODY FORM

PAL Pacific Analytical Laboratory
851 West Midway Ave., Suite 201B
Alameda, CA 94501
510-864-0364 Telephone
510-864-0365 Fax

PAL
Login# 7120015

Project No: 2552	Sampler: Lizzie Hightower	Analyses/Method
Project Name: 15101 Freedom Ave. San Leandro	Report To: Rich McKinney	
	Company: SOMA Environmental Engineering, Inc.	
Turnaround Time: Standard	Tel: 925-734-6400 Fax: 925-734-6401	

		Sampling Date/Time		Matrix			# of Containers	Preservatives					TPH-g Method 8260B	BTEX Method 8260B	Gasoline Oxygenates Method 8260B					
Lab No.	Sample ID	Date	Time	Soil	Water	Waste		HCL	H_2So4	HNO_3	ICE	Field Notes								
	MW-1D @ 50'	12/17/07	1140	X			1- 6" Sleeve				X	Hold	X	X	X					
	MW-1D @ 55'	12/17/07	1205	X			1- 6" Sleeve				X	Hold	X	X	X					
	MW-1D @ 60'	12/17/07	1223	X			1- 6" Sleeve				X		X	X	X					
	MW-3D @ 50'	12/18/07	0925	X			1- 6" Sleeve				X	Hold	X	X	X					
	MW-3D @ 55'	12/18/07	0936	X			1- 6" Sleeve				X	Hold	X	X	X					
	MW-3D @ 60'	12/18/07	0957	X			1- 6" Sleeve				X		X	X	X					
	MW-4D @ 45'	12/18/07	1230	X			1- 6" Sleeve				X	Hold	X	X	X					
	MW-4D @ 50'	12/18/07	1330	X			1- 6" Sleeve				X	Hold	X	X	X					
	MW-4D @ 60'	12/18/07	1445	X			1- 6" Sleeve				X		X	X	X					

Sampler Remarks:	Relinquished by:	Date/Time:	Received by:	Date/Time:
EDF Output Required Samples to analyze: MW-1D @ 60', MW-3D @ 60', MW-4D @ 60' Please hold all other samples (MW-1D @ 50' and 55'; MW-3D @ 50' & 55'; MW-4D @ 45' and 50').	E. Hightower	12/19/07 1453	V. Vasquez	12/20/07 1620
	Received by: B. Bat	12/19/07 1453		
	Relinquished by: B. Bat	12/20/07 1620		

PAL Pacific Analytical Laboratory
851 West Midway Ave. Suite 201
Alameda, CA 94501
Phone (510) 864-0364

08 January 2008

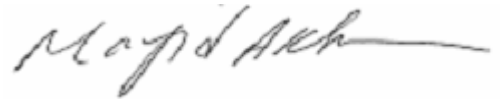
Mansour Sepehr
SOMA Environmental Engineering Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588

RE: 15101 Freedom Ave., San Leandro

Work Order Number: 7120015

This Laboratory report has been reviewed for technical correctness and completeness. This entire report was reviewed and approved by the Laboratory Director or the Director's designee, as verified by the following signature.

Sincerely,



Maiid Akhavan
Laboratory Director

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1D@60'	7120015-03	Soil	17-Dec-07 12:23	20-Dec-07 16:20
MW-3D@60'	7120015-06	Soil	18-Dec-07 09:57	20-Dec-07 16:20
MW-4D@60'	7120015-09	Soil	18-Dec-07 14:45	20-Dec-07 16:20

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1D@60' (7120015-03) Soil Sampled: 17-Dec-07 12:23 Received: 20-Dec-07 16:20									
Gasoline (C6-C12)	**59.75**	50.00	ug/kg	1	BA80602	20-Dec-07	03-Jan-08	EPA 8260B	
Benzene	ND	0.5000	"	"	"	"	"	"	
Ethylbenzene	ND	0.5000	"	"	"	"	"	"	
m&p-Xylene	ND	2.000	"	"	"	"	"	"	
o-xylene	ND	0.5000	"	"	"	"	"	"	
Toluene	ND	2.000	"	"	"	"	"	"	
MTBE	ND	0.500	"	"	"	"	20-Dec-07	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89.8 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*105 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*94.4 %*		*70-130*	"	"	"	"	
MW-3D@60' (7120015-06) Soil Sampled: 18-Dec-07 09:57 Received: 20-Dec-07 16:20									
Gasoline (C6-C12)	**55.44**	50.00	ug/kg	1	BA80602	20-Dec-07	03-Jan-08	EPA 8260B	
Benzene	ND	0.5000	"	"	"	"	"	"	
Ethylbenzene	ND	0.5000	"	"	"	"	"	"	
m&p-Xylene	ND	2.000	"	"	"	"	"	"	
o-xylene	ND	0.5000	"	"	"	"	"	"	
Toluene	ND	2.000	"	"	"	"	"	"	
MTBE	ND	0.500	"	"	"	"	20-Dec-07	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89.4 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*104 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*99.2 %*		*70-130*	"	"	"	"	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4D@60' (7120015-09) Soil Sampled: 18-Dec-07 14:45 Received: 20-Dec-07 16:20									
Gasoline (C6-C12)	**52.78**	50.00	ug/kg	1	BA80602	20-Dec-07	03-Jan-08	EPA 8260B	
Benzene	ND	0.5000	"	"	"	"	"	"	
Ethylbenzene	ND	0.5000	"	"	"	"	"	"	
m&p-Xylene	ND	2.000	"	"	"	"	"	"	
o-xylene	ND	0.5000	"	"	"	"	"	"	
Toluene	ND	2.000	"	"	"	"	"	"	
MTBE	ND	0.500	"	"	"	"	20-Dec-07	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.6 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*106 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*99.6 %*		*70-130*	"	"	"	"	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BA80602 - EPA 5030 Soil MS										
Blank (BA80602-BLK1)				Prepared & Analyzed: 06-Jan-08						
Surrogate: 4-Bromofluorobenzene	*42.0*		*ug/kg*	*50.0*		*84.0*	*70-130*			
Surrogate: Dibromofluoromethane	*50.0*		*"*	*50.0*		*100*	*70-130*			
Surrogate: Perdeuterotoluene	*48.4*		*"*	*50.0*		*96.8*	*70-130*			
MTBE	ND	0.500	"							
DIPE	ND	0.500	"							
ETBE	ND	0.500	"							
TAME	ND	2.00	"							
TBA	ND	2.00	"							
Gasoline (C6-C12)	ND	50.00	"							
1,2-dichloroethane	ND	0.500	"							
1,2-Dibromoethane (EDB)	ND	0.500	"							
Benzene	ND	0.5000	"							
Ethylbenzene	ND	0.5000	"							
m&p-Xylene	ND	2.000	"							
o-xylene	ND	0.5000	"							
Toluene	ND	2.000	"							
LCS (BA80602-BS1)				Prepared & Analyzed: 06-Jan-08						
Surrogate: 4-Bromofluorobenzene	*45.9*		*ug/kg*	*50.0*		*91.8*	*70-130*			
Surrogate: Dibromofluoromethane	*49.2*		*"*	*50.0*		*98.4*	*70-130*			
Surrogate: Perdeuterotoluene	*51.0*		*"*	*50.0*		*102*	*70-130*			
MTBE	104	0.500	"	100		104	60-130			
ETBE	71.4	0.500	"	100		71.4	65-130			
TAME	91.9	2.00	"	100		91.9	70-130			
Gasoline (C6-C12)	2320	50.00	"	2000		116	70-130			
TBA	329	2.00	"	500		65.8	65-130			
Benzene	82.3	0.5000	"	100		82.3	70-135			
Toluene	81.8	2.000	"	100		81.8	70-130			

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BA80602 - EPA 5030 Soil MS										
LCS Dup (BA80602-BSD1)				Prepared & Analyzed: 06-Jan-08						
Surrogate: 4-Bromofluorobenzene	*45.1*		*ug/kg*	*50.0*		*90.2*	*70-130*			
Surrogate: Dibromofluoromethane	*50.2*		*"*	*50.0*		*100*	*70-130*			
Surrogate: Perdeuterotoluene	*49.8*		*"*	*50.0*		*99.6*	*70-130*			
MTBE	124	0.500	"	100		124	60-130	17.5	20	
ETBE	92.7	0.500	"	100		92.7	65-130	26.0	20	QR-02
TAME	125	2.00	"	100		125	70-130	30.5	20	QR-02
TBA	406	2.00	"	500		81.2	65-130	21.0	20	QR-02
Gasoline (C6-C12)	1800	50.00	"	2000		90.0	70-130	25.2	20	QR-02
Benzene	91.4	0.5000	"	100		91.4	70-135	10.5	20	
Toluene	89.2	2.000	"	100		89.2	70-130	8.65	20	
Matrix Spike (BA80602-MS1)		**Source: 7120015-06**		Prepared & Analyzed: 06-Jan-08						
Surrogate: 4-Bromofluorobenzene	*46.0*		*ug/kg*	*50.0*		*92.0*	*70-130*			
Surrogate: Dibromofluoromethane	*51.8*		*"*	*50.0*		*104*	*70-130*			
Surrogate: Perdeuterotoluene	*50.6*		*"*	*50.0*		*101*	*70-130*			
MTBE	12.7	0.500	"	100	ND	12.7	70-130			QM-05
DIPE	8.27	0.500	"	100	ND	8.27	70-130			QM-05
ETBE	13.7	0.500	"	100	ND	13.7	70-130			QM-05
TAME	16.8	2.00	"	100	1.70	15.1	70-130			QM-05
TBA	133	2.00	"	500	ND	26.6	70-130			QM-05
Gasoline (C6-C12)	ND	50.00	"		55.44		70-130			
Benzene	11.5	0.5000	"	100	ND	11.5	70-140			QM-05
Ethylbenzene	18.7	0.5000	"	100	ND	18.7	70-130			QM-05
m&p-Xylene	11.9	2.000	"	100	ND	11.9	70-130			QM-05
o-xylene	15.8	0.5000	"	100	ND	15.8	70-130			QM-05
Toluene	9.64	2.000	"	100	ND	9.64	70-130			QM-05
Matrix Spike Dup (BA80602-MSD1)		**Source: 7120015-06**		Prepared & Analyzed: 06-Jan-08						
Surrogate: 4-Bromofluorobenzene	*47.9*		*ug/kg*	*50.0*		*95.8*	*70-130*			
Surrogate: Dibromofluoromethane	*52.7*		*"*	*50.0*		*105*	*70-130*			
Surrogate: Perdeuterotoluene	*51.0*		*"*	*50.0*		*102*	*70-130*			
MTBE	65.0	0.500	"	100	ND	65.0	70-130	135	20	QM-05
DIPE	49.4	0.500	"	100	ND	49.4	70-130	143	20	QM-05
ETBE	55.6	0.500	"	100	ND	55.6	70-130	121	20	QM-05
TAME	68.9	2.00	"	100	1.70	67.2	70-130	122	20	QM-05
Gasoline (C6-C12)	ND	50.00	"		55.44		70-130		20	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

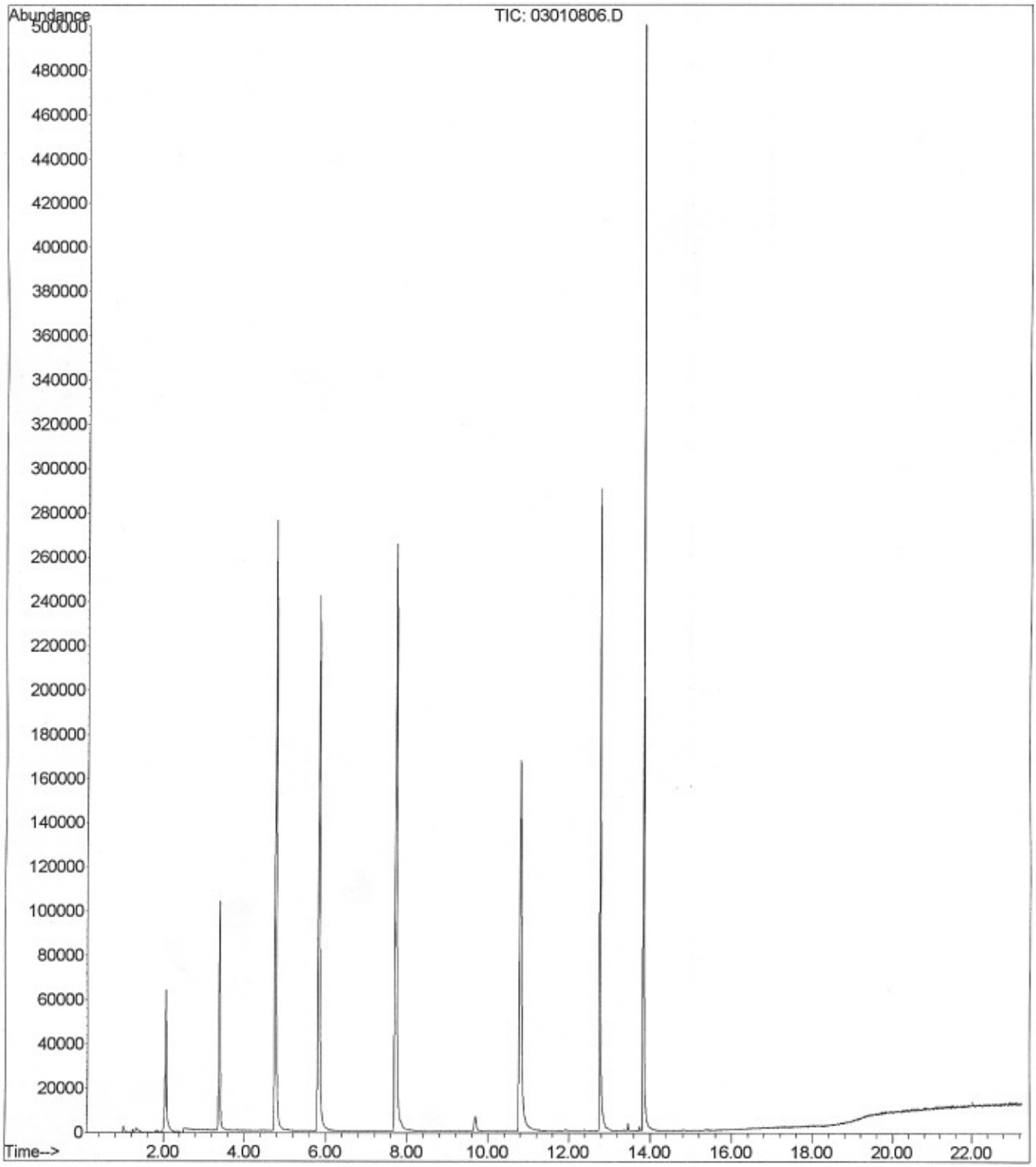
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BA80602 - EPA 5030 Soil MS										
Matrix Spike Dup (BA80602-MSD1)	**Source: 7120015-06**			Prepared & Analyzed: 06-Jan-08						
TBA	432	2.00	ug/kg	500	ND	86.4	70-130	106	20	QM-05
Benzene	46.4	0.5000	"	100	ND	46.4	70-140	121	20	QM-05
Ethylbenzene	55.2	0.5000	"	100	ND	55.2	70-130	98.8	20	QM-05
m&p-Xylene	41.2	2.000	"	100	ND	41.2	70-130	110	20	QM-05
o-xylene	47.9	0.5000	"	100	ND	47.9	70-130	101	20	QM-05
Toluene	45.3	2.000	"	100	ND	45.3	70-130	130	20	QM-05

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	08-Jan-08 18:58

Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

File :C:\MSDChem\1\DATA\2008-Jan-03-1800.b\03010806.D
Operator :
Acquired : 3 Jan 2008 9:11 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BA80602-BLK1
Misc Info :
Vial Number: 6



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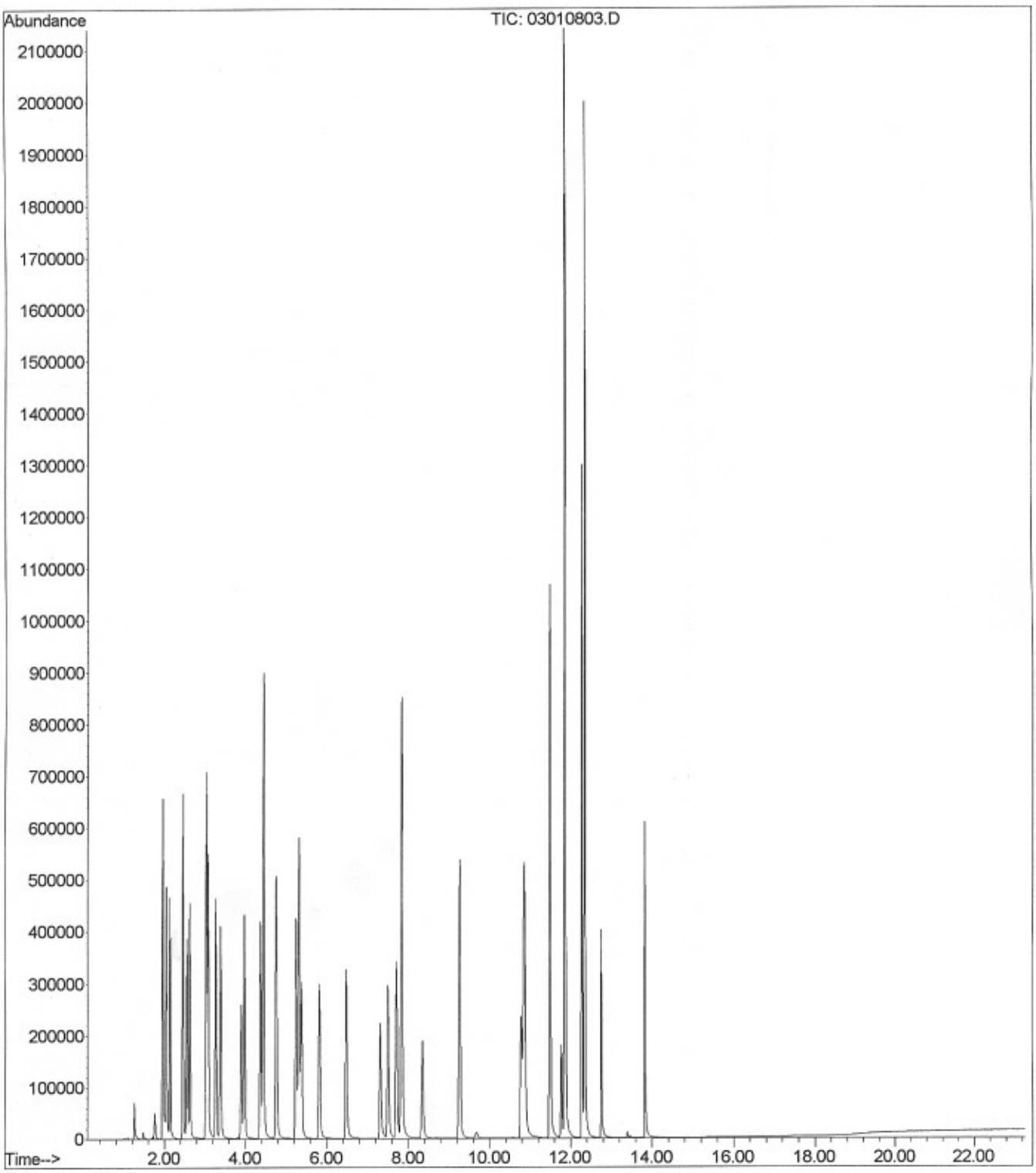
Instrument : PAL GCMS
Sample Name: BA80602-BS1@voc
Misc Info :
Vial Number: 3



