From: Donna Cresswell [DCresswell@wendel.com]
Sent: Thursday, May 15, 2008 5:57 PM
To: Drogos, Donna, Env. Health
Cc: Catherine W. Johnson
Subject: Fuel Leak Case No. RO0000317. Mashhoon Property

Follow Up Flag: Follow up
Flag Status: Red

Attachments: Ltr to D Drogos 051508.PDF; Petition and exhibits.PDF

<<Ltr to D Drogos 051508.PDF>> <<Petition and exhibits.PDF>>

Please see the attached.

Thank you.

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May 15, 2008

VIA EMAIL AND U.S. MAIL

Donna Drogos
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94501-6577

Re: Fuel Leak Case No. RO0000317 Global ID #T0600102278. Mashhoon Property/Union 76, 5725 Thornhill Drive, Oakland, CA

Dear Ms. Drogos:

I am writing on behalf of Mash Petroleum, Inc. ("MPI") to respond to the ACEH's April 15, 2008 letter to MPI regarding the above-referenced property ("Property"). In its April 15th letter, ACEH requested the preparation of a Work Plan for Soil and Groundwater Investigation ("Work Plan") by May 15, 2008. **Please be advised that MPI has filed an appeal of the ACEH's request with the SWRCB.** MPI intends to continue to cooperate with the ACEH, but MPI believes that the work requested in the ACEH's April 15th letter is unwarranted.

Pending the resolution of this appeal, we request a meeting with the ACEH to evaluate whether we can reach an accommodation with the ACEH about any future work that may be necessary at the Property. Please let me know if and when you are available to meet. Meanwhile, we want to clarify and expand on some of the issues raised in the ACEH's April 15, 2008 letter.

Factual Background

The Property has been operating as a gasoline service station since the 1950s – long before MPI purchased the Property some nine years ago. Upon acquiring the Property in 1999, MPI promptly took steps to minimize any future releases from the Property and to remediate any prior releases. First, MPI arranged for the removal of a bare-steel waste oil tank at the Property. Second, MPI installed fiberglass non-jointed piping from the pre-existing fiberglass tanks to the pumps. Third, upon discovering contamination in the excavation pit of the waste oil tank, MPI excavated the contaminated soil and backfilled it with pea gravel.

Some eight years ago, MPI began working with the ACEH to investigate the extent of the release from the waste oil tank. Over the last few years, MPI installed approximately twenty borings, including cone penetrometer test (CPT) and membrane interface probe (MIP) – both at the Property and downgradient of the Property. MPI has collected in excess of 84 field data points. Various samples have been analyzed for total petroleum hydrocarbons as gasoline, motor oil and diesel, for MTBE, gasoline oxygenates, volatile organic compounds, and various metals, (lead scavengers). The results of these investigations were used to evaluate the site hydrogeology as well as the extent of petroleum hydrocarbons in on and off-site areas. MPI analyzed samples at shallow depths, intermediate depths, and even down to 34 to 40 feet below ground surface. MPI used the results of these studies to prepare a Site Conceptual Model ("SCM"), which identifies the site's hydrogeology, distribution of chemicals of concern (COCs) as well as exposure pathways, sensitive receptors and preferential flow pathways. The results of the sensitive receptor survey did not identify the presence of any drinking water, domestic, or irrigation wells within a quarter-mile radius of the Property.

More recently, MPI arranged for the installation and sampling of an off-site groundwater monitoring well immediately adjacent to Temescal Creek along Thornhill Drive – a busy street in the heart of Montclair, an active urban area. This work involved securing an excavation permit, an encroachment permit, an obstruction permit, a well boring permit, and approval of a traffic control plan, resulting in a lane closure on Thornhill Drive during drilling activities.

The work conducted by MPI over the last eight years has been substantial, both in the scope of the work and the costs incurred. To date, MPI has incurred fees in excess of $200,000 (most of which have been reimbursed by the UST Cleanup Fund). After much time and effort spent delineating the problem, recent sampling collected from borings both on and downgradient from the Property indicate that there are no contaminants in excess of San Francisco Bay Regional Water Quality Control Board ("RWQCB") Environmental Screening Levels ("ESLs") (where groundwater is not used for drinking water purposes).

Discussion

SOMA has previously submitted reports that form the basis for MPI's request that ACEH close the site. Some of that data is summarized here.

1. Summary of Basis for Closure Request

Five monitoring wells sampled on March 4, 2008 yielded results all below the applicable ESL's (i.e., where the groundwater is not used for drinking water). See Exhibit A, Table 1. These five wells are located downgradient and crossgradient from the former waste oil tank and from the operating USTs and include borings on the Property and downgradient of the Property. The farthest downgradient monitoring well (SOMA-5) is located adjacent to a culvert through which the Temescal Creek runs. SOMA-5 is completed within the perched zone located next to boring BH-C, where Aqua Science Engineering (ASE), in 2000, reported elevated levels of MTBE. MTBE was detected in SOMA-5 at 8.96 ppb, a level close to the drinking water standards of 5 ppb for MTBE based on taste and odor – and significantly below the standard of

1,800 ppb for MTBE where the groundwater is not a source of drinking water. The results of subsequent investigations since 2004 have not indicated the presence of elevated levels of MTBE in soil and groundwater as reported by ASE. According to SOMA, such discrepancy between the ASE investigation results and the results of subsequent investigations conducted by SOMA can be attributed to the natural bio-attenuation activities over the last eight years.

Further, MPI notes that while the ESLs are used as screening level, the SWRCB has approved closure of sites where the levels of gasoline and MTBE are above the ESLs. *See, e.g., In the Petition of Landis Incorporated*, Order WQ98-13-UST (November 19, 1998). In *Landis,* the SWRCB acknowledged that the time frame under which the MTBE at the site would likely degrade to drinking water standards could be "several decades" – and "possibly hundreds of years" for the gasoline. Nonetheless, under the circumstances, the SWRCB found that closure was appropriate.

The ACEH has asserted that the applicable ESLs in this case should be the ESLs applicable where groundwater is an actual or potential source of drinking water. Here, however, the Property in question is located in a well-developed urban area where the community is connected to a municipal water supply that does not depend on the underground aquifer. A survey of the area conducted by SOMA indicates that there are no domestic, irrigation, or water wells with a quarter mile radius of the Property. Nor is there any reasonable expectation that such wells would ever be installed in this well-developed urban area. In *In the Petition of Lois Green and Patricia Kelly*, WQ Order 2005-0002-UST (January 20, 2005), the SWRCB found that drinking water standards did not apply where "there is no evidence that groundwater at or down-gradient of petitioner's site is being used presently or that it has any likelihood of being used in the future, for domestic or municipal water supply."

We also note that SOMA submitted the Further Site Investigation for Updating Site Conceptual Model and Site Closure Request ("Closure Request") on October 15, 2007 – a few weeks before the RWQCB adopted its most recent ESLs. The November 2007 ESLs adopted by the RWQCB incorporate less stringent ESLs for petroleum products than the earlier ESLs in place when SOMA submitted the Closure Request. For your convenience we include Exhibit A, which compares the recent sampling data at SOMA-1 through SOMA-5 with the current ESLs.

2. Response to ACEH Letter.

We also want to clarify several points raised in the ACEH's April 15th letter.

The ACEH asserts that the recent installation of SOMA-5 (the monitoring well closest to Temescal Creek) and the observation of a hydrocarbon odor detected during well installation indicate that contamination is present at this location. We understand that where there are odors, sampling is warranted to define the extent of any contamination. Here, however, the well was sampled and those results have been reported to the ACEH – and those results are still below the applicable ESLs (i.e., where there is no source of drinking water). Moreover, not only was this well sampled, it was sampled at 15 feet below ground surface – the very interval which the

ACEH letter identifies as warranting special concern. SOMA informs us that the intensity of the odor as indicated is a qualitative term and may differ from one field person to another.

The ACEH letter repeatedly refers to the findings in samples collected from groundwater at boring BH-C in 2000 – where MPI's former consultant, AquaScience reported MTBE was present in the perched water zone at 5,300 ppb. According to the ACEH, "ACEH does not agree that higher concentrations reported previously are not still valid."

The prior sampling data at BH-C, however, cannot be considered valid because the sampling data is now over eight years old. It is highly unlikely that the sampling results reported in 2000 still represent site conditions. Moreover, recent sampling data clearly refutes the prior sampling data. **Samples recently collected from the same shallow perched water-bearing zone where the eight year old BH-C samples were collected**, show levels of 8.96 ppb MTBE – well below the applicable ESL of 1,800 ppb and only slightly above the ESL of 5 ppb for drinking water (which take odor and taste into account). Moreover, the sampling results collected in 2000 could not be verified in any other subsequent sampling of this area.