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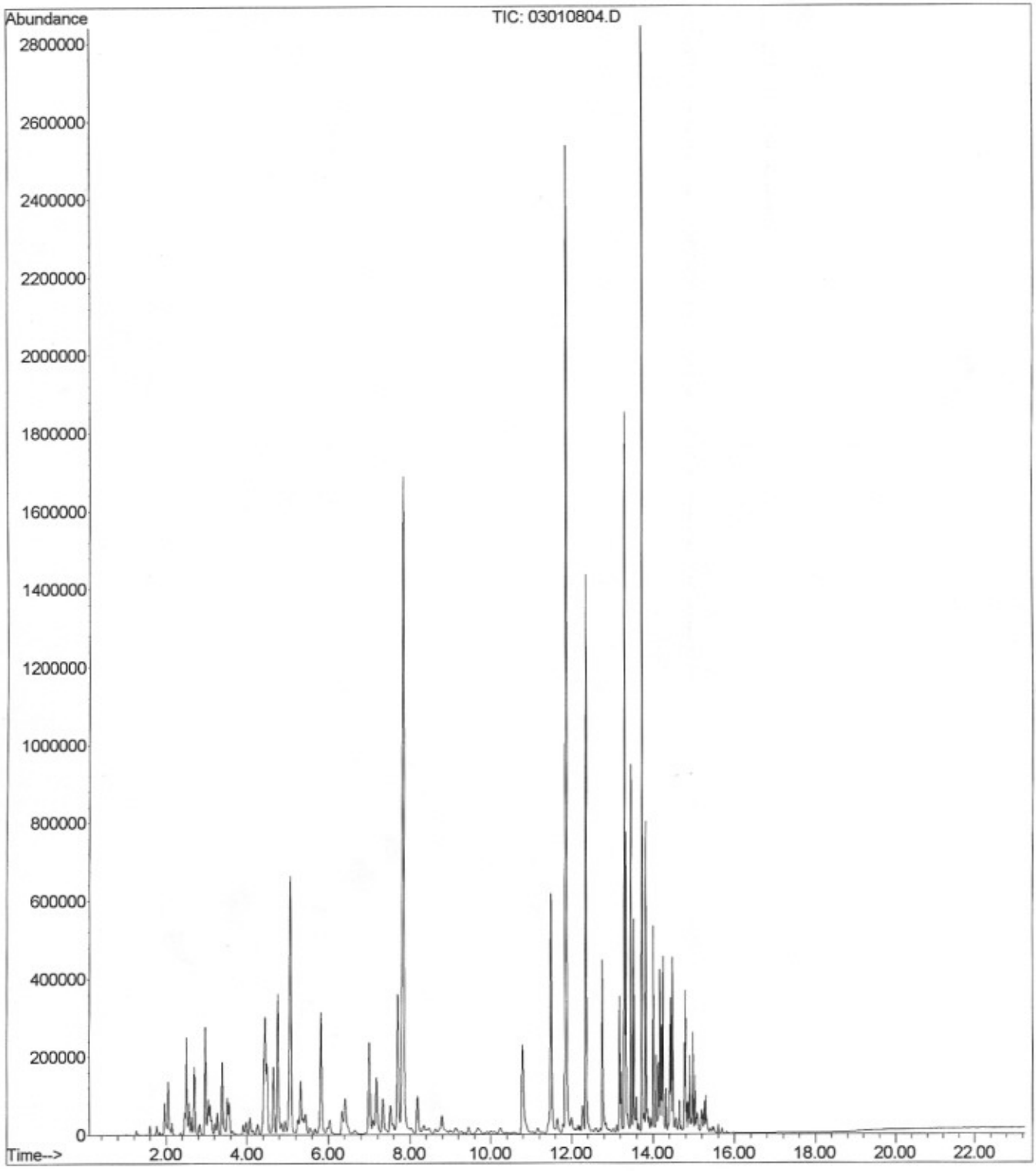
Operator :
Acquired : 3 Jan 2008 8:09 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BA80602-BS1@gas
Misc Info :
Vial Number: 4



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Operator :
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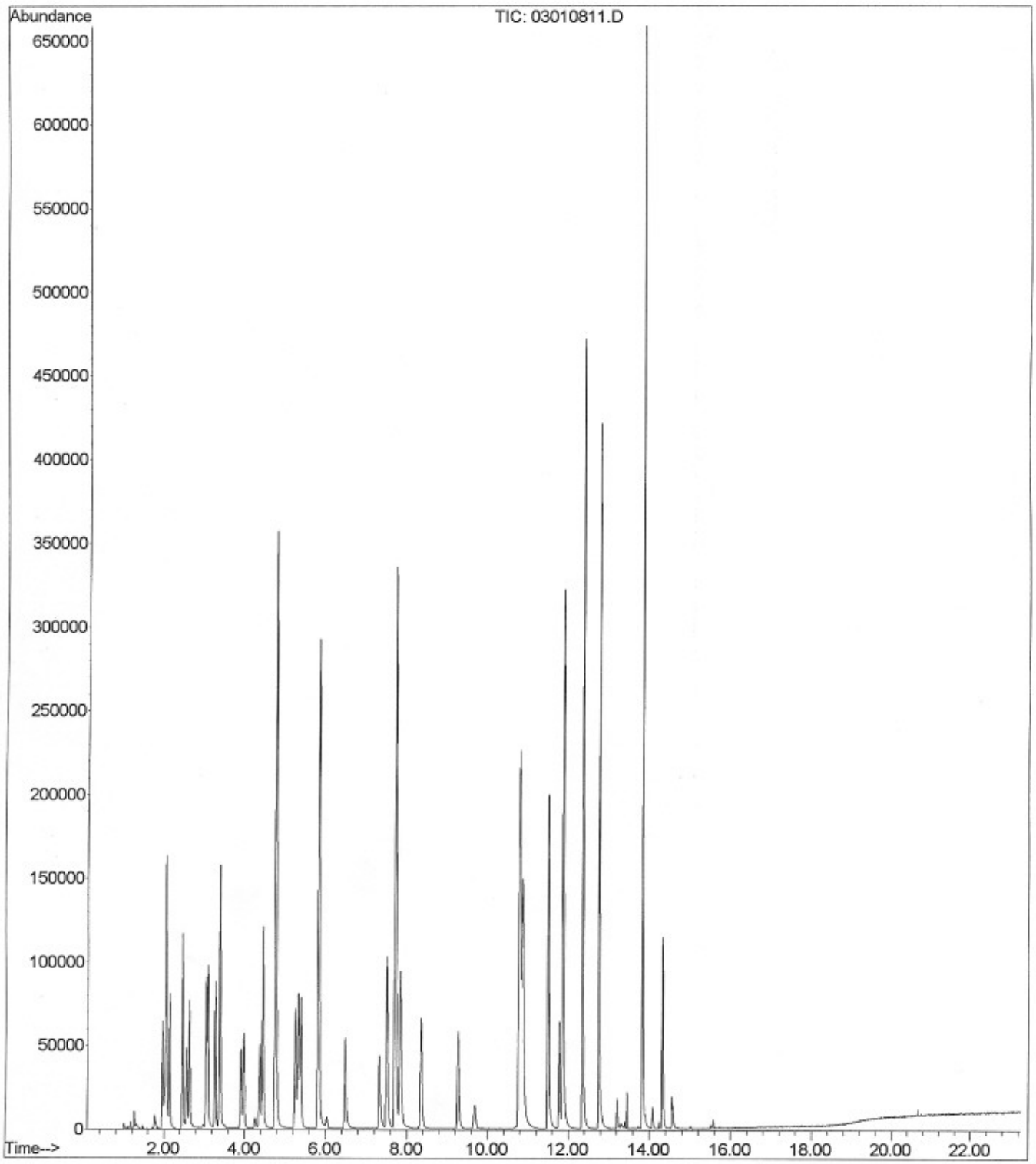
Instrument : PAL GCMS
Sample Name: BA80602-MS1
Misc Info :
Vial Number: 11



CHAIN OF CUSTODY FORM

Page 1 of 1

PAL Pacific Analytical Laboratory
851 West Midway Ave., Suite 201B
Alameda, CA 94501
510-864-0364 Telephone
510-864-0365 Fax

PAL
Login# 8010001

Project No: 2552
Sampler: ERIC GASSNER-WOLLLAGE
Project Name: 15101 FREEDOM AVE SAN LEANDRO
Report To: JOYCE GOBER
Company: SOMA Environmental Engineering, Inc.
Turnaround Time: Standard
Tel: 925-734-6400
Fax: 925-734-6401

Lab No.	Sample ID	Sampling Date/Time: Date	Time	Matrix: Soil	Water	Waste	# of Containers	Preservatives: HCL	H_2SO_4	HNO_3	ICE	Field Notes	Analyses/Method: TPH-g, BTEX, MTBE	Gas ox. + lead scavengers
	MW-1D	1/3/08	1235		X		3 VOAs	X			X		X	X
	MW-3D	1/3/08	1555		X		"	X			X		X	X
	MW-4D	1/4/08	953		X		"	X			X		X	X
	PW-1	1/3/08	1430		X		"	X			X	1573 153RD ST, private well	X	X

Sampler Remarks: EDF REQ'D

Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature]	1/4/08 1335 @	[signature]	1.4.08 1:55 PM

PAL Pacific Analytical Laboratory
851 West Midway Ave. Suite 201
Alameda, CA 94501 Phone (510) 864-0364

21 January 2008

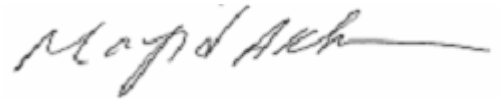
Mansour Sepehr
SOMA Environmental Engineering Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588

RE: 15101 Freedom Ave., San Leandro

Work Order Number: 8010001

This Laboratory report has been reviewed for technical correctness and completeness. This entire report was reviewed and approved by the Laboratory Director or the Director's designee, as verified by the following signature.

Sincerely,



Maiid Akhavan
Laboratorv Director

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	21-Jan-08 18:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1D	8010001-01	Water	03-Jan-08 12:35	04-Jan-08 15:46
MW-3D	8010001-02	Water	03-Jan-08 15:55	04-Jan-08 15:46
MW-4D	8010001-03	Water	04-Jan-08 09:53	04-Jan-08 15:46
PW-1	8010001-04	Water	03-Jan-08 14:30	04-Jan-08 15:46

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	21-Jan-08 18:05

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1D (8010001-01) Water Sampled: 03-Jan-08 12:35 Received: 04-Jan-08 15:46									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BL72701	04-Jan-08	06-Jan-08	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
MTBE	ND	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	**111**	2.00	"	"	"	"	"	"	
1,2-Dibromoethan	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.4 %*		*70-130*		*"*	*"*	*"*	*"*
Surrogate: Dibromofluoromethane		*97.2 %*		*70-130*		*"*	*"*	*"*	*"*
Surrogate: Perdeuterotoluene		*97.6 %*		*70-130*		*"*	*"*	*"*	*"*
MW-3D (8010001-02) Water Sampled: 03-Jan-08 15:55 Received: 04-Jan-08 15:46									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BL72701	04-Jan-08	07-Jan-08	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
MTBE	**87.6**	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	**3.12**	0.500	"	"	"	"	"	"	
TAME	**15.3**	2.00	"	"	"	"	"	"	
TBA	**37.3**	2.00	"	"	"	"	"	"	
1,2-Dibromoethan	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.4 %*		*70-130*		*"*	*"*	*"*	*"*
Surrogate: Dibromofluoromethane		*97.2 %*		*70-130*		*"*	*"*	*"*	*"*
Surrogate: Perdeuterotoluene		*97.4 %*		*70-130*		*"*	*"*	*"*	*"*

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	21-Jan-08 18:05

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4D (8010001-03) Water Sampled: 04-Jan-08 09:53 Received: 04-Jan-08 15:46									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BL72701	04-Jan-08	07-Jan-08	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
MTBE	ND	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	**25.0**	2.00	"	"	"	"	"	"	
1,2-Dibromoethan	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.6 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*97.6 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*97.8 %*		*70-130*	"	"	"	"	
PW-1 (8010001-04) Water Sampled: 03-Jan-08 14:30 Received: 04-Jan-08 15:46									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BL72701	04-Jan-08	07-Jan-08	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
m&p-Xylene	ND	2.00	"	"	"	"	"	"	
o-xylene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
MTBE	ND	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	**21.0**	2.00	"	"	"	"	"	"	
1,2-Dibromoethan	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*94.2 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*98.8 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*98.8 %*		*70-130*	"	"	"	"	

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	21-Jan-08 18:05

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BL72701 - EPA 5030 Water MS										
Blank (BL72701-BLK1)				Prepared & Analyzed: 27-Dec-07						
Surrogate: 4-Bromofluorobenzene	*45.9*		*ug/l*	*50.0*		*91.8*	*70-130*			
Surrogate: Dibromofluoromethane	*48.1*		*"*	*50.0*		*96.2*	*70-130*			
Surrogate: Perdeuterotoluene	*49.0*		*"*	*50.0*		*98.0*	*70-130*			
MTBE	ND	0.500	"							
DIPE	ND	0.500	"							
ETBE	ND	0.500	"							
TAME	ND	2.00	"							
Gasoline (C6-C12)	ND	50.0	"							
TBA	ND	2.00	"							
1,2-Dibromoethan	ND	2.00	"							
1,2-dichloroethane	ND	0.500	"							
Benzene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
m&p-Xylene	ND	2.00	"							
o-xylene	ND	0.500	"							
Toluene	ND	2.00	"							
LCS (BL72701-BS1)				Prepared & Analyzed: 27-Dec-07						
Surrogate: 4-Bromofluorobenzene	*48.6*		*ug/l*	*50.0*		*97.2*	*70-130*			
Surrogate: Dibromofluoromethane	*43.7*		*"*	*50.0*		*87.4*	*70-130*			
Surrogate: Perdeuterotoluene	*50.6*		*"*	*50.0*		*101*	*70-130*			
MTBE	80.8	0.500	"	100		80.8	70-130			
ETBE	83.2	0.500	"	100		83.2	70-130			
TBA	355	2.00	"	500		71.0	70-130			
Gasoline (C6-C12)	2150	50.0	"	2000		108	70-130			
Benzene	76.3	0.500	"	100		76.3	70-130			
Toluene	75.6	2.00	"	100		75.6	70-130			

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	21-Jan-08 18:05

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BL72701 - EPA 5030 Water MS										
LCS Dup (BL72701-BSD1)				Prepared & Analyzed: 27-Dec-07						
Surrogate: 4-Bromofluorobenzene	*48.2*		*ug/l*	*50.0*		*96.4*	*70-130*			
Surrogate: Dibromofluoromethane	*48.7*		*"*	*50.0*		*97.4*	*70-130*			
Surrogate: Perdeuterotoluene	*48.8*		*"*	*50.0*		*97.6*	*70-130*			
MTBE	119	0.500	"	100		119	70-130	38.2	20	QR-02
ETBE	122	0.500	"	100		122	70-130	37.8	20	QR-02
TBA	364	2.00	"	500		72.8	70-130	2.50	20	
Gasoline (C6-C12)	2050	50.0	"	2000		102	70-130	4.76	20	
Benzene	99.8	0.500	"	100		99.8	70-130	26.7	20	QR-02
Toluene	99.2	2.00	"	100		99.2	70-130	27.0	20	QR-02

SOMA Environmental Engineering Inc.	Project: 15101 Freedom Ave., San Leandro	
6620 Owens Drive, Suite A	Project Number: 2552	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	21-Jan-08 18:05

Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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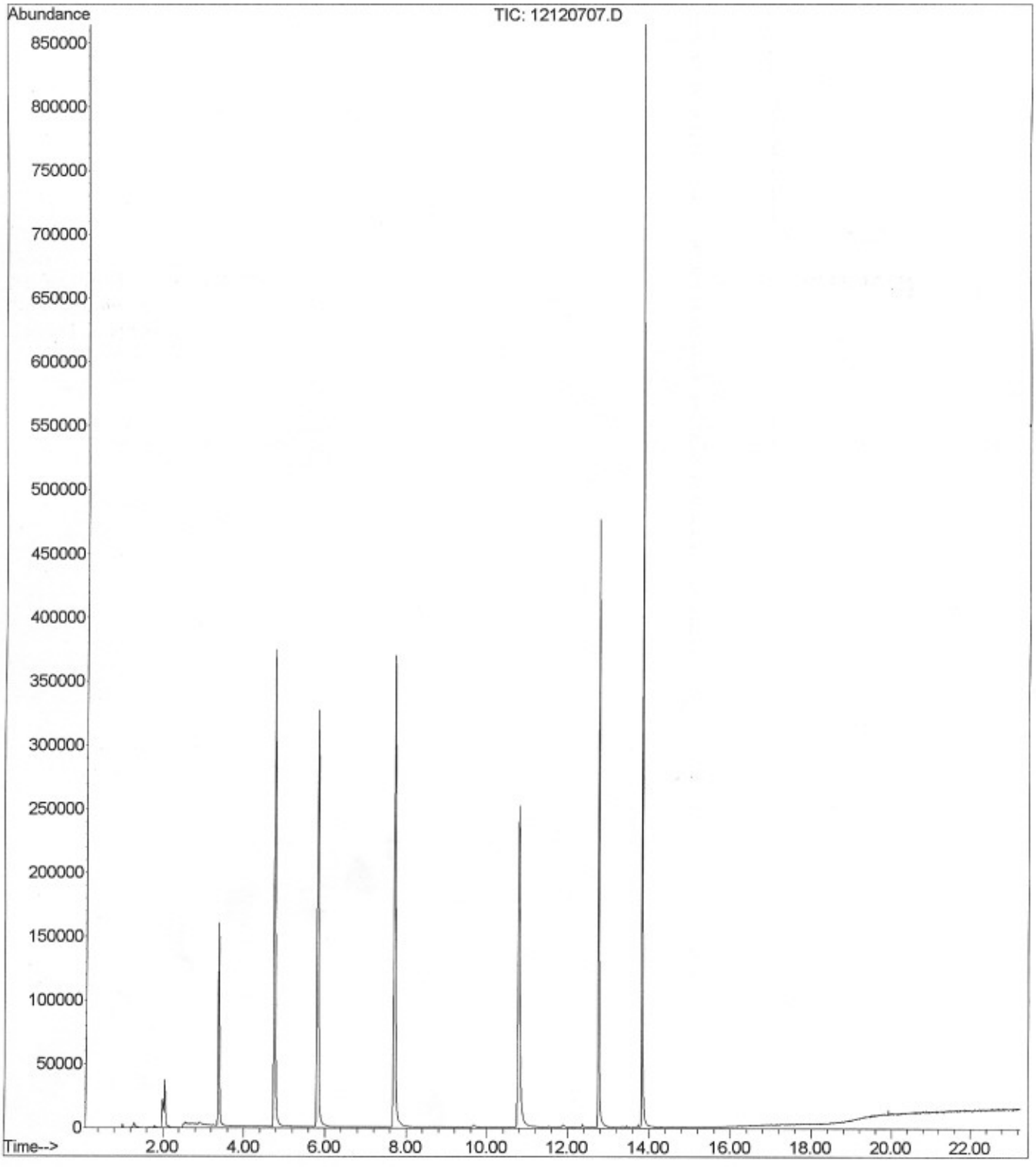
Acquired : 26 Dec 2007 9:09 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BL72701-BLK1
Misc Info :
Vial Number: 7



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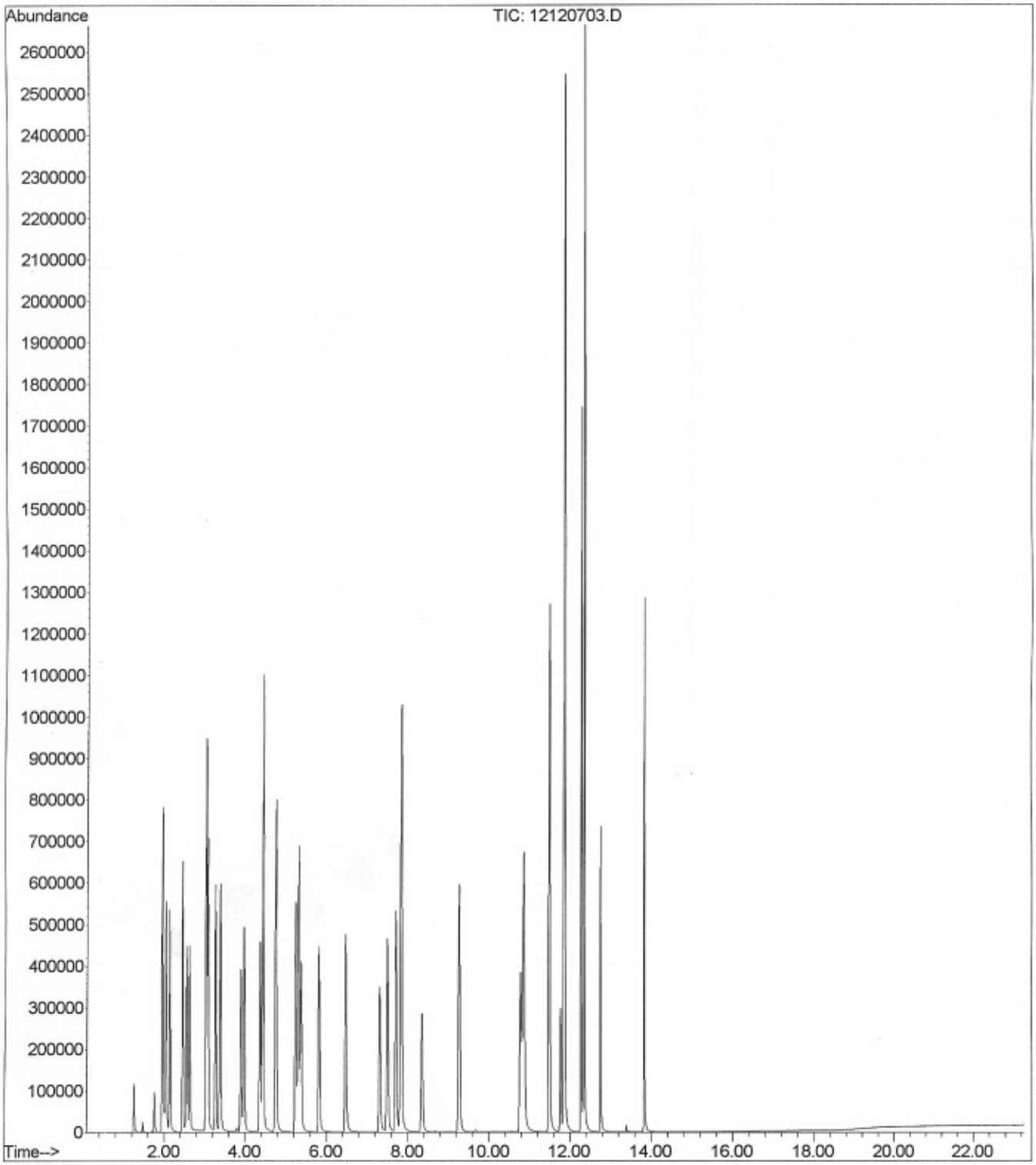
Operator :
Acquired : 26 Dec 2007 7:08 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BL72701-BS1@voc
Misc Info :
Vial Number: 3



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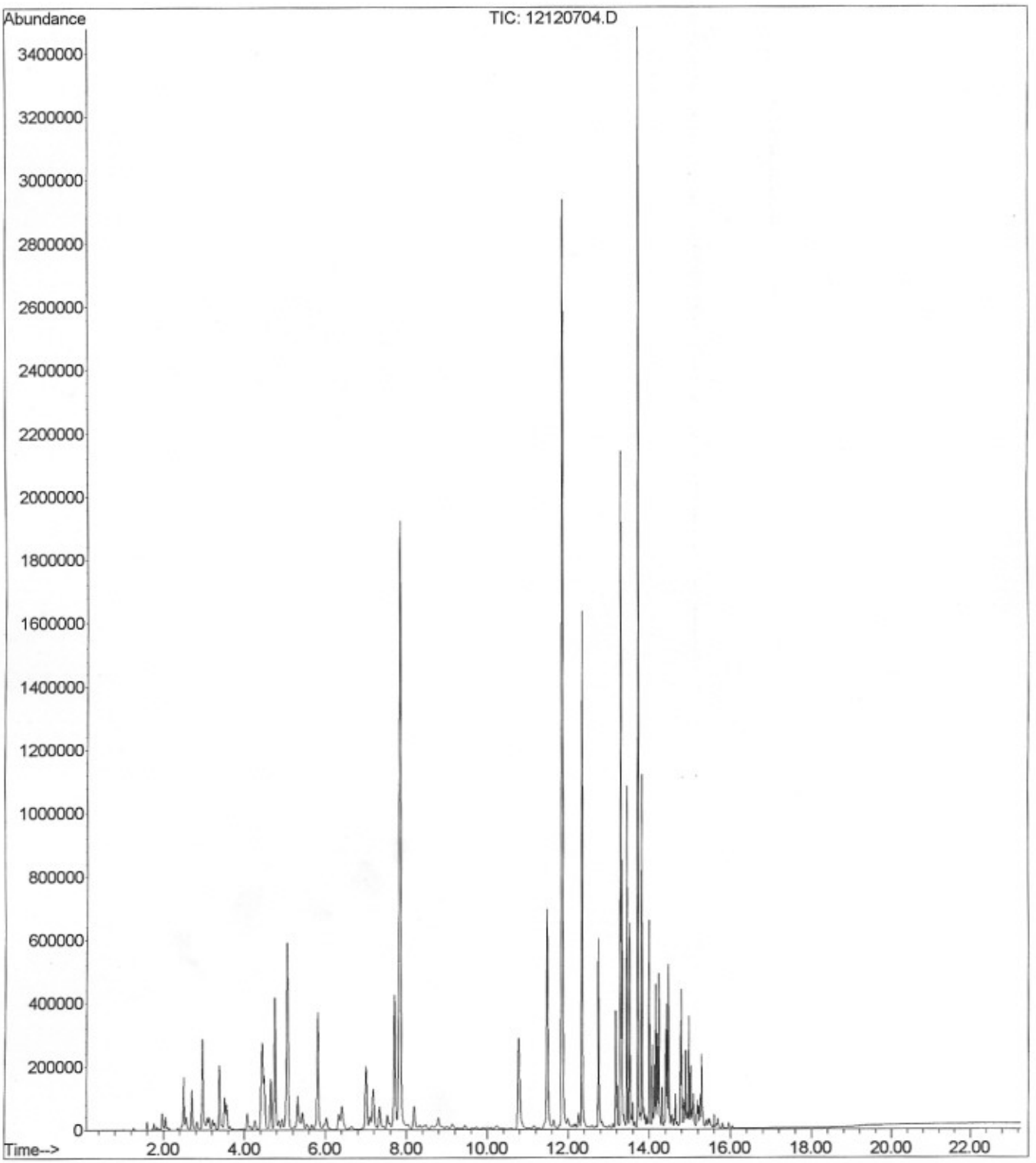
Operator :
Acquired : 26 Dec 2007 7:39 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BL72701-BS1@gas
Misc Info :
Vial Number: 4



APPENDIX G

Contaminant Mass Calculation

ESTIMATION OF CONTAMINANT MASS

The process of mass estimation relies on inference and extrapolation of data and judgment in estimating data elements where there is great variability and a high margin of error. The information on the quantity of contaminant mass and the distribution of the mass is important to considering remediation alternatives and evaluating cleanup progress. The objective of this assessment is to estimate the mass and mass distribution of petroleum or petroleum products in the subsurface. Since no information was available on the volume of petroleum that had been originally released, no validation and adjustment to the mass estimates that were based on interpretation and inference of limited field data were made. Therefore, all mass estimates were based solely on available screening information and knowledge regarding the relative distribution of the petroleum mass.

The field soil and groundwater screening data, laboratory analysis results of soil and groundwater samples, and other site assessment information were evaluated in order to assess the contaminant mass distribution in four potential zones: the vadose (unsaturated) zone, floating free product, dissolved phase, and the smear zone.

1) Vadose Zone:

Upon review of the current and historical soil analytical data, it was determined that the vadose or unsaturated zone had minimal petroleum hydrocarbon impact, the quantity of which was considered negligible for the purposes of this mass calculation. Therefore, no mass calculation for the vadose zone was performed at this time.

2) Floating Product

Though floating product was observed in the on-site areas in the past, the fact that none was observed in numerous recent groundwater monitoring events supports the assumption that floating product impact on the contaminant mass is negligible. Therefore, it assumed that at this time there is no floating product in subsurface at the Site.

3) Dissolved Phase:

Upon review of current and historical groundwater analytical data, it was determined that the impact of the dissolved phase on the First WBZ is significant as compared to the other phases. Note that the dissolved-phase hydrocarbon impact to groundwater in the Second WBZ is minimal compared to target cleanup levels, and therefore does not warrant an active remedial action at this time.

Therefore, it was assumed that the petroleum hydrocarbon mass distributed throughout the First WBZ in the on- and off-site areas is relevant to the mass calculation, and thus mass calculations for the dissolved and adsorbed phases were performed as part of this assessment. Groundwater in the First WBZ was defined by a plume that is elongated northwest to southeast, centered in the southeastern portion of the Site, and inferred to extend hydraulically downgradient beneath the residential areas.

As part of the remedial goal screening analysis, several available cleanup standards for the petroleum-contaminated sites were reviewed. These standards included Preliminary Remediation Goals (PRGs) EPA Region 9, California Human Health Screening Levels (CHHSLs), and Environmental Screening Levels (ESLs). The proposed remedial goals for the Site are based on the Tier 1 ESLs established by the California Regional Water Quality Control Board (CRWQCB) (Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, Interim Final – November 2007).

The ESLs have been selected because these values are more conservative and would be more health protective for unrestricted property uses, and because they are intended to help identify potential environmental concerns and ultimately expedite cleanup of the Site. According to the CRWQCB, the presence of a chemical in groundwater at concentrations below the corresponding ESL can be assumed not to pose a significant, long-term threat to human health and the environment. A post-remediation risk assessment should be conducted following remediation of groundwater at the Site to assess potential health risks, if any, related to residual concentrations of chemicals detected at the Site. Cleanup goals were based on achieving the unrestricted uses standard, and therefore it is anticipated that institutional controls (including deed restrictions) and/or engineering controls will not be necessary.

In order to select the appropriate ESLs, the following steps have been completed:

- Identify chemicals of potential concern (COCs)
- Identify the site-specific use of the land and the potential exposure pathways

Chemicals in groundwater are in either dissolved phase or adsorbed phase. In this mass calculation, the following COCs were used: TPH-g, BTEX, MtBE and TBA. To calculate the total mass of COC (dissolved and adsorbed phase) the 95% UCL concentration of each chemical COC, during the 2006 and 2008 groundwater monitoring events, at different monitoring wells was utilized. Table 2B summarizes the 95% UCL concentrations used in mass calculations. Attached figures (Figures G2 through G8) illustrate the general contaminant distribution in the First WBZ.

The calculations were conducted using the following steps:

- A grid of 20 x 20 feet with 21 rows and 16 columns was overlaid at the top of the Site base map. Figure G1, following this appendix, shows the wells included in the above mass calculations along with the study area.

- Using the linear interpolation routine (Kriging interpolation technique) and utilizing 95% UCL concentration of each chemical of concern at each groundwater monitoring location, COC concentrations were calculated at the center of each grid cell. Figures G2 through G8 following this appendix, show concentration profiles of COCs in groundwater.

- Based on the lithologic logs, it was previously established that the saturated thickness of the First WBZ formation ranges between 10 and 20 feet. For purposes of this mass estimate, an assumption was made that the saturated thickness across the study area is uniform and measures 13 feet. Using the Site-specific porosity of the saturated thickness of 0.4, the volume of the water at each grid cell was estimated by (20 ft. x 20 ft. x 12 ft. x 0.4 = 2080 ft^3).

- Total mass of each chemical at any given cell was calculated by multiplying its estimated concentration by volume of water (2080 ft^3), a conversion factor, and its retardation coefficient. The calculated retardation coefficient of each chemical is presented in Table G1. Multiplying by retardation coefficient takes into account the adsorbed mass as well as the dissolved mass of any given chemical in groundwater. The total mass of each chemical to be removed at any given cell was calculated as the difference between the total chemical mass at each cell and the chemical mass at each cell defined by the concentration of the cleanup level. The data used in the computation of the total mass in the study area that needs remediation are included in Table 2B.

Results of our assessment indicated that there are approximately 2,031 pounds of TPH-g, 22.67 pounds of benzene, 34.92 pounds of toluene, 77.04 pounds of ethylbenzene, 190.58 pounds of xylenes, 13.62 pounds of MtBE, and 5.37 pounds of TBA in dissolved and adsorbed phases in the saturated sediments of the study area beneath the Site and the downgradient areas, which will need to be removed in order to achieve the proposed remedial cleanup goals for the Site. Table G1 shows the estimated total mass of COCs in the saturated sediments of the study area as well as the mass that needs to be removed to achieve proposed cleanup goals for the Site.

4) Smear Zone

For purposes of this assessment, the smear zone was defined as an area where liquid-phase hydrocarbons occurred in the soil and over time were smeared across the soil due to the historical high and low water table fluctuations and a downward contaminant migration due to gravity. Since the fuel hydrocarbons are locked within the smear zone, this zone is potentially acting as the chemical

source area further impacting groundwater by direct contact and dissolution. The smear zone was defined as several limited and discontinuous zones located around the former UST cavity and hydraulically downgradient from the pump islands in the southwestern portion of the Site. Figure G9 shows the approximate extent of smear zone in the onsite and adjacent off-site areas. Based on the geologic logs and the historical groundwater fluctuations it was assumed that the conservative average thickness of the smear zone is approximately 2.5 feet.

The simplified mass calculation for the smear zone was derived by multiplying the estimated average concentration of the COC by the estimated volume of soil in the study area, a conversion factor, and a site-specific soil density. The site-specific bulk density of 1,500 kg/m3 was used in calculations. TPH-g concentration in soil was used as a basis for the mass calculation; the mass for the remaining COCs was calculated as a fraction thereof. The fractions of the petroleum hydrocarbons in soil were determined based on the distribution of the COC in the dissolved phase; it was assumed that COC comprised 100% of contamination. Table G2 shows the estimated percentages for all COCs. The total mass of each chemical to be removed was calculated as the difference between the total chemical mass in the study area and a mass defined by the concentration of the COC cleanup level. The data used in the computation of the total mass in the study area that needs remediation are included in Table G2.

The results of our assessment indicated that there are approximately 1,144 pounds of TPH-g, 12.77 pounds of benzene, 19.67 pounds of toluene, 43.39 pounds of ethylbenzene, 107.34 pounds of xylenes, 7.67 pounds of MtBE, and 3.02 pounds of TBA in smear zone in the study area beneath the Site which will need to be removed in order to achieve the proposed remedial cleanup goals.

Table G1
Dissolved Phase Mass Calculation 1st WBZ (Estimate) with CPT Investigation Data
15101 Freedom Avenue, San Leandro, CA

Chemical of Concern (COC)	Bulk Density (ρb, g/cm^3)	Effective Porosity (n)	Organic Carbon Partition Coefficient (Koc) [cm3/g]	Fraction of Organic Carbon (foc)	Distribution Coefficient (Kd) [cm3/g]	Retardation Coefficient (Rd)	COC Distribution % (Estimate)	Mass to be Removed [c] (lb)
TPH-g	1.5	0.4	NA	0.005	NA	9	**85.51**	**2030.78**
(B) Benzene	1.5	0.4	59	0.005	0.295	2.10625	**0.95**	**22.67**
(T) Toluene	1.5	0.4	182	0.005	0.91	4.4125	**1.47**	**34.92**
(E) Ethylbenzene	1.5	0.4	363	0.005	1.815	7.80625	**3.24**	**77.04**
(X) Xylenes Total	1.5	0.4	407	0.005	2.035	8.63125	**8.02**	**190.58**
(MtBE) Methyl Tertiary Butyl Ether	1.5	0.4	6	0.005	0.03	1.1125	**0.57**	**13.62**
(TBA) Tertiary Butyl Alcohol	1.5	0.4	37.15	0.005	0.19	1.70	**0.23**	**5.37**
						TOTALS	***100***	***2374.97***

Note:

Retardation Coefficient for TPH-g is an Estimated value

[c] For details refer to Appendix G

For TBA (log Koc=1.57; Koc=37.15)

Where:

Rd=1+(Kd*ρb/n)

Kd=Koc*foc

Table G2
Mass Estimate (Smear Zone)
15101 Freedom Avenue, San Leandro, CA

COC	COC Distribution % (Estimate)	Soil Volume (ft3)	Average Concentration (mg/kg)	Clean up Level Concentration (mg/kg)	Bulk Density (kg/m3)	Conversion Factor	Mass Actual (lb)	Mass Below Cleanup Level (lb)	Mass to be Removed Total (lb)
TPH-g	85.5	11702	1,129.00	83	1500	6.229707E-08	1234.56	90.76	1143.80
Benzene*	1.0	NA	NA	NA	NA	NA	NA	NA	12.77
Toluene*	1.5	NA	NA	NA	NA	NA	NA	NA	19.67
Ethylbenzene*	3.2	NA	NA	NA	NA	NA	NA	NA	43.39
Xylenes Total*	8.0	NA	NA	NA	NA	NA	NA	NA	107.34
MtBE*	0.6	NA	NA	NA	NA	NA	NA	NA	7.67
TBA*	0.2	NA	NA	NA	NA	NA	NA	NA	3.02

TOTAL	***1337.66***

Notes:

NA- Not applicable

** Extrapolated Mass*

% Estimate based on COC distribution in the dissolved phase

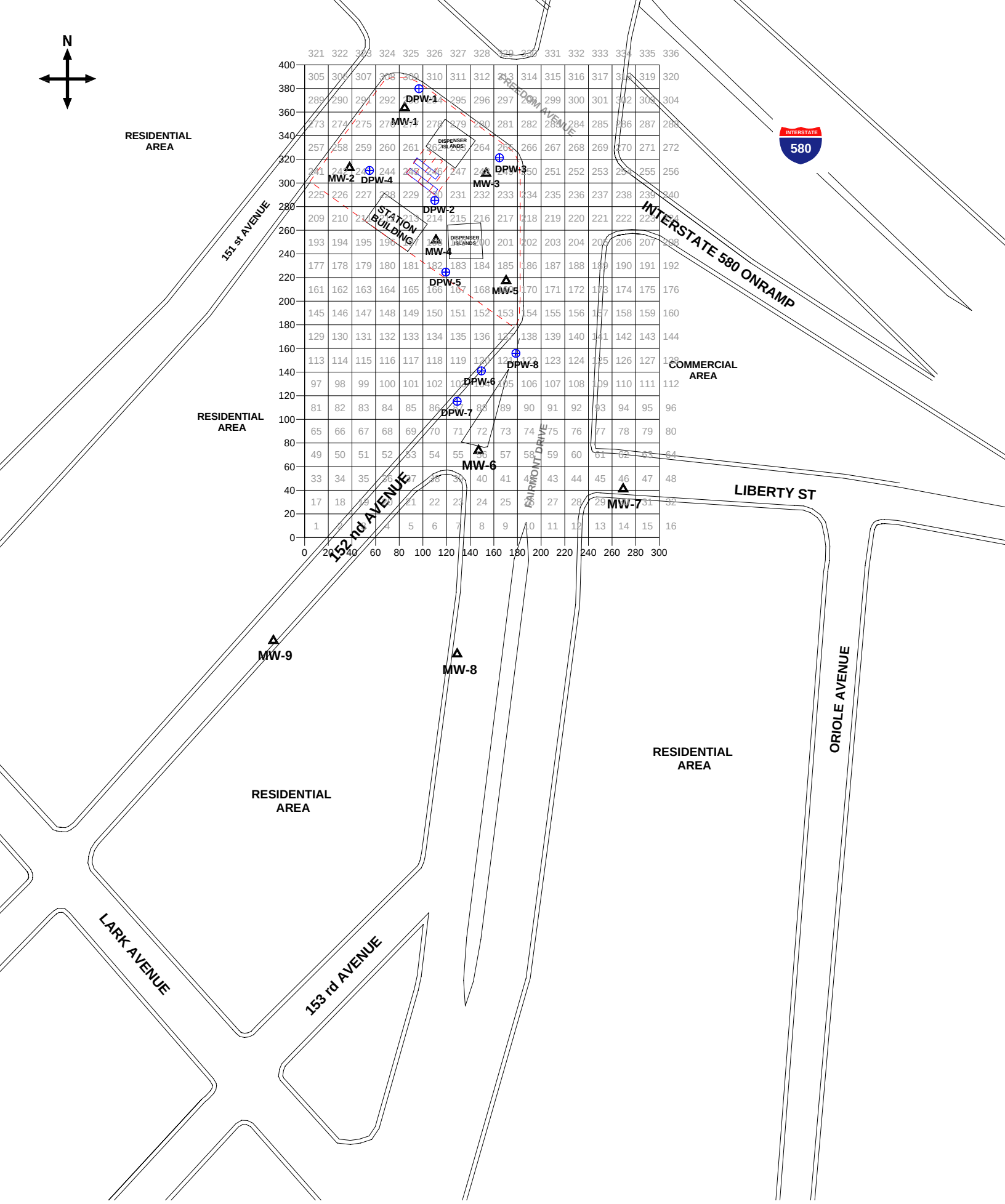
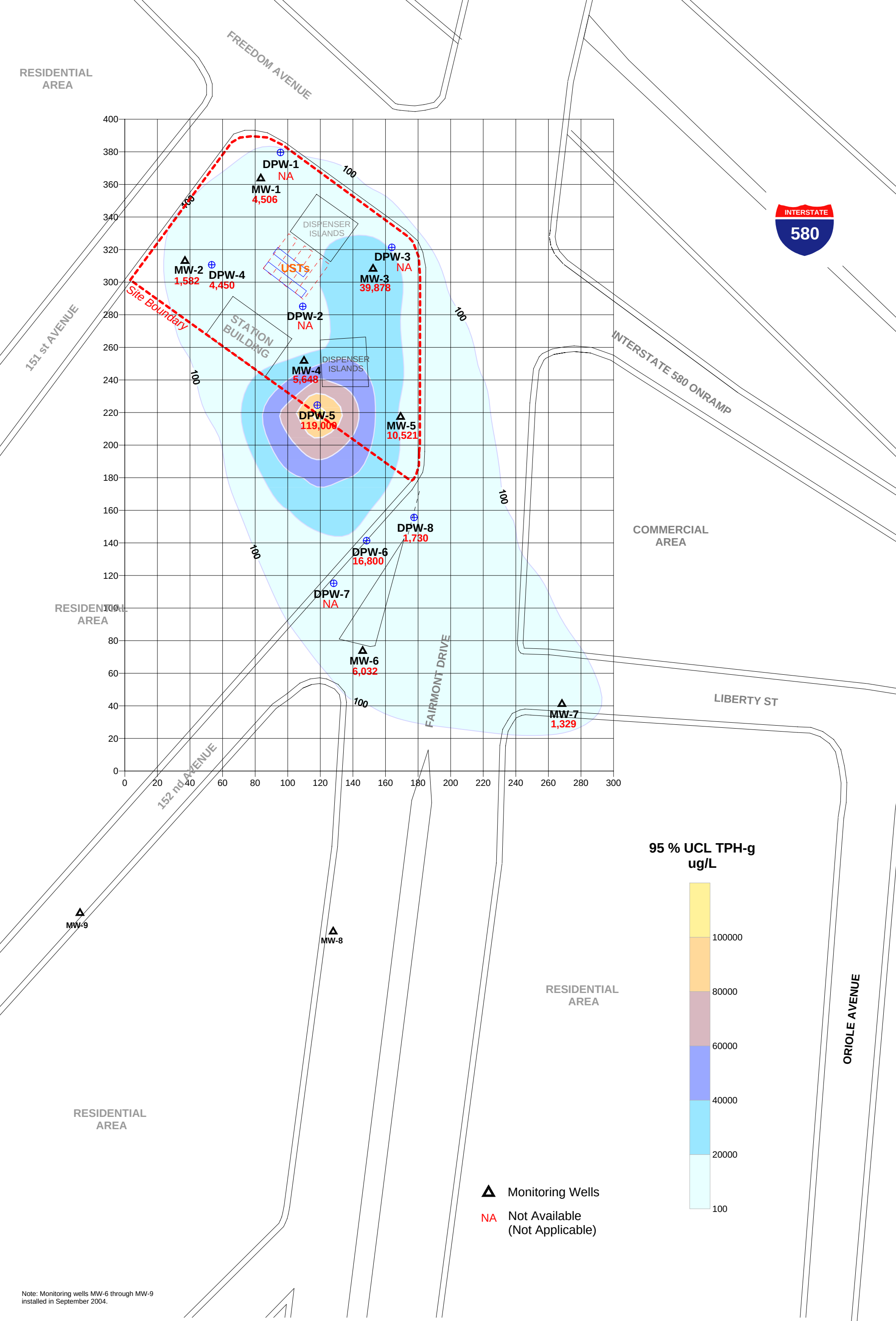
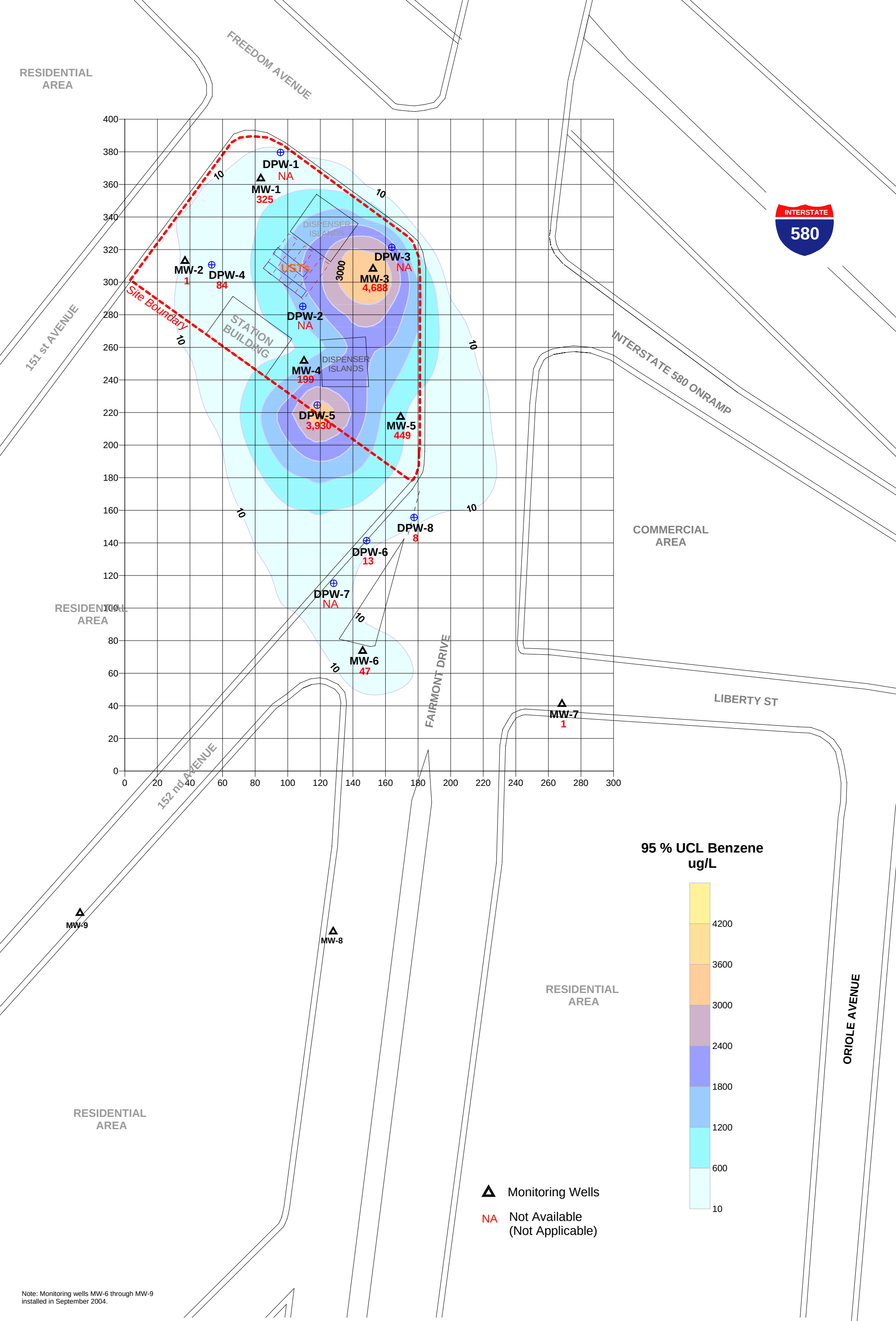


Figure G1: Domain

ENVIRONMENTAL ENGINEERING, INC.


RESIDENTIAL AREA
FREEDOM AVENUE
INTERSTATE 580
151 st AVENUE
INTERSTATE 580 ONRAMP
DPW-1
NA
MW-1
4,506
DISPENSER ISLANDS
MW-2
1,582
DPW-4
4,450
USTs
DPW-3
NA
MW-3
39,878
Site Boundary
DPW-2
NA
STATION BUILDING
DISPENSER ISLANDS
MW-4
5,648
DPW-5
119,000
MW-5
10,521
100
DPW-8
1,730
DPW-6
16,800
DPW-7
NA
MW-6
6,032
COMMERCIAL AREA
RESIDENTIAL AREA
FAIRMONT DRIVE
LIBERTY ST
MW-7
1,329
152 nd AVENUE
MW-9
MW-8
RESIDENTIAL AREA
ORIOLE AVENUE
RESIDENTIAL AREA
95 % UCL TPH-g ug/L
100000
80000
60000
40000
20000
100
Monitoring Wells
NA Not Available (Not Applicable)
Note: Monitoring wells MW-6 through MW-9 installed in September 2004.
approximate scale in feet
0
50
100
Figure G2: TPH-g in groundwater
SOMA ENVIRONMENTAL ENGINEERING, INC.


RESIDENTIAL AREA
FREEDOM AVENUE
INTERSTATE 580
151 st AVENUE
INTERSTATE 580 ONRAMP
COMMERCIAL AREA
RESIDENTIAL AREA
LIBERTY ST
152 nd AVENUE
FAIRMONT DRIVE
ORIOLE AVENUE
RESIDENTIAL AREA
RESIDENTIAL AREA
DPW-1
NA
MW-1
325
DISPENSER ISLANDS
DPW-3
NA
MW-3
4,688
MW-2
1
DPW-4
84
USTs
3000
Site Boundary
DPW-2
NA
STATION BUILDING
DISPENSER ISLANDS
MW-4
199
DPW-5
3,930
MW-5
449
DPW-8
8
DPW-6
13
DPW-7
NA
MW-6
47
MW-7
1
MW-9
MW-8
10
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
95 % UCL Benzene
ug/L
4200
3600
3000
2400
1800
1200
600
10
Monitoring Wells
NA Not Available
(Not Applicable)
Note: Monitoring wells MW-6 through MW-9 installed in September 2004.
approximate scale in feet
0
50
100
Figure G3: Benzene in groundwater
ENVIRONMENTAL ENGINEERING, INC.

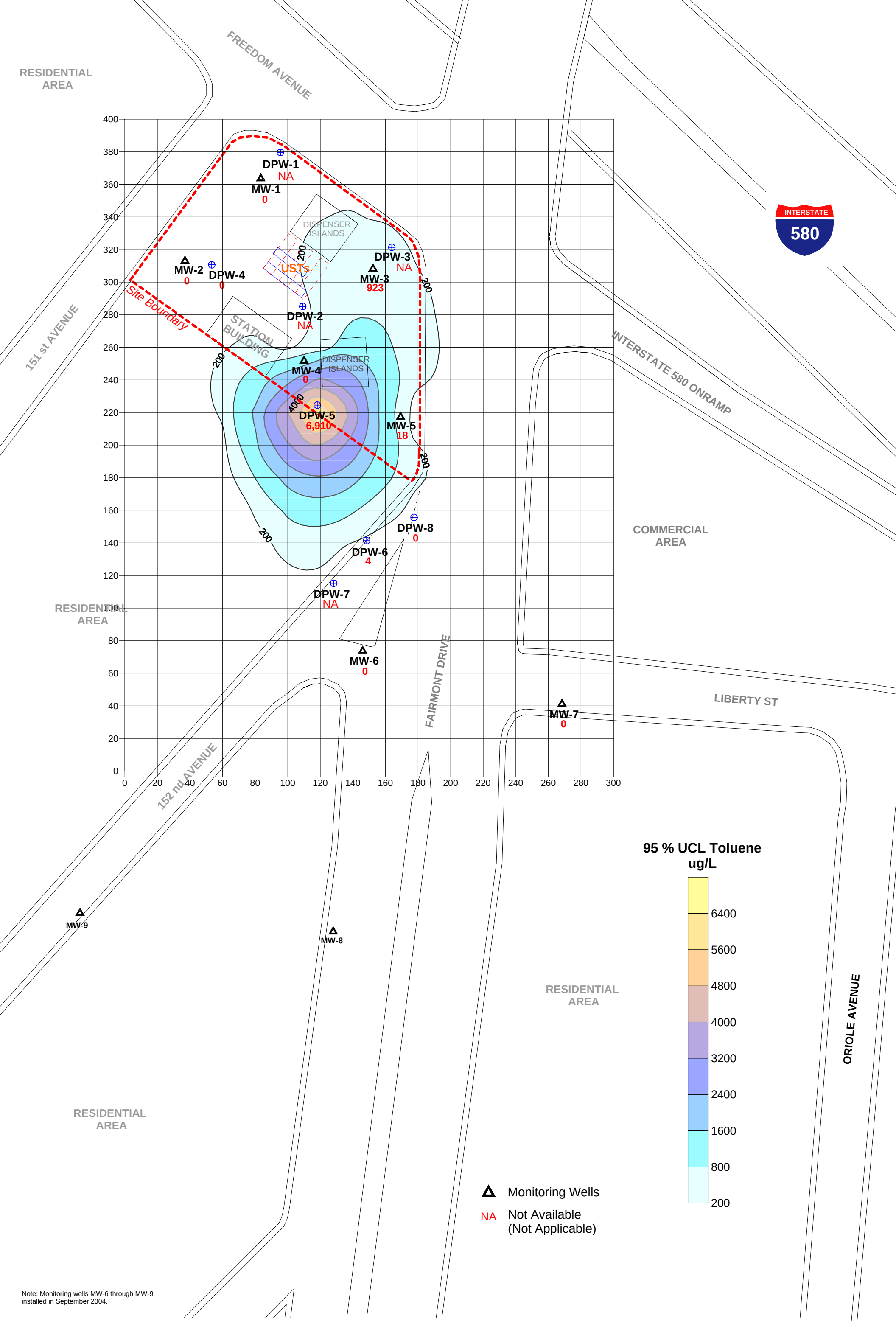


Figure G4: Toluene in groundwater

ENVIRONMENTAL ENGINEERING, INC.

RESIDENTIAL AREA

FREEDOM AVENUE

INTERSTATE 580

151 st AVENUE

INTERSTATE 580 ONRAMP

COMMERCIAL AREA

RESIDENTIAL AREA

LIBERTY ST

152 nd AVENUE

FAIRMONT DRIVE

RESIDENTIAL AREA

ORIOLE AVENUE

RESIDENTIAL AREA

DPW-1
NA
MW-1
128

DPW-2
NA

DPW-3
NA
MW-3
1,823

DPW-4
244
MW-2
69

DPW-5
6,030
MW-5
431

DPW-6
602

DPW-7
NA

DPW-8
50

MW-4
121

MW-6
200

MW-7
20

MW-8

MW-9

USTs

DISPENSER ISLANDS

DISPENSER ISLANDS

STATION BUILDING

Site Boundary

80

400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

95 % UCL Ethylbenzene
ug/L

5600
4800
4000
3200
2400
1600
800
80

Monitoring Wells

NA Not Available
(Not Applicable)

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 50 100

Figure G5: Ethylbenzene in groundwater

ENVIRONMENTAL ENGINEERING, INC.