The ACEH requests in their April 15th letter that MPI install a soil boring at a location known as CPT-6 – an area where SOMA was unable to previously install a soil boring due to heavy traffic and an obstruction encountered. To avoid the traffic would require the closure of Thornhill Drive and securing multiple permits again – as MPI recently secured for the installation of SOMA-5. Even then, the obstruction previously detected may not permit safe drilling at this location. MPI believes it is unnecessary to install the CPT-6 boring. There are several boring points in the immediately vicinity of proposed CPT-6, including SOMA-4, SOMA-5, and HP-10. The SWRCB has held in the past that where there are substantial disruptions, such as substantial disruption of streets, and minimal benefits to be derived, further work is unnecessary. *See Landis.*

The ACEH also concludes that based on their review of historic groundwater data, including HP-10 and BH-C, "impacted groundwater may have discharged via subflow into Temescal Creek." Obviously, it would be unfortunate if any discharges were made to the Creek – particularly after MPI has spent eight years and over $200,000 complying with ACEH directives to further investigate the extent of a release caused by prior owners of the Property. According to SOMA, natural bio-attenuation activities can account for decreased levels of contaminants. If, however, ACEH's only explanation for the decreasing level of contaminants is that the hot spots of the plume were previously discharged and are no longer present in soil or groundwater, then the ACEH should instead close the site rather than spending more UST Fund public monies on monitoring contaminants that are no longer present.

Whatever may have happened years ago, or whatever may be the source of the MTBE and gasoline releases along Thornhill Drive – a road well-traveled where such releases from vehicles would not be surprising – MPI is committed to working cooperatively with ACEH to close this site expeditiously and cost-effectively in compliance with California law.

Conclusion

MPI believes that the area has been extensively sampled and that further delineation of the area is unwarranted. Eight years of monitoring and sampling show that the levels of contaminants at the Property and downgradient of the Property have been decreasing and are below applicable screening levels adopted to protect health, safety, and the environment.

For these reasons, MPI has appealed this case to the SWRCB. Pending the possibility of resolving this matter with the ACEH, we have requested that the SWRCB hold our petition in abeyance. Thus, we would like to meet with the ACEH to see if we can reach some resolution of this matter pending an appeal. After our meeting, if we are unable to resolve these issues, we will ask that the ACEH prepare an administrative record such that our appeal can be activated.

Thank you in advance for your time. We look forward to hearing from you and to resolving this matter.

Very truly yours,

WENDEL, ROSEN, BLACK & DEAN LLP

Catherine W. Johnson

cc: Steven Plunkett

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May 15, 2008

VIA EMAIL AND U.P.S.

Attention: George Lockwood UST Program
State Water Resources Control Board

Re: Petition for Review by State Water Resources Control Board
Denial of Site Closure by LOP Agency Alameda County Environmental Health

Site: Fuel Leak Case No. RO0000317 Global ID # T0600102278, Mashhoon Property, 5725 Thornhill Drive, Oakland, CA

Summary of Petition

Attached is a Petition for Review by the State Water Resources Control Board. This petition is made to the SWRCB pursuant to section 25297.1(d)(3) of the California Health and Safety Code. Petitioner Mash Petroleum, Inc./Mr. Mohammed Mashhoon ("MPI") requests review of an action by a local oversight program ("LOP"), Alameda County Environmental Health, regarding an underground storage tank release at 5725 Thornhill Drive, Oakland, CA 94611 ("Site"). This petition is submitted to comply with the requirement under SWRCB Resolution Number 88-23 that a petition be submitted in writing and received by the State Board within thirty (30) days of the action or decision of the local agency.

Please note that this petition to review an LOP's decision to deny site closure is filed under the authority of California Health and Safety Code section 25297.1(d)(3), and not under California Health and Safety Code section 25296.40.

Per materials published on the SWRCB webpage, we are sending this petition to George Lockwood, UST Program. Per our consultation with Lori Brock, Office of Chief Counsel, please also forward this petition to Tam Doduc, Chair of the Board and Kevin Graves, UST Program Section Chief.

Request for Abeyance

Petitioner asks that the SWRCB hold this petition in abeyance until further notice, and that the SWRCB not respond with written notification to the parties or agencies until that time. Additional information and an amended petition will be submitted at a future date.

SWRCB Resolution 88-23 Information

Information requested by SWRCB Resolution No. 88-23 is provided below.

I. Name and Address of Petitioner

Mr. Mohammed Mashhoon
Mash Petroleum, Inc.
1721 Jefferson Street
Oakland, CA 94612

II. Specific LOP Action/Inaction

Petitioner requested closure of the Site in a document entitled "Further Site Investigation and Site Closure Request" to the Alameda County Environmental Health Department ("ACEH") on October 15, 2007 (attached hereto as Exhibit A), and in a letter from Mr. Mashhoon dated February 1, 2008 (attached hereto as Exhibit B). ACEH denied closure of the site in an April 15, 2008 letter (attached hereto as Exhibit C). The letter of denial cited reasons for denial and was signed by Hazard Materials Specialist Steven Plunkett.

Petitioner seeks review of ACEH's refusal to provide closure. If the SWRCB does not agree that closure should be granted, Petitioner requests relief from ACEH's request in its April 15, 2008 letter that Petitioner submit a Work Plan for Soil and Groundwater Investigation. The specific activities to which Petitioner objects will be forthcoming in supplemental materials.

III. Date on Which the Agency Acted or Failed to Act

April 15, 2008

IV. Statement of Reasons

Petitioner submits a letter that has been submitted to the ACEH on this same date as a preliminary statement of reasons (attached hereto as Exhibit D). Petitioner will submit a full statement of reasons in supplemental materials.

V. Manner in which Petitioner is Aggrieved

Petitioner will submit a briefing of the manner in which Petitioner is aggrieved in supplemental materials.

VI. Specific Action Petitioner Requests

Petitioner requests that the SWRCB close the site or provide specific directions on measures that can be taken to achieve closure or adequate investigation of the Site. Petitioner will submit supplemental materials with more specifics.

VII. Statement of Points and Authorities

Petitioner will submit supplemental materials with a full briefing.

VIII. List of Interested Persons

Petitioner is unaware of any interested persons but will make further inquiries of the LOP and submit supplemental materials if necessary.

IX. Statement that Petition Has Been Provided to LOP

Petitioner hereby states that the LOP has been provided a copy of this Petition and when the materials are supplemented, Petitioner will provide supplemental materials to the LOP or any other interested parties.

X. Request for Preparation of Local Agency Record

Petitioner is attempting to resolve this matter in a further meeting with the LOP. If those efforts are unsuccessful, Petitioner will request that the LOP prepare a local agency record.

Conclusion

Pursuant to California Health & Safety Code Section 25297.1(d)(3), Petitioner seeks review of an action and failure to act by an LOP. Petitioner requests that the SWRCB hold this petition in abeyance pending further notice and Petitioner's efforts to resolve this matter with the LOP. If you have any questions, please do not hesitate to contact me.

Very truly yours,

WENDEL, ROSEN, BLACK & DEAN LLP

Catherine W. Johnson

cc: Donna Drogos
Steven Plunkett
Mohammed Mashhoon
Mansour Sepehr

EXHIBIT A

ENVIRONMENTAL ENGINEERING, INC
6620 Owens Drive, Suite A • Pleasanton, CA 94588-3334
TEL (925)734-6400 • FAX(925)734-6401

October 15, 2007

Mr. Steven Plunkett
Alameda County
Department of Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California, 94502

Subject: Fuel Leak Case No. RO0000317-5725 Thornhill Drive, Oakland, CA

Dear Mr. Plunkett:

As requested, enclosed for your review is SOMA's "Further Site Investigation for Updating Site Conceptual Model and Site Closure Request" for the subject site. This report has been uploaded to the State's GeoTracker Database and Alameda County FTP site for your review.

Thank you for your time in reviewing our report. If you have any questions or comments, please call me at (925) 734-6400.

Sincerely,

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

cc: Mr. Mo Mashhoon w/report enclosure

FURTHER SITE INVESTIGATION FOR UPDATING SITE CONCEPTUAL MODEL AND SITE CLOSURE REQUEST

5725 Thornhill Drive
Oakland, California

October 15, 2007

Project 2832

Prepared for
Mr. Mohammad Mashhoon
Mash Petroleum, Inc.
1721 Jefferson Street
Oakland, California

SOMA ENVIRONMENTAL ENGINEERING, INC.
6620 Owens Drive Suite A Pleasanton CA 94588 Ph: 925.734.6400 F: 925.734-6401 www.somaenv.com

CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mr. Mohammad Mashhoon, owner of the property located at 5725 Thornhill Drive, Oakland, California. It was prepared in accordance with SOMA's Workplan entitled "Supplemental Workplan, Mash Petroleum, Inc., 1721 Jefferson Street, Oakland, California" dated November 15, 2006, and approved by Alameda County Health Care Services agency in correspondence dated June 14, 2007 and July 5, 2007.

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

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Appendix F: Non-Hazardous Waste Manifest

Appendix G: Certified Analytical Reports and Chain-of-Custody Documentation

1. INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Mohammad Mashhoon, property owner of 5725 Thornhill Drive, Oakland, California (the Site, Figure 1). The Site is bordered on the northwest by residential property, on the northeast by commercial property, on the southwest by private property, and on the southeast by Thornhill Drive.

This report was prepared in accordance with SOMA's workplan dated November 15, 2006 and Alameda County Health Care Services (ACHCS) approval letters dated June 14, 2007 and July 5, 2007.

The purpose of the investigation described in this report was to provide a more thorough understanding of the nature and extent of soil and groundwater contamination distribution and evaluate whether existing subsurface levels of contaminants pose any unacceptable human health risk to current or future Site workers or nearby residents. As such, in order to complete site conceptual model (SCM) and evaluate the site regulatory status, SOMA performed an additional site characterization study, which included a utility corridor evaluation and a monitoring well installation. Approval correspondence is included in Appendix A.

2. SITE BACKGROUND

2.1 Site Location and Description

November 1998: Penn Environmental (Penn) removed a 550-gallon steel underground waste oil tank (WOT) from the Site. Soil samples collected from the WOT excavation contained up to 1,100,000 µg/kg of total petroleum hydrocarbons as gasoline (TPH-g), 2,700,000 µg/kg of total petroleum hydrocarbons as diesel (TPH-d), and 4,200,000 µg/kg of total petroleum hydrocarbons as motor oil
(TPH-mo).

February 4, 1999: Penn over-excavated the contaminated soil surrounding the former WOT. Aqua Science Engineers, Inc. (ASE) collected confirmation soil samples from two sidewalls of the excavation. The only compound, detected in one of these two soil samples, was methyl tertiary-butyl ether (MtBE) at 40 µg/kg.

July 1999: ASE drilled borehole BH-A in the vicinity of the former WOT.

September 6, 2000: ASE drilled soil boreholes BH-B and BH-C.

October 23, 2000: ASE drilled soil boreholes BH-D and BH-E. ASE also collected water samples from Temescal Creek. No hydrocarbons were detected in the water sample collected from Temescal Creek. Figure 2 shows boring locations.

March 2004: On March 1 and 2, SOMA oversaw advancement of nine temporary well boreholes (HP-1 through HP-7, HP-9 and HP-10) by Gregg Drilling & Testing (Gregg). Proposed hydropunch HP-8, which was to be installed in the street, was not drilled due to traffic hazards. Three on-site wells were decommissioned and three additional wells (SOMA-1 to SOMA-3) were installed. Borehole and well locations are shown in Figure 2.

Results of the March 2004 investigation and details of well installations are presented in SOMA's report entitled "Soil and Groundwater Investigation and Monitoring Well Installation Report at 5725 Thornhill Drive, Oakland, California," dated April 16, 2004.

April 25, 2005: SOMA conducted a sensitive receptor survey to identify any water bodies or domestic, irrigation or water supply wells within a quarter-mile radius of the Site. Based on State Department of Water Resources and Alameda County Public Works Agency records, no drinking water, domestic or irrigation wells were within a quarter-mile radius of the Site.

May 2005: CPT/MIP boreholes (CPT-1 through CPT-5 and CPT-7 through CPT-11) were advanced under SOMA's supervision. CPT-6 could not be drilled due to physical constraints and obstruction of local traffic. Ten boreholes, designated GS-1 through GS-5 and GS-7 through GS-11, were advanced at their corresponding CPT borehole locations. Monitoring well SOMA-4 was also installed. Figure 2 shows locations of CPT boreholes and SOMA-4.

Results of the May 2005 site investigation and well installation are presented in SOMA's report entitled "Additional Soil and Groundwater Investigation and Monitoring Well Installation Report at 5725 Thornhill Drive, Oakland, California," dated June 13, 2005.

Tables 1 through 3A illustrate the results of historical soil and groundwater investigations.

2.2 Site Hydrogeology and Background

Results of the May 2005 subsurface investigation and numerous quarterly groundwater monitoring events since 2004 have revealed the Site hydrogeology and distribution of chemicals in subsurface beneath the on- and off-site areas. Results of the CPT/MIP evaluation in May 2005 indicated that there is at least

one main water-bearing zone and one discontinuous water-bearing zone beneath the depths explored at the subject property. SOMA designated the main water-bearing zone as the Upper water-bearing zone (UWBZ) and discontinuous water-bearing zone as the Lower water-bearing zone (LWBZ). However, based on existing cross-sections (see SOMA's May 2005 report) there is also a shallow perched water-bearing zone beneath the Site at approximate depth of 8-11 feet below ground surface (bgs), where the 15-inch-diameter sewer line along the Thornhill Drive is passing. The clayey gravel and sandy clay material at this depths along with gravel bed around the 15-inch diameter sewer line is forming a saturated or semi-saturated zone around the sewer line. During the 1999 and 2000 investigation conducted by ASE, four shallow soil borings BH-B through BH-E were drilled along the sewer line at a total depths of 8-11 feet bgs (Table - 2). During this investigation soil and groundwater samples were collected and analyzed for TPH-g, TPH-d, and TPH-mo; for benzene, toluene, ethylbenzene and xylenes (collectively is referred to as BTEX); and for MtBE. Results of laboratory analysis of groundwater samples collected from the perched groundwater zone beneath the sewer line revealed the presence of elevated levels of TPH-g (up to 13,000 µg/L), TPH-d (up to 110,000 µg/L) TPH-mo (up to 18,000 µg/L) and MtBE (up to 16,000 µg/L). Benzene up 180 ug/L was also detected in groundwater sample collected from BH-D. Results of subsequent groundwater investigations conducted by SOMA in 2004, and especially in 2005, using MIP has not confirmed or verified the presence of elevated levels of MtBE concentrations in the Shallow Perched Zone as reported by ASE.

From approximately 18 to 28 feet bgs, the UWBZ occurs as an approximately 1- to 4-foot thick interbedded sequence of CPT-interpreted sandy silt to clayey silt, silty sand to sandy silt, clay, and sand that appears to gradually attenuate toward the southwestern portions of the Site. Existing groundwater monitoring wells at the Site have been completed within the UWBZ. Results of quarterly groundwater events since 2004 have shown minor concentrations of petroleum hydrocarbons in the UWBZ. Results of the latest groundwater monitoring event (Third Quarter 2007) have reported the maximum concentration of TPH-g, THP-d, BTEX and MtBE at 2,670 µg/L (SOMA-4), 642 µg/L (SOMA-2), less than 250 µg/L (SOMA-1 and SOMA-2), less than 0.5 µg/L, less than 2 µg/L, 4.64 µg/L, 2.79 and 58 µg/L, respectively.

The confining zone below the UWBZ is approximately 6 to 10 feet thick and appears to thicken at the southwestern portion of the Site, as indicated by CPT-7, where no significant groundwater-yielding UWBZ was encountered.

Beneath this confining zone is the more discontinuous LWBZ consisting of CPT-interpreted silty sand to sandy silt, clay, and very stiff fine-grained matrix. This low-permeability water-bearing zone is approximately 2 to 4 feet thick and extends from approximately 34 to 40 feet bgs, where drilling resistance was encountered. The results of May 2005 groundwater investigation using CPT/MIP have not revealed the presence of TPH-g, TPH-mo or BTEX in LWBZ. However,

MtBE and TPH-d with maximum concentrations of 164 and 220 µg/L were detected in groundwater samples collected from LWBZ (Table 2).

As discussed above, Figure 2 shows the location of the geologic cross-sections and Figures 3, 3A and 3B show the geologic cross-sections and corresponding depth of each hydrogeologic unit.

3. SCOPE OF WORK

The objectives of the additional site investigation were as follows:

- To evaluate possible chemical source(s) of elevated levels of petroleum hydrocarbons and MtBE as reported by ASE upgradient of the Site within the perched groundwater zone around the 15-inch-diameter sewer line as detected in borings BH-B through BH-E.
- To determine whether dissolved phase petroleum hydrocarbon contamination is adversely impacting the water quality of Temescal Creek, located downgradient of the Site.
- To compare existing contaminant levels in soil and groundwater with the environmental screening levels (ESLs) set forth by the Regional Water Quality Control Board (RWQCB) and determine if the Site is qualified for "No Further Action" (NFA) status as designated by the RWQCB.

To evaluate these issues, one utility sampling borehole, USB-1, was installed approximately 50 feet up gradient from the Site in the southbound lane of Thornhill Drive and a groundwater monitoring well, SOMA-5, was installed approximately 100 feet downgradient of the Site in the northern sidewalk area of Thornhill Drive, adjacent to the Temescal Creek. Figure 2 illustrates these locations.

3.1 Pre–Field Work Activities

3.1.1 Health and Safety Plan

Before initiating field activities, SOMA prepared a site-specific Health and Safety Plan (HASP). The HASP is 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 potential 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 and signed by field staff and contractors prior to beginning field operations at the Site.

3.1.2 Permitting

To implement field activities, SOMA obtained the following permits:

- Excavation Permit from the City of Oakland, Office of Planning and Building Department, to advance boring USB-1 and install monitoring well SOMA-5 (Permit Number X0700966)
- Minor Encroachment Permit from the City of Oakland, Community and Economic Development Agency, to advance boring USB-1 and install monitoring well SOMA-5 (Permit Number ENMI07246 and ENMI07246)
- Obstruction Permit from the City of Oakland, Community and Economic Development Agency, to advance boring USB-1 and install monitoring well SOMA-5 (Permit Number OB070645)
- Traffic Control Plan, approved by the City of Oakland Public Works Agency, to achieve a lane closure of the Thornhill Drive (northbound and southbound, ½ day each way)
- Monitoring Well/Borings Installation Permit from the Alameda County Public Works Agency to advance boring USB-1 and install monitoring well SOMA-5 (Permit Numbers W2007-0891 and W2007-0892)

Permit copies as well as permit applications are included in Appendix B.

3.1.3 Subsurface Utility Clearance

Prior to initiating field activities, SOMA retained a private utility locator, Precision Locating, to determine exact locations of utility lines in close proximity to the Site and establish whether proposed locations are clear of any subsurface obstructions. All borings and underground utility conduits were marked with washable paint of appropriate color.