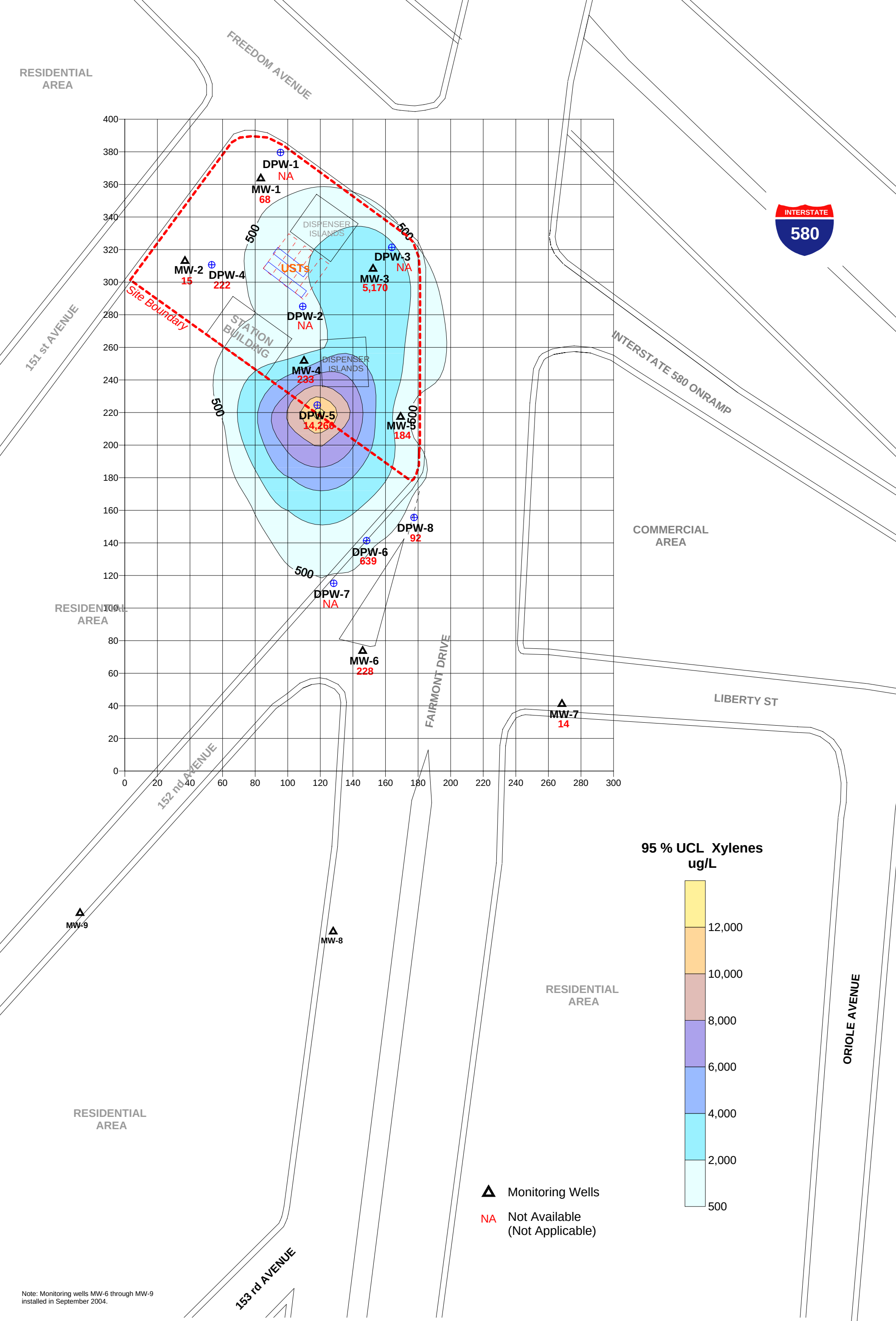


Figure G6: Xylenes in groundwater

SOMA ENVIRONMENTAL ENGINEERING, INC.

RESIDENTIAL AREA

FREEDOM AVENUE

INTERSTATE 580

151 st AVENUE

INTERSTATE 580 ONRAMP

COMMERCIAL AREA

RESIDENTIAL AREA

152 nd AVENUE

FAIRMONT DRIVE

LIBERTY ST

RESIDENTIAL AREA

ORIOLE AVENUE

RESIDENTIAL AREA

153 rd AVENUE

DPW-1 NA
MW-1 7
DPW-2 NA
DPW-3 NA
DPW-4 0
DPW-5 338
DPW-6 2
DPW-7 NA
DPW-8 2,860
MW-2 0
MW-3 3,372
MW-4 2,801
MW-5 1,868
MW-6 11
MW-7 9
MW-8
MW-9

USTs
DISPENSER ISLANDS
DISPENSER ISLANDS
STATION BUILDING
Site Boundary

5
5
5
5
5
5
5
2500

400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

95 % UCL MtBE ug/L

3,000
2,500
2,000
1,500
1,000
500
5

Monitoring Wells

NA Not Available (Not Applicable)

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet

0 50 100

Figure G7: MtBE in groundwater

ENVIRONMENTAL ENGINEERING, INC.

RESIDENTIAL AREA

FREEDOM AVENUE

INTERSTATE 580

DPW-1
NA
MW-1
42

120

DISPENSER ISLANDS

DPW-3
NA
MW-3
872

MW-2
0
DPW-4
0

USTs

Site Boundary

DPW-2
NA

STATION BUILDING

DISPENSER ISLANDS

MW-4
2,406

DPW-5
0

MW-5
905

DPW-8
221

DPW-6
0

DPW-7
NA

MW-6
7

MW-7
2

151 st AVENUE

INTERSTATE 580 ONRAMP

COMMERCIAL AREA

RESIDENTIAL AREA

FAIRMONT DRIVE

LIBERTY ST

152 nd AVENUE

MW-9

MW-8

RESIDENTIAL AREA

ORIOLE AVENUE

RESIDENTIAL AREA

153 rd AVENUE

95 % UCL TBA
ug/L

2,000
1,600
1,200
800
400
120

Monitoring Wells

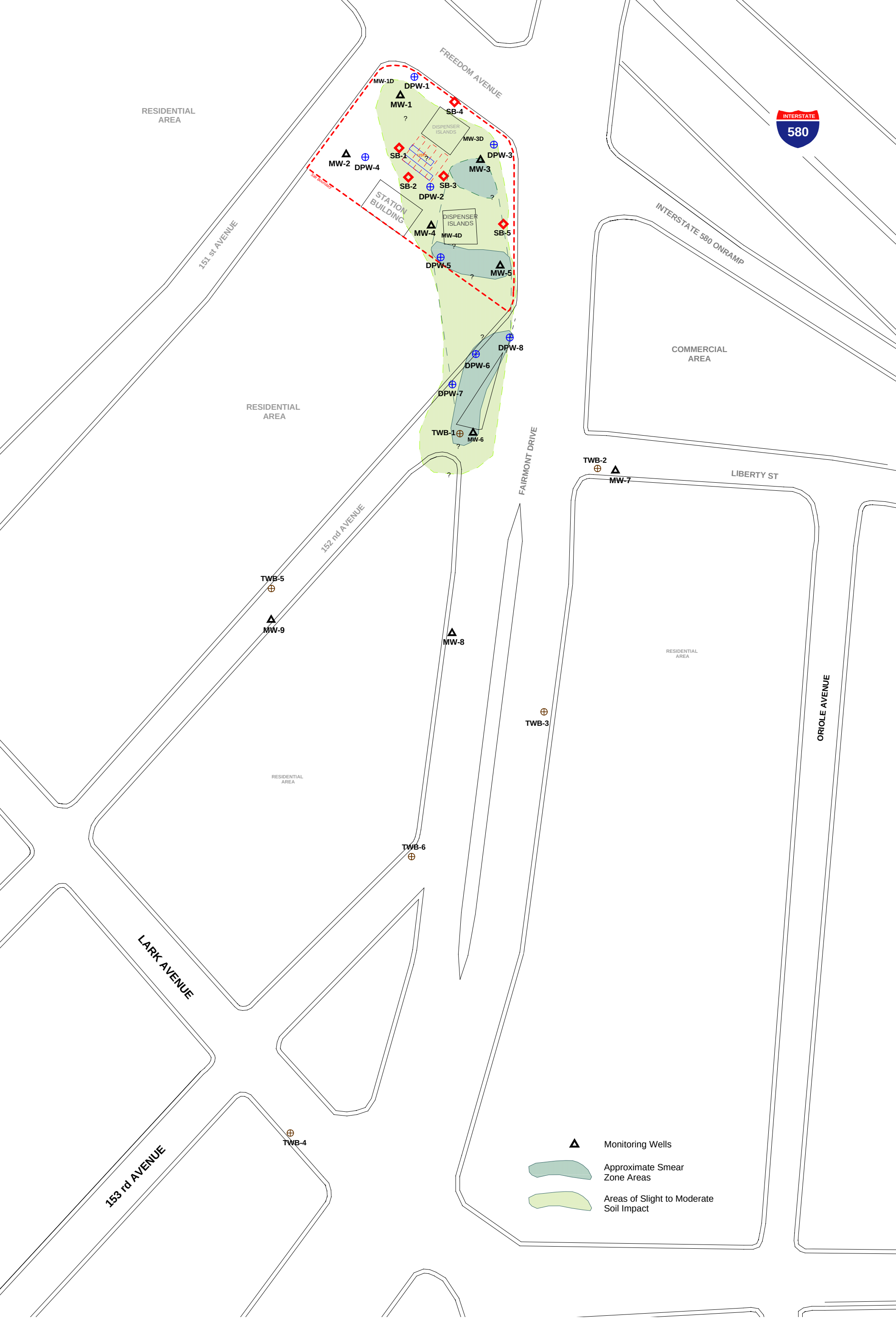
NA Not Available
(Not Applicable)

Note: Monitoring wells MW-6 through MW-9 installed in September 2004.

approximate scale in feet
0 50 100

Figure G8: TBA in groundwater

ENVIRONMENTAL ENGINEERING, INC.



approximate scale in feet

0 70 140

Figure G9: Smear Zone (Approximate)

ENVIRONMENTAL ENGINEERING, INC.

TPH-g Plume

Cell ID	Cell Volume ft3	Average Cell Concentration of TPH-g (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
41	2080	489.6719958	100	9	6.23E-08	0.571293	0.1167	0.4546	**2030.78**
42	2080	916.0370668	100	9	6.23E-08	1.068727	0.1167	0.9521	
43	2080	904.0893731	100	9	6.23E-08	1.054788	0.1167	0.9381	
44	2080	838.7504697	100	9	6.23E-08	0.978558	0.1167	0.8619	
45	2080	852.5717009	100	9	6.23E-08	0.994683	0.1167	0.8780	
46	2080	1065.913789	100	9	6.23E-08	1.243586	0.1167	1.1269	
47	2080	718.5279385	100	9	6.23E-08	0.838296	0.1167	0.7216	
56	2080	2344.57254	100	9	6.23E-08	2.735379	0.1167	2.6187	
57	2080	3337.268777	100	9	6.23E-08	3.893543	0.1167	3.7769	
58	2080	2754.991572	100	9	6.23E-08	3.214209	0.1167	3.0975	
59	2080	2052.343711	100	9	6.23E-08	2.39444	0.1167	2.2778	
60	2080	1534.168366	100	9	6.23E-08	1.789892	0.1167	1.6732	
61	2080	1244.542859	100	9	6.23E-08	1.45199	0.1167	1.3353	
62	2080	1064.777787	100	9	6.23E-08	1.242261	0.1167	1.1256	
63	2080	534.5691633	100	9	6.23E-08	0.623674	0.1167	0.5070	
71	2080	1889.853466	100	9	6.23E-08	2.204865	0.1167	2.0882	
72	2080	5320.82408	100	9	6.23E-08	6.207729	0.1167	6.0911	
73	2080	5728.729097	100	9	6.23E-08	6.683625	0.1167	6.5670	
74	2080	4164.805485	100	9	6.23E-08	4.859018	0.1167	4.7423	
75	2080	2770.297598	100	9	6.23E-08	3.232066	0.1167	3.1154	
76	2080	1812.105908	100	9	6.23E-08	2.114158	0.1167	1.9975	
77	2080	1204.79294	100	9	6.23E-08	1.405615	0.1167	1.2889	
78	2080	694.6601461	100	9	6.23E-08	0.81045	0.1167	0.6938	
87	2080	4882.088791	100	9	6.23E-08	5.695862	0.1167	5.5792	
88	2080	7248.064998	100	9	6.23E-08	8.456213	0.1167	8.3395	
89	2080	6891.547655	100	9	6.23E-08	8.040269	0.1167	7.9236	
90	2080	4790.758426	100	9	6.23E-08	5.589309	0.1167	5.4726	
91	2080	2837.43941	100	9	6.23E-08	3.3104	0.1167	3.1937	
92	2080	1626.420486	100	9	6.23E-08	1.897521	0.1167	1.7809	
93	2080	913.3281706	100	9	6.23E-08	1.065567	0.1167	0.9489	
94	2080	309.4462695	100	9	6.23E-08	0.361026	0.1167	0.2444	
102	2080	4132.308139	100	9	6.23E-08	4.821104	0.1167	4.7044	
103	2080	9174.348399	100	9	6.23E-08	10.70358	0.1167	10.5869	
104	2080	10987.03455	100	9	6.23E-08	12.81841	0.1167	12.7017	
105	2080	8803.954145	100	9	6.23E-08	10.27145	0.1167	10.1548	
106	2080	4818.318809	100	9	6.23E-08	5.621463	0.1167	5.5048	
107	2080	2194.630907	100	9	6.23E-08	2.560444	0.1167	2.4438	
108	2080	1049.406018	100	9	6.23E-08	1.224327	0.1167	1.1077	
109	2080	513.1640933	100	9	6.23E-08	0.598701	0.1167	0.4820	
118	2080	9689.495947	100	9	6.23E-08	11.30459	0.1167	11.1879	
119	2080	16113.45287	100	9	6.23E-08	18.79933	0.1167	18.6827	
120	2080	17389.52506	100	9	6.23E-08	20.28811	0.1167	20.1714	
121	2080	11765.04617	100	9	6.23E-08	13.72611	0.1167	13.6094	
122	2080	3735.782433	100	9	6.23E-08	4.358483	0.1167	4.2418	
123	2080	985.2237146	100	9	6.23E-08	1.149446	0.1167	1.0328	
124	2080	385.35116	100	9	6.23E-08	0.449584	0.1167	0.3329	
125	2080	165.6788337	100	9	6.23E-08	0.193295	0.1167	0.0766	
133	2080	5698	100	9	6.23E-08	6.647774	0.1167	6.5311	
134	2080	19168.3181	100	9	6.23E-08	22.3634	0.1167	22.2467	
135	2080	27207.14422	100	9	6.23E-08	31.74218	0.1167	31.6255	
136	2080	25802.97741	100	9	6.23E-08	30.10396	0.1167	29.9873	
137	2080	15783.09775	100	9	6.23E-08	18.41391	0.1167	18.2972	
138	2080	3072.551484	100	9	6.23E-08	3.584701	0.1167	3.4680	
139	2080	848.8749541	100	9	6.23E-08	0.99037	0.1167	0.8737	
140	2080	226.772211	100	9	6.23E-08	0.264572	0.1167	0.1479	
149	2080	12459	100	9	6.23E-08	14.53574	0.1167	14.4191	
150	2080	34388.8682	100	9	6.23E-08	40.121	0.1167	40.0043	
151	2080	44899.98747	100	9	6.23E-08	52.38417	0.1167	52.2675	
152	2080	39366.01697	100	9	6.23E-08	45.92776	0.1167	45.8111	
153	2080	23724.11655	100	9	6.23E-08	27.67858	0.1167	27.5619	
154	2080	9403.172221	100	9	6.23E-08	10.97055	0.1167	10.8539	
155	2080	2695.280855	100	9	6.23E-08	3.144545	0.1167	3.0279	
156	2080	576.3135292	100	9	6.23E-08	0.672377	0.1167	0.5557	

TPH-g Plume

Cell ID	Cell Volume ft3	Average Cell Concentration of TPH-g (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
165	2080	24320.5413	100	9	6.23E-08	28.37442	0.1167	28.2578	
166	2080	54537.07834	100	9	6.23E-08	63.62762	0.1167	63.5110	
167	2080	71395.50394	100	9	6.23E-08	83.2961	0.1167	83.1794	
168	2080	57107.8228	100	9	6.23E-08	66.62687	0.1167	66.5102	
169	2080	29757.78489	100	9	6.23E-08	34.71798	0.1167	34.6013	
170	2080	10483.91715	100	9	6.23E-08	12.23143	0.1167	12.1148	
171	2080	3352.513182	100	9	6.23E-08	3.911329	0.1167	3.7947	
172	2080	782.8106927	100	9	6.23E-08	0.913294	0.1167	0.7966	
180	2080	9856	100	9	6.23E-08	11.49885	0.1167	11.3822	
181	2080	29782.17533	100	9	6.23E-08	34.74643	0.1167	34.6298	
182	2080	67166.96978	100	9	6.23E-08	78.36273	0.1167	78.2461	
183	2080	108106.7228	100	9	6.23E-08	126.1266	0.1167	126.0099	
184	2080	69661.90446	100	9	6.23E-08	81.27354	0.1167	81.1569	
185	2080	30050.79511	100	9	6.23E-08	35.05983	0.1167	34.9432	
186	2080	7776.242509	100	9	6.23E-08	9.07243	0.1167	8.9558	
187	2080	3352.735671	100	9	6.23E-08	3.911588	0.1167	3.7949	
188	2080	715.4465947	100	9	6.23E-08	0.834701	0.1167	0.7180	
197	2080	21248.28091	100	9	6.23E-08	24.79006	0.1167	24.6734	
198	2080	39733.5727	100	9	6.23E-08	46.35659	0.1167	46.2399	
199	2080	62260.09233	100	9	6.23E-08	72.63795	0.1167	72.5213	
200	2080	54195.36737	100	9	6.23E-08	63.22895	0.1167	63.1123	
201	2080	30879.54665	100	9	6.23E-08	36.02672	0.1167	35.9101	
202	2080	13104.05947	100	9	6.23E-08	15.28832	0.1167	15.1716	
203	2080	4668.620697	100	9	6.23E-08	5.446812	0.1167	5.3301	
204	2080	393.8641613	100	9	6.23E-08	0.459516	0.1167	0.3428	
212	2080	5010.998933	100	9	6.23E-08	5.84626	0.1167	5.7296	
213	2080	9449.345301	100	9	6.23E-08	11.02441	0.1167	10.9077	
214	2080	8170.636557	100	9	6.23E-08	9.532564	0.1167	9.4159	
215	2080	17335.80714	100	9	6.23E-08	20.22544	0.1167	20.1088	
216	2080	31992.87392	100	9	6.23E-08	37.32562	0.1167	37.2090	
217	2080	26795.11443	100	9	6.23E-08	31.26147	0.1167	31.1448	
218	2080	14957.27674	100	9	6.23E-08	17.45044	0.1167	17.3338	
219	2080	4818.689233	100	9	6.23E-08	5.621895	0.1167	5.5052	
228	2080	4065.171576	100	9	6.23E-08	4.742777	0.1167	4.6261	
229	2080	6259.905065	100	9	6.23E-08	7.303341	0.1167	7.1867	
230	2080	8628.964956	100	9	6.23E-08	10.06729	0.1167	9.9506	
231	2080	16708.3679	100	9	6.23E-08	19.49341	0.1167	19.3767	
232	2080	26774.18439	100	9	6.23E-08	31.23705	0.1167	31.1204	
233	2080	25928.14684	100	9	6.23E-08	30.24999	0.1167	30.1333	
234	2080	14623.75685	100	9	6.23E-08	17.06133	0.1167	16.9447	
235	2080	2718.209588	100	9	6.23E-08	3.171296	0.1167	3.0546	
244	2080	4318.456421	100	9	6.23E-08	5.038281	0.1167	4.9216	
245	2080	7151.840507	100	9	6.23E-08	8.343949	0.1167	8.2273	
246	2080	11759.16018	100	9	6.23E-08	13.71924	0.1167	13.6026	
247	2080	20039.27838	100	9	6.23E-08	23.37954	0.1167	23.2629	
248	2080	30828.66579	100	9	6.23E-08	35.96736	0.1167	35.8507	
249	2080	30955.42412	100	9	6.23E-08	36.11525	0.1167	35.9986	
250	2080	12705.04408	100	9	6.23E-08	14.82279	0.1167	14.7061	
260	2080	4356.566467	100	9	6.23E-08	5.082743	0.1167	4.9661	
261	2080	7504.475417	100	9	6.23E-08	8.755363	0.1167	8.6387	
262	2080	12016.32783	100	9	6.23E-08	14.01928	0.1167	13.9026	
263	2080	18531.85254	100	9	6.23E-08	21.62084	0.1167	21.5042	
264	2080	26305.73518	100	9	6.23E-08	30.69052	0.1167	30.5739	
265	2080	24163.36163	100	9	6.23E-08	28.19104	0.1167	28.0744	
266	2080	5277.750921	100	9	6.23E-08	6.157476	0.1167	6.0408	
276	2080	3279.608865	100	9	6.23E-08	3.826272	0.1167	3.7096	
277	2080	6259.255475	100	9	6.23E-08	7.302583	0.1167	7.1859	
278	2080	9257.878969	100	9	6.23E-08	10.80103	0.1167	10.6844	
279	2080	11945.50943	100	9	6.23E-08	13.93665	0.1167	13.8200	
280	2080	12580.99116	100	9	6.23E-08	14.67806	0.1167	14.5614	
281	2080	6647.014987	100	9	6.23E-08	7.754976	0.1167	7.6383	
292	2080	1041.868988	100	9	6.23E-08	1.215533	0.1167	1.0989	
293	2080	4096.343594	100	9	6.23E-08	4.779145	0.1167	4.6625	

TPH-g Plume

Cell ID	Cell Volume ft3	Average Cell Concentration of TPH-g (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
294	2080	5146.082161	100	9	6.23E-08	6.00386	0.1167	5.8872	
295	2080	4677.097582	100	9	6.23E-08	5.456702	0.1167	5.3400	
296	2080	2426.558037	100	9	6.23E-08	2.83103	0.1167	2.7144	
310	2080	481.1135272	100	9	6.23E-08	0.561308	0.1167	0.4446	
						2045.95	***15.17***	***2030.78***	

Benzene Plume

Cell ID	Cell Address (X)	Cell Address (Y)	Cell Volume (ft3)	Cell Concentration of Benzene (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
41	360	260	2080	4	1	2.106	6.23E-08	0.0009634	0.00027	0.00069	**22.67**
42	380	260	2080	5	1	2.106	6.23E-08	0.0014028	0.00027	0.00113	
43	400	260	2080	4	1	2.106	6.23E-08	0.0011794	0.00027	0.00091	
44	420	260	2080	5	1	2.106	6.23E-08	0.001371	0.00027	0.00110	
45	440	260	2080	6	1	2.106	6.23E-08	0.0016354	0.00027	0.00136	
46	460	260	2080	4	1	2.106	6.23E-08	0.0010596	0.00027	0.00079	
47	480	260	2080	4	1	2.106	6.23E-08	0.0010274	0.00027	0.00075	
56	500	260	2080	21	1	2.106	6.23E-08	0.0057298	0.00027	0.00546	
57	340	280	2080	22	1	2.106	6.23E-08	0.005913	0.00027	0.00564	
58	360	280	2080	9	1	2.106	6.23E-08	0.0024324	0.00027	0.00216	
59	380	280	2080	4	1	2.106	6.23E-08	0.0009834	0.00027	0.00071	
60	400	280	2080	5	1	2.106	6.23E-08	0.0013801	0.00027	0.00111	
61	420	280	2080	9	1	2.106	6.23E-08	0.0023278	0.00027	0.00205	
62	440	280	2080	9	1	2.106	6.23E-08	0.0024982	0.00027	0.00223	
63	460	280	2080	5	1	2.106	6.23E-08	0.0013493	0.00027	0.00108	
71	480	280	2080	12	1	2.106	6.23E-08	0.0032835	0.00027	0.00301	
72	500	280	2080	31	1	2.106	6.23E-08	0.0085544	0.00027	0.00828	
73	520	280	2080	19	1	2.106	6.23E-08	0.0051211	0.00027	0.00485	
77	540	280	2080	7	1	2.106	6.23E-08	0.0019551	0.00027	0.00168	
78	340	300	2080	10	1	2.106	6.23E-08	0.0026951	0.00027	0.00242	
87	360	300	2080	27	1	2.106	6.23E-08	0.0072611	0.00027	0.00699	
88	380	300	2080	11	1	2.106	6.23E-08	0.0031091	0.00027	0.00284	
93	400	300	2080	3	1	2.106	6.23E-08	0.0007841	0.00027	0.00051	
94	420	300	2080	6	1	2.106	6.23E-08	0.0015347	0.00027	0.00126	
102	440	300	2080	58	1	2.106	6.23E-08	0.0156987	0.00027	0.01543	
103	460	300	2080	78	1	2.106	6.23E-08	0.0213707	0.00027	0.02110	
104	480	300	2080	18	1	2.106	6.23E-08	0.0048236	0.00027	0.00455	
118	500	300	2080	196	1	2.106	6.23E-08	0.0535769	0.00027	0.05330	
119	520	300	2080	252	1	2.106	6.23E-08	0.068743	0.00027	0.06847	
120	540	300	2080	120	1	2.106	6.23E-08	0.0326863	0.00027	0.03241	
134	560	300	2080	499	1	2.106	6.23E-08	0.1362244	0.00027	0.13595	
135	360	320	2080	648	1	2.106	6.23E-08	0.1768231	0.00027	0.17655	
136	380	320	2080	518	1	2.106	6.23E-08	0.1415362	0.00027	0.14126	
137	400	320	2080	267	1	2.106	6.23E-08	0.0729418	0.00027	0.07267	
138	420	320	2080	53	1	2.106	6.23E-08	0.0143932	0.00027	0.01412	
139	440	320	2080	11	1	2.106	6.23E-08	0.0028992	0.00027	0.00263	
140	460	320	2080	5	1	2.106	6.23E-08	0.001454	0.00027	0.00118	
141	480	320	2080	5	1	2.106	6.23E-08	0.0012575	0.00027	0.00098	
149	500	320	2080	548	1	2.106	6.23E-08	0.1496064	0.00027	0.14933	
150	520	320	2080	1018	1	2.106	6.23E-08	0.2779797	0.00027	0.27771	
151	540	320	2080	1306	1	2.106	6.23E-08	0.3564982	0.00027	0.35623	
152	560	320	2080	1110	1	2.106	6.23E-08	0.3029314	0.00027	0.30266	
153	580	320	2080	652	1	2.106	6.23E-08	0.178096	0.00027	0.17782	
154	360	340	2080	272	1	2.106	6.23E-08	0.0741245	0.00027	0.07385	
155	380	340	2080	95	1	2.106	6.23E-08	0.0258127	0.00027	0.02554	
156	400	340	2080	30	1	2.106	6.23E-08	0.0083228	0.00027	0.00805	
165	420	340	2080	754	1	2.106	6.23E-08	0.2057891	0.00027	0.20552	
166	440	340	2080	1707	1	2.106	6.23E-08	0.466113	0.00027	0.46584	
167	460	340	2080	2257	1	2.106	6.23E-08	0.6162882	0.00027	0.61602	
168	480	340	2080	1817	1	2.106	6.23E-08	0.495968	0.00027	0.49570	
169	500	340	2080	957	1	2.106	6.23E-08	0.2612368	0.00027	0.26096	
170	520	340	2080	362	1	2.106	6.23E-08	0.0986949	0.00027	0.09842	
171	540	340	2080	146	1	2.106	6.23E-08	0.0398886	0.00027	0.03962	
172	560	340	2080	47	1	2.106	6.23E-08	0.0128814	0.00027	0.01261	
181	580	340	2080	931	1	2.106	6.23E-08	0.2542401	0.00027	0.25397	
182	600	340	2080	2145	1	2.106	6.23E-08	0.5857116	0.00027	0.58544	
183	380	360	2080	3552	1	2.106	6.23E-08	0.9697663	0.00027	0.96949	
184	400	360	2080	2385	1	2.106	6.23E-08	0.651008	0.00027	0.65073	
185	420	360	2080	1122	1	2.106	6.23E-08	0.3062235	0.00027	0.30595	
186	440	360	2080	380	1	2.106	6.23E-08	0.1036087	0.00027	0.10334	
187	460	360	2080	204	1	2.106	6.23E-08	0.0556454	0.00027	0.05537	
188	480	360	2080	53	1	2.106	6.23E-08	0.0145794	0.00027	0.01431	
197	500	360	2080	676	1	2.106	6.23E-08	0.1845403	0.00027	0.18427	
198	520	360	2080	1266	1	2.106	6.23E-08	0.345585	0.00027	0.34531	
199	540	360	2080	2151	1	2.106	6.23E-08	0.5872503	0.00027	0.58698	
200	560	360	2080	2141	1	2.106	6.23E-08	0.5845126	0.00027	0.58424	
201	580	360	2080	1451	1	2.106	6.23E-08	0.3959977	0.00027	0.39572	
202	600	360	2080	770	1	2.106	6.23E-08	0.2101544	0.00027	0.20988	
203	620	360	2080	327	1	2.106	6.23E-08	0.0891425	0.00027	0.08887	

Benzene Plume

Cell ID	Cell Address (X)	Cell Address (Y)	Cell Volume (ft3)	Cell Concentration of Benzene (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
204	400	380	2080	32	1	2.106	6.23E-08	0.0086033	0.00027	0.00833	
212	420	380	2080	196	1	2.106	6.23E-08	0.053389	0.00027	0.05312	
213	440	380	2080	402	1	2.106	6.23E-08	0.1097377	0.00027	0.10946	
214	460	380	2080	432	1	2.106	6.23E-08	0.117857	0.00027	0.11758	
215	480	380	2080	1018	1	2.106	6.23E-08	0.2779018	0.00027	0.27763	
216	500	380	2080	1907	1	2.106	6.23E-08	0.5207322	0.00027	0.52046	
217	520	380	2080	1787	1	2.106	6.23E-08	0.4877512	0.00027	0.48748	
218	540	380	2080	1105	1	2.106	6.23E-08	0.3015696	0.00027	0.30130	
219	560	380	2080	378	1	2.106	6.23E-08	0.1030735	0.00027	0.10280	
228	580	380	2080	202	1	2.106	6.23E-08	0.055013	0.00027	0.05474	
229	600	380	2080	475	1	2.106	6.23E-08	0.1296714	0.00027	0.12940	
230	620	380	2080	895	1	2.106	6.23E-08	0.2442787	0.00027	0.24401	
231	420	400	2080	1673	1	2.106	6.23E-08	0.4568272	0.00027	0.45655	
232	440	400	2080	2509	1	2.106	6.23E-08	0.6848672	0.00027	0.68459	
233	460	400	2080	2439	1	2.106	6.23E-08	0.665918	0.00027	0.66564	
234	480	400	2080	1374	1	2.106	6.23E-08	0.3751805	0.00027	0.37491	
235	500	400	2080	251	1	2.106	6.23E-08	0.0684983	0.00027	0.06823	
244	520	400	2080	168	1	2.106	6.23E-08	0.0458823	0.00027	0.04561	
245	540	400	2080	608	1	2.106	6.23E-08	0.1660039	0.00027	0.16573	
246	560	400	2080	1283	1	2.106	6.23E-08	0.3502575	0.00027	0.34998	
247	580	400	2080	2262	1	2.106	6.23E-08	0.6174189	0.00027	0.61715	
248	600	400	2080	3471	1	2.106	6.23E-08	0.9475072	0.00027	0.94723	
249	620	400	2080	3487	1	2.106	6.23E-08	0.9520298	0.00027	0.95176	
250	440	420	2080	1390	1	2.106	6.23E-08	0.3795382	0.00027	0.37927	
260	460	420	2080	160	1	2.106	6.23E-08	0.043799	0.00027	0.04353	
261	480	420	2080	630	1	2.106	6.23E-08	0.1720341	0.00027	0.17176	
262	500	420	2080	1286	1	2.106	6.23E-08	0.3511948	0.00027	0.35092	
263	520	420	2080	2129	1	2.106	6.23E-08	0.5811901	0.00027	0.58092	
264	540	420	2080	3086	1	2.106	6.23E-08	0.8424267	0.00027	0.84215	
265	560	420	2080	2849	1	2.106	6.23E-08	0.7777745	0.00027	0.77750	
266	580	420	2080	612	1	2.106	6.23E-08	0.1670376	0.00027	0.16676	
276	600	420	2080	194	1	2.106	6.23E-08	0.0529225	0.00027	0.05265	
277	620	420	2080	525	1	2.106	6.23E-08	0.143211	0.00027	0.14294	
278	460	440	2080	945	1	2.106	6.23E-08	0.2580989	0.00027	0.25783	
279	480	440	2080	1346	1	2.106	6.23E-08	0.367532	0.00027	0.36726	
280	500	440	2080	1470	1	2.106	6.23E-08	0.4013073	0.00027	0.40103	
281	520	440	2080	783	1	2.106	6.23E-08	0.2137193	0.00027	0.21345	
282	540	440	2080	124	1	2.106	6.23E-08	0.0338525	0.00027	0.03358	
292	560	440	2080	71	1	2.106	6.23E-08	0.0193149	0.00027	0.01904	
293	580	440	2080	306	1	2.106	6.23E-08	0.0836219	0.00027	0.08335	
294	600	440	2080	473	1	2.106	6.23E-08	0.1292585	0.00027	0.12899	
295	620	440	2080	503	1	2.106	6.23E-08	0.1374106	0.00027	0.13714	
296	480	460	2080	276	1	2.106	6.23E-08	0.0754262	0.00027	0.07515	
310	500	460	2080	37	1	2.106	6.23E-08	0.0102305	0.00027	0.00996	
							Total	***22.69905***	***0.030849***	***22.66820***	

Toluene Plume

Cell ID	Cell Volume ft3	Cell Concentration of Toluene (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
102	2080	97.17	40	4.4125	6.23E-08	0.0556	0.0229	0.0327	**34.92**
103	2080	125.20	40	4.4125	6.23E-08	0.0716	0.0229	0.0487	
118	2080	345.24	40	4.4125	6.23E-08	0.1975	0.0229	0.1746	
119	2080	436.68	40	4.4125	6.23E-08	0.2498	0.0229	0.2269	
120	2080	194.54	40	4.4125	6.23E-08	0.1113	0.0229	0.0884	
133	2080	124.00	40	4.4125	6.23E-08	0.0709	0.0229	0.0480	
134	2080	888.32	40	4.4125	6.23E-08	0.5081	0.0229	0.4852	
135	2080	1133.72	40	4.4125	6.23E-08	0.6485	0.0229	0.6256	
136	2080	874.13	40	4.4125	6.23E-08	0.5000	0.0229	0.4771	
137	2080	414.49	40	4.4125	6.23E-08	0.2371	0.0229	0.2142	
138	2080	51.24	40	4.4125	6.23E-08	0.0293	0.0229	0.0064	
149	2080	457.00	40	4.4125	6.23E-08	0.2614	0.0229	0.2385	
150	2080	1823.99	40	4.4125	6.23E-08	1.0433	0.0229	1.0204	
151	2080	2286.88	40	4.4125	6.23E-08	1.3081	0.0229	1.2852	
152	2080	1851.03	40	4.4125	6.23E-08	1.0588	0.0229	1.0359	
153	2080	969.12	40	4.4125	6.23E-08	0.5543	0.0229	0.5315	
154	2080	281.61	40	4.4125	6.23E-08	0.1611	0.0229	0.1382	
165	2080	1371.62	40	4.4125	6.23E-08	0.7846	0.0229	0.7617	
166	2080	3071.26	40	4.4125	6.23E-08	1.7568	0.0229	1.7339	
167	2080	3956.38	40	4.4125	6.23E-08	2.2630	0.0229	2.2402	
168	2080	2976.48	40	4.4125	6.23E-08	1.7025	0.0229	1.6797	
169	2080	1289.65	40	4.4125	6.23E-08	0.7377	0.0229	0.7148	
170	2080	223.65	40	4.4125	6.23E-08	0.1279	0.0229	0.1050	
181	2080	1683.96	40	4.4125	6.23E-08	0.9632	0.0229	0.9403	
182	2080	3852.61	40	4.4125	6.23E-08	2.2037	0.0229	2.1808	
183	2080	6230.96	40	4.4125	6.23E-08	3.5641	0.0229	3.5412	
184	2080	3736.20	40	4.4125	6.23E-08	2.1371	0.0229	2.1142	
185	2080	1230.35	40	4.4125	6.23E-08	0.7038	0.0229	0.6809	
197	2080	1122.10	40	4.4125	6.23E-08	0.6418	0.0229	0.6190	
198	2080	2159.00	40	4.4125	6.23E-08	1.2349	0.0229	1.2121	
199	2080	3402.35	40	4.4125	6.23E-08	1.9461	0.0229	1.9233	
200	2080	2747.57	40	4.4125	6.23E-08	1.5716	0.0229	1.5487	
201	2080	1274.33	40	4.4125	6.23E-08	0.7289	0.0229	0.7060	
202	2080	311.15	40	4.4125	6.23E-08	0.1780	0.0229	0.1551	
212	2080	167.29	40	4.4125	6.23E-08	0.0957	0.0229	0.0728	
213	2080	319.26	40	4.4125	6.23E-08	0.1826	0.0229	0.1597	
214	2080	134.73	40	4.4125	6.23E-08	0.0771	0.0229	0.0542	
215	2080	535.11	40	4.4125	6.23E-08	0.3061	0.0229	0.2832	
216	2080	1259.40	40	4.4125	6.23E-08	0.7204	0.0229	0.6975	
217	2080	951.30	40	4.4125	6.23E-08	0.5441	0.0229	0.5213	
218	2080	433.57	40	4.4125	6.23E-08	0.2480	0.0229	0.2251	
219	2080	105.85	40	4.4125	6.23E-08	0.0605	0.0229	0.0377	
231	2080	263.16	40	4.4125	6.23E-08	0.1505	0.0229	0.1276	
232	2080	696.19	40	4.4125	6.23E-08	0.3982	0.0229	0.3753	
233	2080	714.63	40	4.4125	6.23E-08	0.4088	0.0229	0.3859	
234	2080	391.69	40	4.4125	6.23E-08	0.2240	0.0229	0.2012	
235	2080	69.48	40	4.4125	6.23E-08	0.0397	0.0229	0.0169	
246	2080	71.36	40	4.4125	6.23E-08	0.0408	0.0229	0.0179	
247	2080	314.23	40	4.4125	6.23E-08	0.1797	0.0229	0.1569	
248	2080	670.81	40	4.4125	6.23E-08	0.3837	0.0229	0.3608	
249	2080	737.00	40	4.4125	6.23E-08	0.4216	0.0229	0.3987	
250	2080	309.69	40	4.4125	6.23E-08	0.1771	0.0229	0.1543	
262	2080	116.02	40	4.4125	6.23E-08	0.0664	0.0229	0.0435	
263	2080	302.47	40	4.4125	6.23E-08	0.1730	0.0229	0.1501	
264	2080	550.26	40	4.4125	6.23E-08	0.3147	0.0229	0.2919	
265	2080	551.76	40	4.4125	6.23E-08	0.3156	0.0229	0.2927	
266	2080	123.01	40	4.4125	6.23E-08	0.0704	0.0229	0.0475	
278	2080	92.10	40	4.4125	6.23E-08	0.0527	0.0229	0.0298	
279	2080	187.20	40	4.4125	6.23E-08	0.1071	0.0229	0.0842	
280	2080	247.49	40	4.4125	6.23E-08	0.1416	0.0229	0.1187	
281	2080	144.78	40	4.4125	6.23E-08	0.0828	0.0229	0.0599	
295	2080	66.33	40	4.4125	6.23E-08	0.0379	0.0229	0.0151	
296	2080	44.22	40	4.4125	6.23E-08	0.0253	0.0229	0.0024	
					Total	***36.3588***	***1.4414***	***34.9174***	