In addition, SOMA contacted Underground Service Alert (USA) 48 hours prior to initiating field work (USA ticket No 347841). Prior to advancing the borings, each boring/well location was cleared to a depth of 5 feet bgs using a hand auger.

3.2 Utility Corridor Evaluation

To determine whether the high TPH-g, TPH-d, TPH-mo and MtBE concentrations in groundwater, reported in 1999 and 2000 by ASE within the Shallow Perched Zone and gravel bedding of the 15-inch-diameter sewer line, are emanating from the upgradient source(s) and traveling through the sewer-main utility trench as a

preferential pathway from previously identified historical sources, SOMA drilled and sampled one borehole, USB-1. As shown in Figure 2, this borehole was located immediately adjacent to the sewer main on the south side of Thornhill Drive.

On September 21, 2007, Gregg used an "Air Knife" rig to drill and sample the aforementioned borehole. The "Air Knife" is essentially a high-powered vacuum mounted onto a lance-shaped head of PVC. The sharp-lanced end of this drilling device loosened the gravel and allowed the vacuum to remove the loosened material without rupturing underground utilities.

The drilling crew advanced the borehole by first cutting the asphalt with a concrete cutter to remove a 6-inch by 3-foot slot oriented orthogonal to the marked location of the sewer main. After removing the asphalt and exposing the underlying base rock, the field crew loosened and vacuumed the base rock through a PVC casing with the Air Knife rig. As the trench backfill was removed, the casing was advanced downward to the bottom of the utility trench, approximately 10 feet bgs. The boring log for USB-1 is attached in Appendix C.

SOMA's geologist then collected a water sample from the trench with a disposable poly bailer and decanted the water sample into VOA vials and 1-L amber bottles. The geologist verified that the VOA vials contained no headspace by examining the 40-mL containers for bubbles. The samples were immediately labeled and placed into a chilled cooler with ice, pending delivery to the laboratory with chain of custody (COC) documentation.

SOMA's field personnel also collected a soil sample from the trench bottom with a sleeved slide-hammer sampler. Field personnel extracted the soil-filled sleeve from the sampling shoe, covered both ends of the sample with Teflon tape, and capped both ends with plastic end caps. The sample was then labeled and placed into a chilled cooler with ice, pending delivery to the laboratory with COC documentation.

The above soil and groundwater samples were analyzed for TPH-g, TPH-d, and TPH-mo using USEPA Method 8015M; volatile organics and gasoline oxygenates using EPA Method 8260B, and ethanol using USEPA Method 8260B.

3.2.1 Utility Sampling Borehole Abandonment

The utility sampling borehole was abandoned using neat cement grout mixed at a ratio of 6 gallons of water per 94 pounds of Portland cement. Because the boring was advanced below groundwater, it was backfilled from the bottom up using a tremie pipe. A cement cap was placed at ground surface to match existing grade.

3.3 Monitoring Well SOMA-5

To evaluate the hydraulic communication and water quality of the perched water bearing zone adjacent to the underground culvert carrying the flow within Temescal Creek, monitoring well SOMA-5 was installed southwest of the Site in the sidewalk area. The data gathered during this investigation will also reveal the lateral extent of dissolved-phase hydrocarbons in the perched groundwater next to the Temescal Creek.

On September 21, 2007, SOMA observed drilling and installation of the 2-inch-diameter groundwater monitoring well SOMA-5 by Gregg, Inc., using combination of hollow-stem auger and direct push technology (DPT) drilling techniques. The monitoring well boring was drilled 8 inches in diameter to a depth of 15 feet bgs.

3.3.1 Monitoring Well Installation

The monitoring well was constructed of 2-inch-diameter interior/exterior flush threaded, NSF-approved rigid PVC Schedule 40 well casing and well screen. Well screen perforations were precision machine slotted. Screen slot sizes were 0.02-inch (20 slot) to maximize development of the monitoring well, expedite purging of the well prior to sampling, and lower groundwater entrance velocities to minimize volatilization of groundwater samples collected from the well. Well screen length was 5 feet. The well screen was installed to penetrate within the perched zone located approximately 12-15 feet bgs.

All screen/casing strings were threaded together. Use of solvent glues was not allowed in assembling the screen/casing strings. Filter pack was installed in the annular space adjacent to the well screen. A minimum 2-foot-thick hydrated bentonite chip seal was placed within the annular space above the filter pack material. The remaining portion of the annular space to approximately 6 inches below grade was sealed with neat cement grout mixed at a ratio of 6 gallons of water per 94 pounds of Portland cement. To protect the monitoring well from accidental damage or tampering, a traffic rated 8-inch-diameter utility box with steel protective cover and locking well cap was placed over the monitoring wellhead, set in concrete and resting flush with existing grade. Materials and construction details are presented in the boring log for Monitoring Well SOMA-5 in Appendix C.

SOMA's field personnel collected three soil samples (from the aforementioned location): from 5 to 6 feet bgs, from 11-12 feet bgs, and from 14 to 15 feet bgs. Field personnel extracted the soil-filled sleeve from the sampling shoe, covered both ends of the sample with Teflon tape, and capped both ends with plastic end caps. The sample was then labeled and placed into a chilled cooler with ice, pending delivery to the laboratory with COC documentation.

On September 23, 2007, SOMA's geologist used a disposable bailer to collect a water sample from the installed well. A sample was decanted into VOA vials and 1-L amber bottles. The geologist verified that the VOA vials contained no headspace by examining the 40-mL containers for bubbles. The samples were immediately labeled and placed into a chilled cooler with ice, pending delivery to the laboratory with chain of custody (COC) documentation.

Soil and groundwater samples were analyzed for TPH-g, TPH-d, and TPH-mo using USEPA Method 8015M; volatile organics and gasoline oxygenates using EPA Method 8260B, and ethanol using USEPA Method 8260B.

3.3.2 Monitoring Well Development

On October 3, 2007, SOMA developed monitoring well SOMA-5. The screened portion of the monitoring well was mechanically surged with a vented surge block, followed by bailing of the well to remove material finer than the filter pack material entering through the well screen in response to surging operations, followed by pumping of the well with a submersible pump. The monitoring well screen was surged for 30 minutes. Following surging, fine-grained material consisting of silt and clay at the bottom of the well was removed by bailer. The well was then pumped at a flow rate of approximately 1 gallon per minute (gpm), during which water quality parameters including pH, electrical conductivity, dissolved oxygen, turbidity and temperature were consistently monitored in the discharge. All the water quality parameters stabilized after 26 gallons of water were pumped from the monitoring well. No fine-grained material was present at the bottom of the well at the conclusion of well development operations. The field data sheet documenting development activities at monitoring well SOMA-5 is included in Appendix D.

SOMA did not observe hydrocarbon odors in the water discharged from the monitoring well.

3.3.3 Monitoring Well Surveying

On October 4, 2007, Aliquot Associates (LLS # 4210) surveyed the location of monitoring well SOMA-5. The latitude and longitude coordinates were surveyed to Zone III NAD 83 datum, and the elevation coordinate surveyed to the NAVD 88 datum from GPS observations. Survey data are included in Appendix E.

3.4 Investigative Derived Waste

Soil core and waste polybutryate liners generated during advancement of utility sampling borehole, soil cuttings generated during drilling of the boring for monitoring well SOMA-5, and water generated during development of monitoring well SOMA-5, were placed in five 55-gallon capacity DOT rated steel drums. Each drum was labeled with contents and date of accumulation, ownership and

street address information and contact phone number. The drums were temporarily stored in the southeast portion of the Site and transported on October 10, 2007, under non-hazardous waste manifest, by NRC Environmental Services Inc. of Alameda, California to Crosby and Overton, Inc of Long Beach, California. The Generator/Shipper Initial Copy of the non-hazardous waste manifest is included in Appendix F.

4. FINDINGS

4.1 Subsurface Conditions

Subsurface soil encountered in utility sampling borehole USB-1, upgradient of the Site, consists of a trench fill material ranging from sandy gravel from 0.5 feet to 7.5 feet bgs, to pea gravel from 7.5 feet to 9 feet bgs, and to saturated gravelly clay from 9 to 10 feet bgs. No petroleum hydrocarbon odor was observed at the time of the borehole advancement.

Subsurface soil encountered in well installation borehole SOMA-5 downgradient of the Site consists of gravelly sand from 0.5 feet to 8.5 feet bgs, clayey gravel 8.5 feet to 12.5 feet bgs, and saturated sandy clay from 12.5 to 15 feet bgs. Soil with petroleum hydrocarbon impact, demonstrated by elevated PID readings and slight petroleum hydrocarbon odor, was observed in this boring from 10 to 15 feet bgs. Soil borings and well completion report are attached in Appendix C.

4.2 Soil Sample Analytical Results

Soil samples were submitted on September 24, 2007, to Pacific Analytical Laboratory (PAL), a California state-certified analytical laboratory. The samples were analyzed for the following constituents using the listed methods:

- TPH-g, TPH-d and TPH-mo using EPA Method 8015B
- BTEX, MtBE, TBA, DIPE, ETBE, TAME, 1,2-dichloroethane, 1,2-dibromethane (collectively known as "gas oxygenates") and ethanol using EPA Method 8260B.

Three soil samples, collected from groundwater monitoring well borehole SOMA-5 (samples SOMA-5A, SOMA-5B, and SOMA-5C, and utility sampling borehole USB-1) were submitted for laboratory analyses.

Sample SOMA-5B, collected at 11 to 12 feet bgs, exhibited trace MtBE and TBA concentrations at 0.68 µg/kg and 5.33 µg/kg respectively. Sample SOMA-5C, collected at 14 to 15 feet bgs, exhibited TPH-g, ethylbenzene, o-xylene, MtBE and TBA concentrations at 354 µg/kg, 4.52 µg/kg, 2.5 µg/kg, 0.86 µg/kg, and 20.9 µg/kg respectively. All other analytes were below the laboratory-reporting limit in all the samples collected from SOMA-5 location.

Results for samples collected at 9 to 9.5 feet bgs at the USB-1 location were below the laboratory-reporting limit for all analyzed constituents.

Analytical results are included in Table 4. Certified analytical reports are included in Appendix G.

4.3 Grab Groundwater Sample Analytical Results

Groundwater samples were submitted on September 24, 2007 to PAL and were analyzed for the following constituents using the listed methods:

- TPH-g, TPH-d and TPH-mo using EPA Method 8015B
- BTEX, MtBE, TBA, DIPE, ETBE, TAME, 1,2-dichloroethane, 1,2-dibromethane (collectively known as "gas oxygenates") and ethanol using EPA Method 8260B.

One grab groundwater sample was collected from each drilled location. In borehole SOMA-5, TPH-d, MtBE and TBA were detected at 111 µg/L 54.9 µg/L and 203 µg/L respectively. All other analytes were below the laboratory-reporting limit.

In borehole USB-1, TPH-d, and ethylbenzene were detected at 75.4 µg/L and 4.31 µg/L respectively. All other analytes were below the laboratory-reporting limit. Analytical results are included in Table 5. Certified analytical reports are included in Appendix G.

5. SITE CONCEPTUAL MODEL

Results of this and prior investigative data were used to evaluate the hydrogeology of the Site and characterize the nature and distribution of chemical contamination in soil and groundwater. The following describes the SCM in light of existing data.

5.1 Site Hydrogeology

SOMA incorporated results of the current and previous CPT borehole study and lithologic log of the newly constructed groundwater monitoring well to construct three geologic cross-section diagrams. Figures 3, 3A, and 3B show the geologic cross-section diagrams of A–A', B–B', and C–C', respectively. As they show, an unconsolidated sequence of permeable and relatively impermeable sediments underlies the Site investigation area as described below.

5.1.1 Water-Bearing and Confining Zones

Based on existing cross-sections (see SOMA's May 2005 report), the uppermost water-bearing zone is a shallow and perched water-bearing zone beneath the Site at approximate depth of 8-11 feet bgs, where the 15-inch-diameter sewer line along the Thornhill Drive passes. The clayey gravel and sandy clay material at these depths along with gravel bed around the 15-inch-diameter sewer line is forming a saturated or semi-saturated zone around the sewer line.

At least one main water-bearing zone (UWBZ) and one discontinuous water-bearing zone (LWBZ) were encountered within the depths explored at the subject property. From approximately 18 to 28 feet bgs, the UWBZ occurs as an approximately 1- to 4-foot thick interbedded sequence of CPT-interpreted sandy silt to clayey silt, silty sand to sandy silt, clay, and sand that appears to gradually attenuate toward the southwestern portions of the Site.

The confining zone below the UWBZ is approximately 6 to 10 feet thick and appears to thicken at the southwestern portion of the Site (as indicated by CPT-7), where no significant groundwater-yielding UWBZ was encountered.

Beneath this confining zone is the more discontinuous LWBZ consisting of CPT-interpreted silty sand to sandy silt, clay, and very stiff fine-grained matrix. This low-permeability water-bearing zone is approximately 2 to 4 feet thick and extends from approximately 34 to 40 feet bgs, where drilling resistance was encountered.

5.2 Nature and Extent of Groundwater Contamination

This section describes the nature and extent of the groundwater contamination based on the present investigation and previous site investigations conducted in May 2005 and March 2004 followed by groundwater monitoring events. Because monitoring wells SOMA-1, SOMA-2, and SOMA-3 are screened exclusively within the UWBZ, the most recent groundwater monitoring results from these wells were also used to define the extent of the groundwater contamination in the UWBZ. Since the maximum depth of the previous soil borings did not exceed beyond the UWBZ, no groundwater data were previously available on the LWBZ. Therefore, results of the May 2005 groundwater study were used to evaluate the presence of petroleum hydrocarbons in the LWBZ.

5.2.1 Shallow Perched Water-Bearing Zone

During the 1999 and 2000 investigations conducted by ASE, four shallow soil borings BH-B through BH-E were drilled along the sewer line at total depths of 8-11 feet bgs (Table 2). During this investigation soil and groundwater samples were collected and analyzed for TPH-g, TPH-d, TPH-mo, BTEX and MtBE. Results of laboratory analysis of groundwater samples collected from the

perched groundwater zone beneath the sewer line revealed the presence of elevated levels of TPH-g (up to 13,000 µg/L), TPH-d (up to 110,000 µg/L) TPH-mo (up to 18,000 µg/L) and MtBE (up to 16,000 µg/L). Benzene up 180 µg/L was also detected in groundwater samples collected from BH-D. Results of subsequent groundwater investigations conducted by SOMA in 2004, and especially in 2005 using MIP has not confirmed or verified the presence of elevated levels of MtBE concentrations in the Shallow Perched Zone as reported by ASE.

During the current investigation SOMA drilled one soil boring upgradient from the Site within the Shallow Perched Zone to evaluate water quality in the Shallow Perched Zone entering into the Site. In addition, SOMA installed a new groundwater monitoring well, SOMA-5, within this zone downgradient of the Site. SOMA collected grab groundwater samples from the upgradient soil boring and SOMA-5 which were analyzed for TPH-g. TPH-d, BTEX, MtBE and fuel oxygenates. Results of the current investigation also did not verify the presence elevated levels of petroleum hydrocarbons and MtBE in the Shallow Perched Zone (see Section 4.3). During the current investigation TPH-mo, MtBE, and TBA were detected at 111 µg/L, 54.9 µg/L and 203 µg/L, respectively.

5.2.2 Upper Water-Bearing Zone

Results from quarterly groundwater monitoring events and the May 2005 groundwater investigation, along with previously available data on the UWBZ, were used to better characterize the extent of chemical plumes in the UWBZ in the on- and off-site areas. The following describes the current extent of groundwater contamination with respect to TPH-g, TPH-d, TPH-mo, BTEX and MtBE in the UWBZ.

5.2.2.1 TPH-g in the UWBZ

During the May 2005 groundwater study TPH-g was detected at maximum concentration of 11,400 µg/L at sample location GS-2 southeast of the pump island canopy. TPH-g was not detected in any other sampling locations. During the March 2004 groundwater investigation, TPH-g concentration in the UWBZ ranged between 360 and 9,700 µg/L. As the data indicates, TPH-g was mainly detected around the pump canopy area and at the HP-10 sampling location adjacent to SOMA-4. During Second Quarter 2005 groundwater monitoring, TPH-g was detected at 5,960 µg/L in the sample collected from SOMA-2. Since 2005, TPH-g concentration in SOMA-2 has decreased significantly. During the most recent groundwater monitoring event (Third Quarter 2007) TPH-g concentration was 906 µg/L in SOMA-2, located immediately downgradient from the pump island canopy. Table 2 presents reported TPH-g concentration during the current and previous groundwater studies; Figure 7 shows TPH-g concentration contours using historical data.

5.2.2.2 TPH-d in the UWBZ

TPH-d was detected more frequently in groundwater during the current and previous groundwater studies at the Site. During the May 2005 groundwater investigation, TPH-d concentration in groundwater ranged between 60 and 8,900 µg/L. The maximum concentration of TPH-d was detected at sample location GS-2. During the March 2004 groundwater study TPH-d concentration ranged between 160 and 21,000 µg/L. During First Quarter 2005, TPH-d was detected in SOMA-2 at 2,100 µg/L. Since 2005, TPH-d concentration in SOMA-2 has decreased significantly. During the most recent groundwater monitoring event (Third Quarter 2007), TPH-d concentration in SOMA-2 was 427 µg/L. The maximum concentration of TPH-d was detected at HP-10 adjacent to SOMA-4. Results of groundwater monitoring event in Third Quarter 2007 showed a dramatic reduction in TPH-d concentration 642 µg/L. Table 2 presents current and previous reported TPH-d concentrations in groundwater studies; Figure 8 shows the TPH-d concentration contour map using historical data.

5.2.2.3 TPH-mo in the UWBZ

TPH-mo was detected only in sample location GS-2 at 300 µg/L. However, during the March 2004 groundwater investigation period, TPH-mo was detected more frequently. TPH-mo was detected at a maximum concentration of 58,000 µg/L at sample location HP-2, located at the eastern corner of the pump and canopy island. No TPH-mo concentrations were detected during groundwater monitoring events. Table 2 presents current and previous reported TPH-mo concentrations in groundwater studies; Figure 9 shows the TPH-mo concentration contour map using historical data.