Ethylbenzene Plume

Cell ID	Cell Address (X)	Cell Address (Y)	Cell Volume (ft3)	Cell Concentration of Ethylbenzene (ug/L)	Cleanup Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
56	140	60	2080	79.4791	30	7.80625	6.23E-08	0.080427914	0.03036	0.05007	77.04
57	160	60	2080	108.5495	30	7.80625	6.23E-08	0.109845307	0.03036	0.07949	
58	180	60	2080	84.4049	30	7.80625	6.23E-08	0.085412488	0.03036	0.05505	
59	200	60	2080	58.2876	30	7.80625	6.23E-08	0.058983458	0.03036	0.02863	
60	220	60	2080	40.0043	30	7.80625	6.23E-08	0.040481818	0.03036	0.01012	
71	240	60	2080	66.1458	30	7.80625	6.23E-08	0.066935472	0.03036	0.03658	
72	120	80	2080	177.8978	30	7.80625	6.23E-08	0.180021462	0.03036	0.14966	
73	140	80	2080	182.4119	30	7.80625	6.23E-08	0.184589481	0.03036	0.15423	
74	160	80	2080	122.7003	30	7.80625	6.23E-08	0.124165094	0.03036	0.09381	
75	180	80	2080	73.8278	30	7.80625	6.23E-08	0.074709103	0.03036	0.04435	
76	200	80	2080	43.8977	30	7.80625	6.23E-08	0.044421729	0.03036	0.01406	
87	220	80	2080	178.0661	30	7.80625	6.23E-08	0.18019184	0.03036	0.14983	
88	240	80	2080	245.5558	30	7.80625	6.23E-08	0.248487151	0.03036	0.21813	
89	120	100	2080	215.6480	30	7.80625	6.23E-08	0.218222368	0.03036	0.18786	
90	140	100	2080	134.1330	30	7.80625	6.23E-08	0.135734249	0.03036	0.10538	
91	160	100	2080	67.3763	30	7.80625	6.23E-08	0.068180632	0.03036	0.03782	
102	180	100	2080	172.2309	30	7.80625	6.23E-08	0.174286967	0.03036	0.14393	
103	200	100	2080	358.1755	30	7.80625	6.23E-08	0.362451329	0.03036	0.33209	
104	220	100	2080	390.5321	30	7.80625	6.23E-08	0.395194194	0.03036	0.36484	
105	240	100	2080	280.7554	30	7.80625	6.23E-08	0.284107015	0.03036	0.25375	
106	100	120	2080	128.8177	30	7.80625	6.23E-08	0.130355504	0.03036	0.10000	
107	120	120	2080	39.1968	30	7.80625	6.23E-08	0.039664737	0.03036	0.00931	
118	140	120	2080	435.5970	30	7.80625	6.23E-08	0.440797042	0.03036	0.41044	
119	160	120	2080	689.0156	30	7.80625	6.23E-08	0.697240852	0.03036	0.66688	
120	180	120	2080	672.0772	30	7.80625	6.23E-08	0.680100269	0.03036	0.64974	
121	200	120	2080	408.4067	30	7.80625	6.23E-08	0.41328216	0.03036	0.38292	
122	220	120	2080	98.0471	30	7.80625	6.23E-08	0.09921751	0.03036	0.06886	
134	240	120	2080	915.1893	30	7.80625	6.23E-08	0.926114568	0.03036	0.89576	
135	100	140	2080	1,267.5565	30	7.80625	6.23E-08	1.282688153	0.03036	1.25233	
136	120	140	2080	1,151.3600	30	7.80625	6.23E-08	1.165104513	0.03036	1.13475	
137	140	140	2080	670.7094	30	7.80625	6.23E-08	0.678716068	0.03036	0.64836	
138	160	140	2080	114.5528	30	7.80625	6.23E-08	0.115920252	0.03036	0.08556	
149	180	140	2080	876.0000	30	7.80625	6.23E-08	0.886457405	0.03036	0.85610	
150	200	140	2080	1,699.9105	30	7.80625	6.23E-08	1.720203496	0.03036	1.68985	
151	220	140	2080	2,199.0965	30	7.80625	6.23E-08	2.225348595	0.03036	2.19499	
152	240	140	2080	1,893.7912	30	7.80625	6.23E-08	1.91639865	0.03036	1.88604	
153	100	160	2080	1,109.3300	30	7.80625	6.23E-08	1.12257284	0.03036	1.09221	
154	120	160	2080	417.8690	30	7.80625	6.23E-08	0.422857337	0.03036	0.39250	
155	140	160	2080	103.3858	30	7.80625	6.23E-08	0.104619953	0.03036	0.07426	
165	160	160	2080	1,218.4330	30	7.80625	6.23E-08	1.23297821	0.03036	1.20262	
166	180	160	2080	2,737.1680	30	7.80625	6.23E-08	2.769843473	0.03036	2.73949	
167	200	160	2080	3,576.1178	30	7.80625	6.23E-08	3.61880836	0.03036	3.58845	
168	220	160	2080	2,824.2967	30	7.80625	6.23E-08	2.858012224	0.03036	2.82765	
169	100	180	2080	1,423.0568	30	7.80625	6.23E-08	1.440044753	0.03036	1.40969	
170	120	180	2080	459.6793	30	7.80625	6.23E-08	0.46516685	0.03036	0.43481	
171	140	180	2080	127.8021	30	7.80625	6.23E-08	0.129327804	0.03036	0.09897	
172	160	180	2080	25.0898	30	7.80625	6.23E-08	0.025389308	0.03036	-0.00497	
181	180	180	2080	1,484.7569	30	7.80625	6.23E-08	1.502481459	0.03036	1.47212	
182	200	180	2080	3,376.5816	30	7.80625	6.23E-08	3.416890144	0.03036	3.38653	
183	220	180	2080	5,468.9065	30	7.80625	6.23E-08	5.534192577	0.03036	5.50383	
184	80	200	2080	3,468.6197	30	7.80625	6.23E-08	3.510026977	0.03036	3.47967	
185	100	200	2080	1,429.6220	30	7.80625	6.23E-08	1.446688399	0.03036	1.41633	
186	120	200	2080	309.2137	30	7.80625	6.23E-08	0.312904981	0.03036	0.28255	
187	140	200	2080	123.4473	30	7.80625	6.23E-08	0.124920997	0.03036	0.09456	
188	160	200	2080	23.6040	30	7.80625	6.23E-08	0.023885731	0.03036	-0.00647	
197	180	200	2080	1,024.5291	30	7.80625	6.23E-08	1.036759595	0.03036	1.00640	
198	200	200	2080	1,931.3752	30	7.80625	6.23E-08	1.954431297	0.03036	1.92407	
199	220	200	2080	3,068.8624	30	7.80625	6.23E-08	3.105497453	0.03036	3.07514	
200	80	220	2080	2,651.4649	30	7.80625	6.23E-08	2.683117249	0.03036	2.65276	
201	100	220	2080	1,464.9101	30	7.80625	6.23E-08	1.482397697	0.03036	1.45204	
202	120	220	2080	584.1346	30	7.80625	6.23E-08	0.591107796	0.03036	0.56075	
203	140	220	2080	195.0805	30	7.80625	6.23E-08	0.197409283	0.03036	0.16705	
212	160	220	2080	221.9175	30	7.80625	6.23E-08	0.224566679	0.03036	0.19421	
213	180	220	2080	403.1993	30	7.80625	6.23E-08	0.408012577	0.03036	0.37765	
214	200	220	2080	280.3946	30	7.80625	6.23E-08	0.283741842	0.03036	0.25338	
215	220	220	2080	720.6645	30	7.80625	6.23E-08	0.729267581	0.03036	0.69891	
216	80	240	2080	1,482.6190	30	7.80625	6.23E-08	1.500318004	0.03036	1.46996	
217	100	240	2080	1,241.8095	30	7.80625	6.23E-08	1.256633866	0.03036	1.22628	
218	120	240	2080	680.7198	30	7.80625	6.23E-08	0.688845997	0.03036	0.65849	
219	140	240	2080	214.0487	30	7.80625	6.23E-08	0.216603941	0.03036	0.18625	
228	160	240	2080	176.7310	30	7.80625	6.23E-08	0.178840775	0.03036	0.14848	
229	180	240	2080	243.2240	30	7.80625	6.23E-08	0.246127556	0.03036	0.21577	
230	200	240	2080	310.0104	30	7.80625	6.23E-08	0.313711248	0.03036	0.28335	
231	60	260	2080	685.8090	30	7.80625	6.23E-08	0.693995994	0.03036	0.66364	
232	80	260	2080	1,192.4503	30	7.80625	6.23E-08	1.206685352	0.03036	1.17633	

Ethylbenzene Plume

Cell ID	Cell Address (X)	Cell Address (Y)	Cell Volume (ft3)	Cell Concentration of Ethylbenzene (ug/L)	Cleanup Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
233	100	260	2080	1,178.4651	30	7.80625	6.23E-08	1.192533254	0.03036	1.16218	
234	120	260	2080	665.4086	30	7.80625	6.23E-08	0.673352034	0.03036	0.64299	
235	140	260	2080	123.0782	30	7.80625	6.23E-08	0.124547455	0.03036	0.09419	
244	160	260	2080	212.6921	30	7.80625	6.23E-08	0.215231195	0.03036	0.18487	
245	180	260	2080	305.1541	30	7.80625	6.23E-08	0.308796899	0.03036	0.27844	
246	200	260	2080	483.2240	30	7.80625	6.23E-08	0.488992544	0.03036	0.45863	
247	60	280	2080	861.8138	30	7.80625	6.23E-08	0.872101812	0.03036	0.84174	
248	80	280	2080	1,381.7768	30	7.80625	6.23E-08	1.39827201	0.03036	1.36791	
249	100	280	2080	1,410.3037	30	7.80625	6.23E-08	1.427139411	0.03036	1.39678	
250	120	280	2080	579.2974	30	7.80625	6.23E-08	0.586212881	0.03036	0.55585	
260	140	280	2080	219.9361	30	7.80625	6.23E-08	0.222561583	0.03036	0.19220	
261	160	280	2080	328.7304	30	7.80625	6.23E-08	0.332654632	0.03036	0.30230	
262	180	280	2080	509.9377	30	7.80625	6.23E-08	0.516025182	0.03036	0.48567	
263	200	280	2080	809.4643	30	7.80625	6.23E-08	0.819127378	0.03036	0.78877	
264	60	300	2080	1,184.3927	30	7.80625	6.23E-08	1.198531647	0.03036	1.16817	
265	80	300	2080	1,103.1697	30	7.80625	6.23E-08	1.116338942	0.03036	1.08598	
266	100	300	2080	241.1075	30	7.80625	6.23E-08	0.243985788	0.03036	0.21363	
276	120	300	2080	143.1395	30	7.80625	6.23E-08	0.144848262	0.03036	0.11449	
277	140	300	2080	252.8878	30	7.80625	6.23E-08	0.255906654	0.03036	0.22555	
278	160	300	2080	380.2172	30	7.80625	6.23E-08	0.384756123	0.03036	0.35440	
279	180	300	2080	515.7253	30	7.80625	6.23E-08	0.521881821	0.03036	0.49152	
280	60	320	2080	561.3499	30	7.80625	6.23E-08	0.568051137	0.03036	0.53769	
281	80	320	2080	301.3074	30	7.80625	6.23E-08	0.30490436	0.03036	0.27455	
293	100	320	2080	130.8247	30	7.80625	6.23E-08	0.132386454	0.03036	0.10203	
294	120	320	2080	188.3599	30	7.80625	6.23E-08	0.190608486	0.03036	0.16025	
295	140	320	2080	195.1055	30	7.80625	6.23E-08	0.19743464	0.03036	0.16708	
296	160	320	2080	106.4120	30	7.80625	6.23E-08	0.107682303	0.03036	0.07732	
							Total	***80.1390***	***3.0965***	***77.0425***	

Xylenes Plume

Cell ID	Cell Volume ft3	Cell Concentration of Xylenes (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
42	2080	30.7	20	8.63125	6.23E-08	0.0343957	0.02238	0.01202	**190.58**
43	2080	25.8	20	8.63125	6.23E-08	0.0288132	0.02238	0.00644	
44	2080	21.3	20	8.63125	6.23E-08	0.0237849	0.02238	0.00141	
56	2080	97.3	20	8.63125	6.23E-08	0.1088502	0.02238	0.08647	
57	2080	118.2	20	8.63125	6.23E-08	0.1322893	0.02238	0.10991	
58	2080	76.1	20	8.63125	6.23E-08	0.0851844	0.02238	0.06281	
59	2080	42.9	20	8.63125	6.23E-08	0.0479609	0.02238	0.02558	
60	2080	27.1	20	8.63125	6.23E-08	0.0303687	0.02238	0.00799	
61	2080	23.2	20	8.63125	6.23E-08	0.0259566	0.02238	0.00358	
62	2080	20.9	20	8.63125	6.23E-08	0.0233616	0.02238	0.00098	
71	2080	80.1	20	8.63125	6.23E-08	0.0896098	0.02238	0.06723	
72	2080	197.5	20	8.63125	6.23E-08	0.2210118	0.02238	0.19863	
73	2080	173.9	20	8.63125	6.23E-08	0.19458	0.02238	0.17220	
74	2080	85.9	20	8.63125	6.23E-08	0.0961082	0.02238	0.07373	
75	2080	32.1	20	8.63125	6.23E-08	0.0358768	0.02238	0.01350	
87	2080	224.6	20	8.63125	6.23E-08	0.25129	0.02238	0.22891	
88	2080	249.8	20	8.63125	6.23E-08	0.2795429	0.02238	0.25717	
89	2080	164.1	20	8.63125	6.23E-08	0.1836036	0.02238	0.16123	
90	2080	55.9	20	8.63125	6.23E-08	0.0625828	0.02238	0.04021	
102	2080	291.3	20	8.63125	6.23E-08	0.3259633	0.02238	0.30359	
103	2080	521.0	20	8.63125	6.23E-08	0.5829712	0.02238	0.56059	
104	2080	430.3	20	8.63125	6.23E-08	0.4814977	0.02238	0.45912	
105	2080	203.0	20	8.63125	6.23E-08	0.2271017	0.02238	0.20472	
106	2080	22.8	20	8.63125	6.23E-08	0.0255133	0.02238	0.00314	
118	2080	845.5	20	8.63125	6.23E-08	0.9459691	0.02238	0.92359	
119	2080	1213.1	20	8.63125	6.23E-08	1.3573337	0.02238	1.33496	
120	2080	924.6	20	8.63125	6.23E-08	1.0345096	0.02238	1.01213	
121	2080	411.3	20	8.63125	6.23E-08	0.4601836	0.02238	0.43781	
122	2080	30.2	20	8.63125	6.23E-08	0.033821	0.02238	0.01144	
134	2080	1959.5	20	8.63125	6.23E-08	2.1924151	0.02238	2.17004	
135	2080	2597.9	20	8.63125	6.23E-08	2.9067969	0.02238	2.88442	
136	2080	2175.1	20	8.63125	6.23E-08	2.4337307	0.02238	2.41135	
137	2080	1161.2	20	8.63125	6.23E-08	1.2992554	0.02238	1.27688	
138	2080	199.2	20	8.63125	6.23E-08	0.2229335	0.02238	0.20056	
149	2080	456.0	20	8.63125	6.23E-08	0.510211	0.02238	0.48783	
150	2080	3843.5	20	8.63125	6.23E-08	4.3004795	0.02238	4.27810	
151	2080	4874.2	20	8.63125	6.23E-08	5.453623	0.02238	5.43125	
152	2080	4028.8	20	8.63125	6.23E-08	4.5077189	0.02238	4.48534	
153	2080	2180.9	20	8.63125	6.23E-08	2.4401278	0.02238	2.41775	
154	2080	683.2	20	8.63125	6.23E-08	0.7644146	0.02238	0.74204	
155	2080	69.5	20	8.63125	6.23E-08	0.0777664	0.02238	0.05539	
165	2080	2837.9	20	8.63125	6.23E-08	3.1752691	0.02238	3.15289	
166	2080	6361.0	20	8.63125	6.23E-08	7.1172675	0.02238	7.09489	
167	2080	8229.2	20	8.63125	6.23E-08	9.2075121	0.02238	9.18513	
168	2080	6267.2	20	8.63125	6.23E-08	7.0122559	0.02238	6.98988	
169	2080	2794.9	20	8.63125	6.23E-08	3.1271778	0.02238	3.10480	
170	2080	564.3	20	8.63125	6.23E-08	0.6314064	0.02238	0.60903	
181	2080	3484.1	20	8.63125	6.23E-08	3.8982856	0.02238	3.87591	
182	2080	7948.9	20	8.63125	6.23E-08	8.8939265	0.02238	8.87155	
183	2080	12870.1	20	8.63125	6.23E-08	14.400202	0.02238	14.37782	
184	2080	7869.3	20	8.63125	6.23E-08	8.8048235	0.02238	8.78245	
185	2080	2734.1	20	8.63125	6.23E-08	3.0591235	0.02238	3.03675	
186	2080	78.3	20	8.63125	6.23E-08	0.0876277	0.02238	0.06525	
197	2080	2390.4	20	8.63125	6.23E-08	2.6745977	0.02238	2.65222	
198	2080	4537.3	20	8.63125	6.23E-08	5.0767385	0.02238	5.05436	
199	2080	7211.1	20	8.63125	6.23E-08	8.0684206	0.02238	8.04604	
200	2080	6082.2	20	8.63125	6.23E-08	6.8052591	0.02238	6.78288	
201	2080	3096.6	20	8.63125	6.23E-08	3.4647718	0.02238	3.44239	
202	2080	995.5	20	8.63125	6.23E-08	1.1138137	0.02238	1.09144	
203	2080	244.5	20	8.63125	6.23E-08	0.2736093	0.02238	0.25123	
204	2080	1.1	20	8.63125	6.23E-08	0.0012103	0.02238	-0.02117	