5.2.2.4 BTEX in the UWBZ

During the May 2005 groundwater investigation benzene, toluene, ethylbenzene and total xylenes were detected only at sample location GS-2, at minor concentrations of 1.11, 2.29, 1.68, and 3.98 µg/L, respectively. During the March 2004 groundwater investigation, no benzene or ethylbenzene were detected in groundwater. However, toluene and total xylenes were detected at 1.5 and 2.5 µg/L, respectively, in groundwater samples collected from the UWBZ. In general, results of groundwater monitoring events have shown non-detectable or very minor levels of BTEX in the groundwater monitoring wells. Table 2 presents the current and previous reported BTEX constituent concentrations in groundwater studies.

5.2.2.5 MtBE in the UWBZ

During the May 2005 groundwater investigation, MtBE was detected only at sample location GS-2 at 36.1 µg/L. During the previous groundwater investigation, the detected MtBE concentrations ranged between 8.1 and 1,100

µg/L. In contrast to the higher MtBE concentrations reported by ASE in 2000, reported concentrations of MtBE during the current, May 2005 and March 2004 investigations are significantly lower. For instance, the maximum concentration of MtBE reported by ASE in 2000 was from sample location BH-D at 16,000 µg/L. However, results of laboratory analysis on groundwater samples collected during quarterly groundwater monitoring events from SOMA-2 indicate the presence of minor concentrations of MtBE, up to 241 µg/L. The groundwater samples collected from the surrounding hydropunches and GS boreholes did not indicate the presence of elevated levels of MtBE in groundwater as reported by ASE. As mentioned, the maximum concentration of MtBE was detected at HP-10 at 1,100 µg/L. Results of the Third Quarter 2007 groundwater monitoring event, MtBE at maximum concentration of 58 µg/L was detected in SOMA-2. MtBE at maximum concentration of 1,900 µg/L was detected in SOMA-2 during Second Quarter 2004. However, since 2004, the concentration of MtBE in SOMA-2 has significantly decreased.

5.2.2.6 Fuel Oxygenates in the UWBZ

During the May 2005 and previous investigation by SOMA, no fuel oxygenates were detected were detected in groundwater. During the groundwater monitoring events only tertiary butyl alcohol (TBA) has been detected in groundwater monitoring wells SOMA-2 and SOMA-4. During Third Quarter 2007 groundwater monitoring, TBA was detected in SOMA-2 and SOMA-4 at 61.1 and 278 µg/L, respectively.

5.2.3 Lower Water-Bearing Zone

Since maximum depth of previous hydropunches did exceed the UWBZ depths, no water quality data is available from the March 2004 groundwater investigation. Therefore, the results of May 2005 groundwater investigation data were used to evaluate the extent of petroleum hydrocarbons in the LWBZ.

Based on results of the May 2005 groundwater study, no TPH-g or TPH-mo contaminations were detected in the LWBZ. However, the concentration of TPH-d ranged between 51 and 220 µg/L. The maximum concentration of TPH-d was reported at GS-8, downgradient from the pump island canopy.

Results of the May 2005 investigation did not show the presence of BTEX in the LWBZ. However, MtBE at maximum concentration of 164 µg/L was detected in GS-7, located further downgradient of the Site next to Temescal Creek. MtBE was also detected at 5.59 µg/L at sample location GS-4, which is next to the USTs.

No fuel oxygenates were detected in groundwater samples collected form the LWBZ. Figures 11 and 12 show the iso-concentration maps of the projected TPH-d and MtBE plumes, respectively, in the LWBZ.

5.3 Preferential Flow Pathway and Sensitive Receptor Survey

During the 2005 investigation, SOMA completed a preferential flow path and sensitive receptor study of the area within a quarter-mile radius of the Site. To evaluate the presence of potential preferential flow pathways beneath the Site, records pertaining to the locations of sewer, storm drain conduits were obtained from the City of Oakland Public Works Department. Study results indicated the presence of several utility lines beneath Thornhill Drive, next to the Site. According to existing records, depths of utility lines next to the Site range between 6 and 8 feet. Based on SOMA field investigation results, the Shallow Perched Zone may be in direct communication with the 15-inch-diameter sewer line beneath the Site. However, due to low concentration of chemicals in groundwater, it does not seem that the preferential flow pathway will impact groundwater quality conditions at downgradient areas.

To evaluate locations of any water bodies or domestic, irrigation and water supply wells within a quarter-mile radius of the Site, California Department of Water Resources and Alameda County Public Works Agency records were searched. Search results did not show the presence of any drinking water, domestic or irrigation wells with a quarter mile radius of Site.

5.4 Comparison of Site-Related Chemicals with ESLs

To determine the impact of the residual concentrations of contaminants of concern on human health and on the environment, the current concentrations of petroleum hydrocarbons in the groundwater were compared with ESL values set forth by the CRWQCB (based on results of the sensitive survey currently groundwater is not used as a drinking and irrigation water source within a quarter-mile radius of the site). Results indicated that the 95% Upper Confidence Limits (95 % UCL) of the chemical concentrations for TPH-d, TPH-mo, benzene, toluene, ethylbenzene, xylenes, MtBE and TBA are below the ESL levels, and do not pose any adverse health effects to the current or future site workers, site neighbors, or the environment. Table 6 shows the remaining site-wide contaminant concentrations, 95% UCLs, and compares them to ESL values as set forth by the CRWQCB. Results of the recent soil and groundwater investigation indicate that all the constituents of concern, are below ESL levels, do not pose a risk to the off-site current and future workers, neighbors or the environment. Tables 4 and 5 show the contaminant concentrations at the SOMA-5 location and compare them to ESL values as set forth by the CRWQCB.

To evaluate the existing chemical plume stability, SOMA has evaluated the historical water quality data; as Figures 3 through 6 show, TPH-g, benzene and MtBE concentrations have been decreasing over the years. In the monitoring well SOMA-1, MtBE is the only constituent of concern with trace concentrations

above the laboratory-detection limit. As Figure 4 shows, the MtBE concentration in SOMA-1 shows a decreasing pattern. As Figures 5, 6 and 7 show, the TPH-g, TPH-d and MTBE concentrations in monitoring wells SOMA-2 through SOMA-4 all exhibit a stable or a radically decreasing trend.

6. CONCLUSIONS AND RECOMMENDATIONS

Following are our conclusions, based on current and previous investigation results.

1. Based on results of this investigation, three water-bearing zones underlie the Site, referred to as the Shallow Perched Zone, and the UWBZ and LWBZ (Upper and Lower water bearing zones, respectively).
2. Results of the current investigation indicate that the 15-inch-diameter sewer line beneath the Site may act as preferential flow path. However, no significant amounts of chemicals are being contributed to the Site from upgradient sources at present time.
3. The Shallow Perched zone is discontinuous and may not be present across the site. Only SOMA-5 has been completed in this layer. Groundwater flow direction in the UWBZ appears to be southwest toward Temescal Creek. No groundwater monitoring wells have been completed within the LWBZ, because this layer is discontinuous and has not been significantly impacted by petroleum hydrocarbons.
4. Results of the current and previous groundwater investigations, along with results of recent groundwater monitoring events, were used to evaluate the extent of the chemicals in the Shallow Perched Zone, UWBZ and LWBZ. Based on geologic cross-section diagrams and available analytical results, the horizontal and vertical extent of chemicals beneath the on- and off-site areas have been defined.
5. The vertical extent of TPH-g, TPH-mo and BTEX is limited to the UWBZ. However, TPH-d and MtBE have already impacted the LWBZ.
6. Results of groundwater monitoring events have revealed the presence of TBA in the Shallow Perched Zone well SOMA-5 and UWBZ wells SOMA-2 and SOMA-4. However, it appears that extent of the TBA plume in the UWBZ is limited. No TBA has been reported in LWBZ.
7. In contrast to reports from the previous consultant, the extent of MtBE contamination in the UWBZ is limited and it does not seem that the higher concentrations reported by ASE are still valid.
8. It appears that Temescal Creek is in hydraulic communication with the Shallow Perched zone. However, due to low concentrations of chemicals found in groundwater samples collected from SOMA-5, the

water quality in the Temescal Creek will not be impacted by Site-related contaminants.

9. Results of our records search did not show the presence of any drinking water, domestic or irrigation wells with a quarter-mile radius of site.

10. Based on SOMA field investigation results, the Shallow Perched Zone may be in direct communication with the 15-inch-diameter sewer line beneath the Site. However, due to low concentration of chemicals in groundwater it does not seem that the preferential flow pathway will impact the groundwater quality conditions at downgradient areas.

11. Comparisons of concentrations of chemicals detected in groundwater monitoring wells to ESLs for groundwater that is currently is not used as a drinking and irrigation water source, indicate that Site-related chemicals will not pose a significant health risk to Site workers or nearby residents.

12. Based on results of groundwater monitoring data, the plume of chemicals in groundwater appears to be shrinking.

13. Results of site investigation and groundwater monitoring events do not indicate the presence of free-phase petroleum hydrocarbons in subsurface.

14. It appears that the source of groundwater contaminants has been removed or dissipated in the subsurface, and the residual levels of petroleum hydrocarbons will not expand or impact the sensitive receptors or larger water bodies in the future.

Based on above conclusions, the Site can be categorized as a low-risk petroleum release site. Therefore, SOMA recommends that a "No Further Action" status be adopted for the Site.

TABLES

Table 1
ASE Groundwater Analytical Data
5725 Thornhill Drive, Oakland, CA (1999-2000)

Borehole ID	Date Sampled	TPH-g (ug/L)	TPH-d (ug/L)	TPH-mo (ug/L)	MtBE (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl benzene (ug/L)	Total Xylenes (ug/L)
BH-A	Aug-99	**1,700**	**10,000**	**4,700**	NA	NA	NA	NA	NA
BH-B	6-Sep-00	**12,000**	**11,000**	**420**	**4,300**	**44**	NA	**360**	**49**
BH-C	6-Sep-00	**7,300**	**25,000**	**620**	**5,300**	NA	NA	NA	NA
BH-D	23-Oct-00	**13,000**	**110,000**	**18,000**	**16,000**	**180**	NA	**490**	**1,000**
BH-E	23-Oct-00	NA	NA	NA	730	NA	**0.95**	NA	**1.8**
ESL**		**500**	**640**	**640**	**1,800**	**46**	**130**	**290**	**100**

Notes
** Environmental Screening Levels (ESL) residential scenario, >9 ft bgs, groundwater is not current of potential drinking water source, California Regional Water Quality Control Board, February 2005

Table 2
ASE Soil Analytical Data
5725 Thornhill Drive, Oakland, CA (1999-2000)

Borehole ID and sampled depth	Date Sampled	TPH-g (ug/kg)	TPH-d (ug/kg)	TPH-mo (ug/kg)	MtBE (ug/kg)	Benzene (ug/kg)	Toluene (ug/kg)	Ethyl benzene (ug/kg)	Total Xylenes (ug/kg)
BH-A @ 8'	23-Jul-99	NA	NA	NA	NA	NA	NA	NA	NA
BH-B @ 8'	6-Sep-00	**240,000**	**370,000**	<200,000	<20	**43.00**	<20	**130**	<20
BH-C @ 8'	6-Sep-00	<1000	<1000	<1000	<5	<5	<5	<5	<5
BH-D @ 11'	23-Oct-00	<1000	<1000	<1000	**330.00**	<5	<5	**7.4**	**23.0**
BH-E @ 9.5'	23-Oct-00	<1000	<1000	<1000	**37.00**	<5	<5	<5	<5
ESL** <9.8 ft		**100,000**	**100,000**	**500,000**	**2,000**	**180.00**	**9,300**	**32,000**	**11,000**
ESL** >9.8 ft		**400,000**	**500,000**	**1,000,000**	**2,000**	**180.00**	**9,300**	**32,000**	**11,000**

** Environmental Screening Levels (ESL) residential scenario, groundwater is not current of potential drinking water source, California Regional Water Quality Control Board, February 2005
Environmental Screening Levels (ESL) residential scenario, Regional Water Quality Control Board, February 2005

TABLE 3
Soil Analytical Data
5725 Thornhill Drive Oakland, CA

Temporary Well Borehole Field ID	Date Sampled	TPH-Gasoline (µg/kg)	TPH-Diesel (µg/kg)	TPH-Motor Oil (µg/kg)	MtBE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl benzene (µg/kg)	Total Xylenes (µg/kg)
ESL** <9.8 ft		**100,000**	**100,000**	**500,000**	**2,000**	**180.00**	**9,300**	**32,000**	**11,000**
ESL** >9.8 ft		**400,000**	**500,000**	**1,000,000**	**2,000**	**180.00**	**9,300**	**32,000**	**11,000**
HP1- (5-5.5')	03/01/04	<930	**7,800^{HY}**	**62,000**	<4.5	<4.5	<4.5	<4.5	<4.5
HP1- (9-9.5')	03/01/04	**16,000^{Y}**	**6,000^{HY}**	**17,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP1- (14.5-15')	03/01/04	<1,100	**5,400^{HY}**	**19,000**	<4.9	<4.9	<4.9	<4.9	<4.9
HP1- (19.5-20')	03/01/04	<970	**2,000^{Y}**	<5,000	<4.5	<4.5	<4.5	<4.5	<4.5
HP1- (24.5-25')	03/01/04	<1,000	**1,500^{Y}**	<5,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP2- (4-4.5')	03/01/04	<1,100	**3,500^{HY}**	**51,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP2- (9-9.5')	03/01/04	<1,100	**210,000^{HY}**	**910,000**	<4.3	<4.3	<4.3	<4.3	<4.3
HP2- (14-14.5')	03/01/04	<1,100	**5,200^{HY}**	**34,000**	**6.3**	<4.6	<4.6	<4.6	<4.6
HP2- (19-19.5')	03/01/04	<970	**10,000^{HY}**	**59,000**	<4.4	<4.4	<4.4	<4.4	<4.4
HP2- (25-25.5')	03/01/04	<950	**6,500^{HY}**	**39,000**	**4.7**	<4.3	<4.3	<4.3	<4.3
HP3- (5.5-6')	03/01/04	<950	**23,000^{HY}**	**78,000**	<4.8	<4.8	<4.8	<4.8	<4.8
HP3- (10-10.5')	03/01/04	<1,000	**22,000^{HY}**	**65,000**	<5.0	<5.0	<5.0	<5.0	<5.0
HP3- (16-16.5')	03/01/04	<930	**17,000^{HY}**	**77,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP3- (21-21.5')	03/01/04	<1,100	**11,000^{HY}**	**60,000**	<4.5	<4.5	<4.5	<4.5	<4.5
HP3- (26-26.5')	03/01/04	<980	**8,300^{HY}**	**39,000**	<4.2	<4.2	<4.2	<4.2	<4.2
HP4- (4-4.5')	03/01/04	<1.0	**3,000^{HY}**	**17,000**	<4.6	<4.6	<4.6	<4.6	<4.6
HP4- (9-9.5')	03/01/04	<0.92	<1,000	<5,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP4- (14-14.5')	03/01/04	<1,000	**1,100^{HY}**	**11,000**	<4.9	<4.9	<4.9	<4.9	<4.9
HP4- (19-19.5')	03/01/04	<910	**1,100^{Y}**	<5,000	<4.8	<4.8	<4.8	<4.8	<4.8
HP4- (24-24.5')	03/01/04	<960	**5,000^{HY}**	**42,000^{H}**	<4.7	<4.7	<4.7	<4.7	<4.7
HP5- (5-5.5')	03/01/04	<1,000	**22,000^{HY}**	**140,000**	**17**	<4.4	<4.4	<4.4	<4.4
HP5- (10-10.5')	03/01/04	<1,100	<1,000	<5,000	**10**	<4.3	<4.3	<4.3	<4.3
HP5- (15.5-16')	03/01/04	**2,600^{HY}**	**6,100^{HY}**	**33,000**	**24**	<4.5	<4.5	<4.5	<4.5
HP5- (19.5-20')	03/01/04	<1,100	**1,700^{Y}**	<5,000	<4.6	<4.6	<4.6	<4.6	<4.6
HP5- (27-27.5')	03/01/04	**9,100^{HY}**	**2,800^{Y}**	<5,000	**11**	<4.9	<4.9	<4.9	<4.9
HP6- (4-4.5')	03/01/04	<1,100	<1,000	<5,000	<4.3	<4.3	<4.3	<4.3	<4.3
HP6- (9-9.5')	03/01/04	<960	**5,400^{HY}**	**30,000**	<4.3	<4.3	<4.3	<4.3	<4.3
HP6- (14-14.5')	03/01/04	<910	**2,200^{HY}**	**16,000**	<4.6	<4.6	<4.6	<4.6	<4.6
HP6- (19-19.5')	03/01/04	<910	**2,500^{HY}**	**8,100**	**4.9**	<4.5	<4.5	<4.5	<4.5
HP6- (23.5-24')	03/01/04	<960	**3,200^{HY}**	**19,000**	<4.6	<4.6	<4.6	<4.6	<4.6

TABLE 3
Soil Analytical Data
5725 Thornhill Drive Oakland, CA

Temporary Well Borehole Field ID	Date Sampled	TPH-Gasoline (µg/kg)	TPH-Diesel (µg/kg)	TPH-Motor Oil (µg/kg)	MtBE (µg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl benzene (µg/kg)	Total Xylenes (µg/kg)
ESL** <9.8 ft		**100,000**	**100,000**	**500,000**	**2,000**	**180.00**	**9,300**	**32,000**	**11,000**
ESL** >9.8 ft		**400,000**	**500,000**	**1,000,000**	**2,000**	**180.00**	**9,300**	**32,000**	**11,000**
HP6- (27.5-28')	03/01/04	<1,000	**2,200^{Y}**	<5,000	**7.0**	<4.7	<4.7	<4.7	<4.7
HP7- (6-6.5')	03/02/04	<970	**6,300^{HY}**	**16,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP7- (11.5-12')	03/02/04	<1,000	**2,000^{HY}**	**6,400^{HY}**	<4.8	<4.8	<4.8	<4.8	<4.8
HP7- (16.5-17')	03/02/04	<930	**3,700^{Y}**	<5,000	<4.7	<4.7	<4.7	<4.7	<4.7
HP7- (22-22.5')	03/02/04	<920	<1,000	<5,000	<5.0	<5.0	<5.0	<5.0	<5.0
HP7- (26.5-27')	03/02/04	<970	**11,000^{HY}**	**15,000**	<5.0	<5.0	<5.0	<5.0	<5.0
HP9- (7-7.5')	03/02/04	<1,100	**1,900^{Y}**	<5,000	<4.4	<4.4	<4.4	<4.4	<4.4
HP9- (11.5-12')	03/02/04	<960	**4,300^{HY}**	**53,000^{H}**	<4.8	<4.8	<4.8	<4.8	<4.8
HP9- (16-16.5')	03/02/04	<990	**5,300^{HY}**	**52,000^{H}**	<4.6	<4.6	<4.6	<4.6	<4.6
HP9- (21.5-22')	03/02/04	<980	<1,000	**5,600**	**28**	<5.0	<5.0	<5.0	<5.0
HP9- (26.5-27')	03/02/04	<1,100	<990	<5,000	**36**	<4.4	<4.4	<4.4	<4.4
HP10- (6-6.5')	03/02/04	<940	**5,700^{HY}**	**72,000**	<4.7	<4.7	<4.7	<4.7	<4.7
HP10- (11.5-12')	03/02/04	**16,000^{Y}**	**16,000^{LY}**	<5,000	**94**	<5.0	<5.0	<5.0	<5.0
HP10- (18.5-19')	03/02/04	**130,000^{Y}**	**58,000^{HLY}**	**16,000**	**270**	<5.0	<5.0	<5.0	<5.0
HP10- (19.5-20')	03/02/04	<920	<990	<5,000	**11**	<4.8	<4.8	<4.8	<4.8
HP10- (22.5-23')	03/02/04	**3,700^{Y}**	**8,000^{HY}**	**22,000**	<4.9	<4.9	<4.9	<4.9	<4.9
SOMA 4 (11.5-12')	05/27/05	**62,900**	**63,000**	**18,000**	<30	**1,540**	**6,360**	**497**	**1,847**