Xylenes Plume

Cell ID	Cell Volume ft3	Cell Concentration of Xylenes (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
212	2080	468.1	20	8.63125	6.23E-08	0.5237681	0.02238	0.50139	
213	2080	898.2	20	8.63125	6.23E-08	1.004991	0.02238	0.98261	
214	2080	632.0	20	8.63125	6.23E-08	0.7071062	0.02238	0.68473	
215	2080	1711.9	20	8.63125	6.23E-08	1.9154238	0.02238	1.89305	
216	2080	3522.0	20	8.63125	6.23E-08	3.9407467	0.02238	3.91837	
217	2080	2888.1	20	8.63125	6.23E-08	3.2314696	0.02238	3.20909	
218	2080	1509.9	20	8.63125	6.23E-08	1.6894482	0.02238	1.66707	
219	2080	437.7	20	8.63125	6.23E-08	0.4897893	0.02238	0.46741	
228	2080	291.0	20	8.63125	6.23E-08	0.3256219	0.02238	0.30324	
229	2080	484.4	20	8.63125	6.23E-08	0.5419483	0.02238	0.51957	
230	2080	749.5	20	8.63125	6.23E-08	0.8385858	0.02238	0.81621	
231	2080	1780.7	20	8.63125	6.23E-08	1.9923679	0.02238	1.96999	
232	2080	3099.7	20	8.63125	6.23E-08	3.4682159	0.02238	3.44584	
233	2080	3049.7	20	8.63125	6.23E-08	3.4122807	0.02238	3.38990	
234	2080	1688.2	20	8.63125	6.23E-08	1.8889458	0.02238	1.86657	
235	2080	302.5	20	8.63125	6.23E-08	0.3384161	0.02238	0.31604	
244	2080	249.4	20	8.63125	6.23E-08	0.2790095	0.02238	0.25663	
245	2080	570.5	20	8.63125	6.23E-08	0.6383791	0.02238	0.61600	
246	2080	1179.2	20	8.63125	6.23E-08	1.3193394	0.02238	1.29696	
247	2080	2311.3	20	8.63125	6.23E-08	2.5860822	0.02238	2.56370	
248	2080	3815.3	20	8.63125	6.23E-08	4.2688998	0.02238	4.24652	
249	2080	3922.5	20	8.63125	6.23E-08	4.3888601	0.02238	4.36648	
250	2080	1584.5	20	8.63125	6.23E-08	1.772905	0.02238	1.75053	
260	2080	234.9	20	8.63125	6.23E-08	0.2627831	0.02238	0.24041	
261	2080	596.1	20	8.63125	6.23E-08	0.6669903	0.02238	0.64461	
262	2080	1214.5	20	8.63125	6.23E-08	1.358922	0.02238	1.33654	
263	2080	2162.9	20	8.63125	6.23E-08	2.4200319	0.02238	2.39765	
264	2080	3310.0	20	8.63125	6.23E-08	3.7035535	0.02238	3.68118	
265	2080	3124.9	20	8.63125	6.23E-08	3.496359	0.02238	3.47398	
266	2080	677.6	20	8.63125	6.23E-08	0.7581042	0.02238	0.73573	
276	2080	180.4	20	8.63125	6.23E-08	0.2018229	0.02238	0.17945	
277	2080	426.5	20	8.63125	6.23E-08	0.4772496	0.02238	0.45487	
278	2080	842.4	20	8.63125	6.23E-08	0.9425174	0.02238	0.92014	
279	2080	1333.1	20	8.63125	6.23E-08	1.4915751	0.02238	1.46920	
280	2080	1543.9	20	8.63125	6.23E-08	1.727443	0.02238	1.70507	
281	2080	845.9	20	8.63125	6.23E-08	0.9464464	0.02238	0.92407	
292	2080	46.9	20	8.63125	6.23E-08	0.0524777	0.02238	0.03010	
293	2080	123.9	20	8.63125	6.23E-08	0.1386173	0.02238	0.11624	
294	2080	335.6	20	8.63125	6.23E-08	0.375452	0.02238	0.35307	
295	2080	472.4	20	8.63125	6.23E-08	0.5285278	0.02238	0.50615	
296	2080	282.8	20	8.63125	6.23E-08	0.3164132	0.02238	0.29404	
					Total	***192.86069***	***2.28252***	***190.57817***	

MtBE Plume

Cell ID	Cell Volume (ft3)	Cell Concentration of MtBE (ug/L)	Cleanup Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
42	2080	8.78	5	1.1125	6.23E-08	0.00126652	0.00072	0.00055	**13.62**
43	2080	44.15	5	1.1125	6.23E-08	0.00636716	0.00072	0.00565	
44	2080	56.29	5	1.1125	6.23E-08	0.00811815	0.00072	0.00740	
45	2080	48.17	5	1.1125	6.23E-08	0.0069473	0.00072	0.00623	
46	2080	27.63	5	1.1125	6.23E-08	0.00398436	0.00072	0.00326	
57	2080	52.83	5	1.1125	6.23E-08	0.00761828	0.00072	0.00690	
58	2080	124.11	5	1.1125	6.23E-08	0.01789839	0.00072	0.01718	
59	2080	162.16	5	1.1125	6.23E-08	0.02338533	0.00072	0.02266	
60	2080	152.98	5	1.1125	6.23E-08	0.02206191	0.00072	0.02134	
61	2080	108.18	5	1.1125	6.23E-08	0.01560177	0.00072	0.01488	
62	2080	50.72	5	1.1125	6.23E-08	0.00731396	0.00072	0.00659	
72	2080	21.44	5	1.1125	6.23E-08	0.0030922	0.00072	0.00237	
73	2080	144.72	5	1.1125	6.23E-08	0.02087082	0.00072	0.02015	
74	2080	283.01	5	1.1125	6.23E-08	0.04081452	0.00072	0.04009	
75	2080	330.42	5	1.1125	6.23E-08	0.04765124	0.00072	0.04693	
76	2080	276.56	5	1.1125	6.23E-08	0.03988383	0.00072	0.03916	
77	2080	163.75	5	1.1125	6.23E-08	0.02361507	0.00072	0.02289	
78	2080	43.72	5	1.1125	6.23E-08	0.00630512	0.00072	0.00558	
88	2080	69.73	5	1.1125	6.23E-08	0.01005544	0.00072	0.00933	
89	2080	299.71	5	1.1125	6.23E-08	0.04322243	0.00072	0.04250	
90	2080	533.82	5	1.1125	6.23E-08	0.07698439	0.00072	0.07626	
91	2080	582.54	5	1.1125	6.23E-08	0.08401117	0.00072	0.08329	
92	2080	436.40	5	1.1125	6.23E-08	0.06293585	0.00072	0.06221	
93	2080	209.24	5	1.1125	6.23E-08	0.03017511	0.00072	0.02945	
104	2080	64.42	5	1.1125	6.23E-08	0.0092904	0.00072	0.00857	
105	2080	477.40	5	1.1125	6.23E-08	0.06884789	0.00072	0.06813	
106	2080	959.86	5	1.1125	6.23E-08	0.13842604	0.00072	0.13770	
107	2080	971.89	5	1.1125	6.23E-08	0.1401607	0.00072	0.13944	
108	2080	630.91	5	1.1125	6.23E-08	0.0909867	0.00072	0.09027	
109	2080	216.28	5	1.1125	6.23E-08	0.03119139	0.00072	0.03047	
119	2080	16.18	5	1.1125	6.23E-08	0.00233364	0.00072	0.00161	
120	2080	11.31	5	1.1125	6.23E-08	0.0016318	0.00072	0.00091	
121	2080	777.11	5	1.1125	6.23E-08	0.11207129	0.00072	0.11135	
122	2080	1775.62	5	1.1125	6.23E-08	0.25607123	0.00072	0.25535	
123	2080	1504.52	5	1.1125	6.23E-08	0.21697425	0.00072	0.21625	
124	2080	810.09	5	1.1125	6.23E-08	0.11682704	0.00072	0.11611	
125	2080	160.44	5	1.1125	6.23E-08	0.02313794	0.00072	0.02242	
135	2080	191.67	5	1.1125	6.23E-08	0.02764175	0.00072	0.02692	
136	2080	559.74	5	1.1125	6.23E-08	0.08072345	0.00072	0.08000	
137	2080	1507.93	5	1.1125	6.23E-08	0.21746719	0.00072	0.21675	
138	2080	2671.17	5	1.1125	6.23E-08	0.38522308	0.00072	0.38450	
139	2080	1809.23	5	1.1125	6.23E-08	0.26091817	0.00072	0.26020	
140	2080	839.02	5	1.1125	6.23E-08	0.12099905	0.00072	0.12028	
141	2080	34.68	5	1.1125	6.23E-08	0.00500112	0.00072	0.00428	
150	2080	82.94	5	1.1125	6.23E-08	0.01196062	0.00072	0.01124	
151	2080	387.20	5	1.1125	6.23E-08	0.05584081	0.00072	0.05512	
152	2080	918.08	5	1.1125	6.23E-08	0.13240134	0.00072	0.13168	
153	2080	1628.82	5	1.1125	6.23E-08	0.23490129	0.00072	0.23418	
154	2080	2013.55	5	1.1125	6.23E-08	0.29038457	0.00072	0.28966	
155	2080	1546.66	5	1.1125	6.23E-08	0.22305208	0.00072	0.22233	
156	2080	686.28	5	1.1125	6.23E-08	0.09897271	0.00072	0.09825	
166	2080	153.14	5	1.1125	6.23E-08	0.02208444	0.00072	0.02136	
167	2080	441.26	5	1.1125	6.23E-08	0.06363651	0.00072	0.06292	
168	2080	1027.44	5	1.1125	6.23E-08	0.148173	0.00072	0.14745	
169	2080	1608.60	5	1.1125	6.23E-08	0.2319841	0.00072	0.23126	
170	2080	1712.14	5	1.1125	6.23E-08	0.24691672	0.00072	0.24620	
171	2080	1208.88	5	1.1125	6.23E-08	0.17433946	0.00072	0.17362	
172	2080	444.45	5	1.1125	6.23E-08	0.06409635	0.00072	0.06338	
181	2080	104.21	5	1.1125	6.23E-08	0.01502858	0.00072	0.01431	
182	2080	388.21	5	1.1125	6.23E-08	0.05598539	0.00072	0.05526	
183	2080	381.78	5	1.1125	6.23E-08	0.05505797	0.00072	0.05434	
184	2080	1186.93	5	1.1125	6.23E-08	0.17117342	0.00072	0.17045	

MtBE Plume

Cell ID	Cell Volume (ft3)	Cell Concentration of MtBE (ug/L)	Cleanup Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
185	2080	1712.60	5	1.1125	6.23E-08	0.24698323	0.00072	0.24626	
186	2080	1615.92	5	1.1125	6.23E-08	0.23304022	0.00072	0.23232	
187	2080	942.66	5	1.1125	6.23E-08	0.13594541	0.00072	0.13522	
188	2080	200.72	5	1.1125	6.23E-08	0.02894635	0.00072	0.02823	
197	2080	451.87	5	1.1125	6.23E-08	0.06516599	0.00072	0.06444	
198	2080	1298.95	5	1.1125	6.23E-08	0.18732826	0.00072	0.18661	
199	2080	1641.22	5	1.1125	6.23E-08	0.23668905	0.00072	0.23597	
200	2080	1766.89	5	1.1125	6.23E-08	0.25481234	0.00072	0.25409	
201	2080	1768.71	5	1.1125	6.23E-08	0.25507456	0.00072	0.25435	
202	2080	1371.35	5	1.1125	6.23E-08	0.19776988	0.00072	0.19705	
203	2080	677.68	5	1.1125	6.23E-08	0.09773133	0.00072	0.09701	
204	2080	67.61	5	1.1125	6.23E-08	0.00975054	0.00072	0.00903	
213	2080	721.52	5	1.1125	6.23E-08	0.10405402	0.00072	0.10333	
214	2080	2038.73	5	1.1125	6.23E-08	0.2940159	0.00072	0.29329	
215	2080	2673.59	5	1.1125	6.23E-08	0.3855721	0.00072	0.38485	
216	2080	2384.94	5	1.1125	6.23E-08	0.34394471	0.00072	0.34322	
217	2080	1940.87	5	1.1125	6.23E-08	0.27990385	0.00072	0.27918	
218	2080	1198.64	5	1.1125	6.23E-08	0.17286244	0.00072	0.17214	
219	2080	365.47	5	1.1125	6.23E-08	0.05270677	0.00072	0.05199	
229	2080	751.43	5	1.1125	6.23E-08	0.10836796	0.00072	0.10765	
230	2080	1836.94	5	1.1125	6.23E-08	0.2649146	0.00072	0.26419	
231	2080	2575.35	5	1.1125	6.23E-08	0.37140435	0.00072	0.37068	
232	2080	2718.09	5	1.1125	6.23E-08	0.39199085	0.00072	0.39127	
233	2080	2184.00	5	1.1125	6.23E-08	0.31496632	0.00072	0.31425	
234	2080	1061.32	5	1.1125	6.23E-08	0.15305865	0.00072	0.15234	
235	2080	76.94	5	1.1125	6.23E-08	0.01109571	0.00072	0.01037	
245	2080	630.82	5	1.1125	6.23E-08	0.09097358	0.00072	0.09025	
246	2080	1531.23	5	1.1125	6.23E-08	0.22082731	0.00072	0.22011	
247	2080	2348.85	5	1.1125	6.23E-08	0.33874058	0.00072	0.33802	
248	2080	2960.62	5	1.1125	6.23E-08	0.42696646	0.00072	0.42625	
249	2080	2574.50	5	1.1125	6.23E-08	0.3712819	0.00072	0.37056	
250	2080	753.02	5	1.1125	6.23E-08	0.10859661	0.00072	0.10788	
251	2080	58.00	5	1.1125	6.23E-08	0.00836449	0.00072	0.00764	
261	2080	412.59	5	1.1125	6.23E-08	0.05950185	0.00072	0.05878	
262	2080	1125.96	5	1.1125	6.23E-08	0.16238083	0.00072	0.16166	
263	2080	1807.28	5	1.1125	6.23E-08	0.26063784	0.00072	0.25992	
264	2080	2331.78	5	1.1125	6.23E-08	0.33627906	0.00072	0.33556	
265	2080	1867.53	5	1.1125	6.23E-08	0.26932587	0.00072	0.26860	
266	2080	172.17	5	1.1125	6.23E-08	0.02482892	0.00072	0.02411	
277	2080	200.40	5	1.1125	6.23E-08	0.02890071	0.00072	0.02818	
278	2080	653.95	5	1.1125	6.23E-08	0.09430905	0.00072	0.09359	
279	2080	1022.05	5	1.1125	6.23E-08	0.14739452	0.00072	0.14667	
280	2080	1041.12	5	1.1125	6.23E-08	0.15014482	0.00072	0.14942	
281	2080	386.02	5	1.1125	6.23E-08	0.05566971	0.00072	0.05495	
282	2080	59.00	5	1.1125	6.23E-08	0.0085087	0.00072	0.00779	
293	2080	33.92	5	1.1125	6.23E-08	0.00489163	0.00072	0.00417	
294	2080	239.19	5	1.1125	6.23E-08	0.03449537	0.00072	0.03377	
295	2080	371.88	5	1.1125	6.23E-08	0.05363038	0.00072	0.05291	
296	2080	198.94	5	1.1125	6.23E-08	0.02869015	0.00072	0.02797	
					Total	***13.6955***	***0.0800***	***13.6155***	

TBA Plume

Cell ID	Cell Volume ft3	Cell Concentration of TBA (ug/L)	Clean up Level Concentration (ug/L)	Retardation Coefficient (Rd)	Conversion Factor	Cell Mass Actual (lb)	Cell Mass Below Cleanup Level (lb)	Cell Mass to be removed (lb)	Mass to be Removed Total (lb)
122	2080	130.48	120	1.69662855	6.23E-08	0.028697079	0.02639	0.00230	**5.37**
138	2080	224.30	120	1.69662855	6.23E-08	0.049331918	0.02639	0.02294	
139	2080	164.82	120	1.69662855	6.23E-08	0.036250883	0.02639	0.00986	
153	2080	220.11	120	1.69662855	6.23E-08	0.048410186	0.02639	0.02202	
154	2080	300.69	120	1.69662855	6.23E-08	0.066132357	0.02639	0.03974	
155	2080	210.17	120	1.69662855	6.23E-08	0.04622362	0.02639	0.01983	
168	2080	209.89	120	1.69662855	6.23E-08	0.046163528	0.02639	0.01977	
169	2080	478.85	120	1.69662855	6.23E-08	0.105315738	0.02639	0.07892	
170	2080	493.14	120	1.69662855	6.23E-08	0.108459348	0.02639	0.08207	
171	2080	267.96	120	1.69662855	6.23E-08	0.0589333	0.02639	0.03254	
184	2080	503.16	120	1.69662855	6.23E-08	0.110662502	0.02639	0.08427	
185	2080	798.66	120	1.69662855	6.23E-08	0.175654887	0.02639	0.14926	
186	2080	696.21	120	1.69662855	6.23E-08	0.153122733	0.02639	0.12673	
187	2080	270.38	120	1.69662855	6.23E-08	0.059465883	0.02639	0.03307	
197	2080	157.00	120	1.69662855	6.23E-08	0.034530092	0.02639	0.00814	
198	2080	689.39	120	1.69662855	6.23E-08	0.151622257	0.02639	0.12523	
199	2080	1148.54	120	1.69662855	6.23E-08	0.25260653	0.02639	0.22621	
200	2080	1055.80	120	1.69662855	6.23E-08	0.232209992	0.02639	0.20582	
201	2080	916.56	120	1.69662855	6.23E-08	0.201585317	0.02639	0.17519	
202	2080	594.00	120	1.69662855	6.23E-08	0.130642711	0.02639	0.10425	
203	2080	154.06	120	1.69662855	6.23E-08	0.033884237	0.02639	0.00749	
213	2080	298.56	120	1.69662855	6.23E-08	0.065663328	0.02639	0.03927	
214	2080	1523.59	120	1.69662855	6.23E-08	0.335093987	0.02639	0.30870	
215	2080	2023.98	120	1.69662855	6.23E-08	0.445147494	0.02639	0.41876	
216	2080	1449.65	120	1.69662855	6.23E-08	0.318831449	0.02639	0.29244	
217	2080	969.79	120	1.69662855	6.23E-08	0.213293415	0.02639	0.18690	
218	2080	467.67	120	1.69662855	6.23E-08	0.102857252	0.02639	0.07646	
229	2080	415.77	120	1.69662855	6.23E-08	0.091443425	0.02639	0.06505	
230	2080	1191.82	120	1.69662855	6.23E-08	0.262124105	0.02639	0.23573	
231	2080	1557.70	120	1.69662855	6.23E-08	0.34259482	0.02639	0.31620	
232	2080	1353.03	120	1.69662855	6.23E-08	0.297581242	0.02639	0.27119	
233	2080	902.29	120	1.69662855	6.23E-08	0.198446677	0.02639	0.17205	
234	2080	360.49	120	1.69662855	6.23E-08	0.079285763	0.02639	0.05289	
245	2080	362.14	120	1.69662855	6.23E-08	0.079647786	0.02639	0.05326	
246	2080	826.64	120	1.69662855	6.23E-08	0.181809731	0.02639	0.15542	
247	2080	1096.79	120	1.69662855	6.23E-08	0.24122458	0.02639	0.21483	
248	2080	1086.78	120	1.69662855	6.23E-08	0.239023889	0.02639	0.21263	
249	2080	766.60	120	1.69662855	6.23E-08	0.168603183	0.02639	0.14221	
250	2080	188.06	120	1.69662855	6.23E-08	0.041361555	0.02639	0.01497	
261	2080	251.06	120	1.69662855	6.23E-08	0.055217102	0.02639	0.02882	
262	2080	526.88	120	1.69662855	6.23E-08	0.1158804	0.02639	0.08949	
263	2080	693.78	120	1.69662855	6.23E-08	0.152587066	0.02639	0.12619	
264	2080	696.60	120	1.69662855	6.23E-08	0.153207301	0.02639	0.12681	
265	2080	434.55	120	1.69662855	6.23E-08	0.095572643	0.02639	0.06918	
277	2080	142.00	120	1.69662855	6.23E-08	0.031231679	0.02639	0.00484	
278	2080	283.55	120	1.69662855	6.23E-08	0.062362433	0.02639	0.03597	
279	2080	343.83	120	1.69662855	6.23E-08	0.075620254	0.02639	0.04923	
280	2080	264.37	120	1.69662855	6.23E-08	0.058145053	0.02639	0.03175	
					Total	***6.6338***	***1.2668***	***5.3669***	