Notes:
(1) µg/kg= micrograms per kilogram
(2) <= Not detected at or above the laboratory reporting limit
(3) ^{H} Heavier hydrocarbons contributed to the quantification
(4) ^{L} Lighter hydrocarbons contributed to the quantification
(5) ^{Y} Sample exhibits chromatographic pattern which does not resemble standard
** Residential land use, Groundwater is not current or potential drinking water source
Environmental Screening Levels (ESL) residential scenario, >9 ft bgs, groundwater is current of potential drinking water source, California Regional Water Quality Control Board, February 2005

Table 3A

Groundwater Analytical Results

5725 Thornhill Drive

Oakland, California

Groundwater Sampling Borehole (Sample Interval)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-Mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
Upper Water-Bearing Zone (May 2005 Investigation)									
GS-1(16-18)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-2(19-21)	**11,400**	**8,900^{LY}**	**300^{LY}**	**1.11**	**2.29**	**1.68**	**3.98**	**36.1**	<10.0
GS-3(22-26)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-4(24-28)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-5(24-28)	<200	**180^{LY}**	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-8(20-24)	<200	**2,800^{LY}**	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-9(24-28)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-10(22-26)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-11(23-27)	<200	**60^{Y}**	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
Lower Water-Bearing Zone (May 2005 Investigation)									
GS-1(30-34)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-3(36-40)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-4(35-39)	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	**5.59**	<10.0
GS-7(29-33)	<200	**190^{Y}**	<300	<0.5	<0.5	<0.5	<1.0	**164**	<10.0
GS-8(35-39)	<200	**220^{LY}**	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-9(36-38)	<200	**53^{Y}**	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
GS-11(35-39)	<200	**51^{Y}**	<300	<0.5	<0.5	<0.5	<1.0	<0.5	<10.0
Upper Water-Bearing Zone (March 2004 Investigation)									
HP-1	**4,200^{Y}**	**5,900^{HLY}**	**11,000**	<0.5	<0.5	<0.5	<0.5	**11**	<10.0
HP-2	**360^{Y}**	**10,000^{HY}**	**58,000**	<0.5	<0.5	<0.5	<0.5	**20**	<10.0
HP-3	<50	**3,500^{HY}**	**5,700**	<0.5	<0.5	<0.5	<0.5	<5	<10.0
HP-4	<50	**740^{HY}**	**6,300^{H}**	<0.5	<0.5	<0.5	<0.5	<5	<10.0
HP-5	**6,700^{Y}**	**3,600^{HLY}**	**650**	<0.5	<0.5	<0.5	**0.7**	**33**	<10.0
HP-6	**250^{HY}**	**370^{HY}**	**730**	<0.5	**1.5**	<0.5	**2.5**	**8.1**	<10.0
HP-7	<50	**1,600^{HY}**	**1,400**	<0.5	<0.5	<0.5	<0.5	<0.5	<10.0
HP-9	<50	**160^{HY}**	**1,700**	<1.3	<1.3	<1.3	<0.5	**440**	<10.0
HP-10	**9,700^{Y}**	**21,000^{HLY}**	**5,700**	<3.6	<3.6	<3.6	<0.5	**1,100**	<10.0

Table 3A
Groundwater Analytical Results
5725 Thornhill Drive
Oakland, California

Groundwater Sampling Borehole (Sample Interval)	TPH-g (µg/L)	TPH-d (µg/L)	TPH-Mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)
Groundwater Monitoring Data Third Quarter 2006									
SOMA-1	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	**4.52**	<10
SOMA-2	**3,580**	**286** [A,B]	<250	**0.8**	**0.7**	**2.65**	**0.7**	**44.8**	**32.4**
SOMA-3	<50	**60** [A,Y]	<250	<0.5	<0.5	<0.5	<1.0	**8.05**	<10
SOMA-4	**4,340**	**357** [A,B]	<250	<0.5	**0.52**	<0.5	**0.52**	**34.2**	216
Abandoned Monitoring Wells (March 2004)									
MW-1	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	NA
MW-2	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	NA
MW-3	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	<0.5	NA
ESL**	**500**	**640**	**640**	**46**	**130**	**290**	**100**	**1,800**	**930**

NOTES

[1] Total petroleum hydrocarbons as gasoline (TPH-g), TPH-d, and TPH-Mo using EPA Method 8015B (May 2005 Investigation)

[2] BTEX, MtBE, DIPE, ETBE, TAME, TBA, and Ethanol using EPA Method 8260B (May 2005 Investigation)

[L] Lighter hydrocarbons contributed to the quantitation

[H] Heavier hydrocarbons contributed to the quantitation

[Y] Sample exhibits chromatographic pattern that does not resemble standard

NS – Not Sampled

A To reduce matrix interference , the sample extract has undergone silica-gel clean-up, method 3630, which is specific to polar compound contamination, diesel 2Q06.

B Unidentified hydrocarbons C9-C16, diesel 2Q06..

** Environmental Screening Levels (ESL) residential scenario, >9 ft bgs, groundwater is not current of potential drinking water source, California Regional Water Quality Control Board, February 2005

Table 4
Soil Analytical Results (EPA Method 8260B)
5725 Thornhill Drive, Oakland California

Sample ID	Sampling Depth	Date	TPH-g	Benzene	Ethylbenzene	Total Xylenes	Toluene	MTBE	TAME	TBA
			(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
USB-1	9-9.5' bgs	9/21/2007	<50	<0.5	<0.5	<2	<2	<0.5	<2	<2
SOMA-5A	5-6' bgs	9/21/2007	<50	<0.5	<0.5	<2	<2	<0.5	<2	<2
SOMA-5B	11-12' bgs	9/21/2007	<50	<0.5	<0.5	<2	<2	**0.68**	<2	**5.33**
SOMA-5C	14-15' bgs	9/21/2007	**354.0**	<0.5	**4.52**	**2.51**	<2	**0.86**	<2	**20.9**
*ESLs***			***400000***	***180***	***32000***	***11000***	***NA***	***2,000***	***NA***	***110000***

Notes:

< *Less than the Laboratory Reporting Limit*

** Environmental Screening Levels (ESL), residential exposure scenario, groundwater is not current of potential drinking water source, California Regional Water Quality Control Board, February 2005

Environmental Screening Levels (ESL) residential scenario, Regional Water Quality Control Board, February 2005

NA Not Applicable

Table 5
Groundwater Analytical Results
5725 Thornhill Drive, Oakland California

Analyte	USB-1 (ug/L)	SOMA-5 (ug/L)	ESL**
	9/21/2007	9/23/2007	ug/L
TPH-mo	**75.40**	**111 [1][2]**	*640*
TPH-d	<250	<250	*640*
TPH-g	<50	<50	*500*
Benzene	<0.5	<0.5	*46*
Ethylbenzene	**4.31**	<0.5	*290*
Total Xylenes	<2	<2	*100*
MTBE	<0.5	**54.90**	*1,800*
DIPE	<0.5	<0.5	*NA*
ETBE	<0.5	<0.5	*NA*
TAME	<2	<2	*NA*
TBA	<2	**203.00**	*18000*
1,2 DCE	<0.5	<0.5	*NA*
1,2 EDB	<0.5	<0.5	*NA*
Ethanol	<1000	<1000	*NA*

Notes:

< *Less than the Laboratory Reporting Limit*

1 The sample chromatographic pattern does not resemble the fuel standard used for quantification.

2 Unidentified hydrocarbons C9-C16.

** Environmental Screening Levels (ESL), groundwater is not current of potential drinking water source, California Regional Water Quality Control Board, February 2005
Environmental Screening Levels (ESL) residential scenario, Regional Water Quality Control Board, February 2005

NA Not Applicable

Table 6
Historical Groundwater Analytical Results
5725 Thornhill Drive, Oakland California

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)	TBA (µg/L)
SOMA-1	4/22/2004	63	<50	<300	<0.5	<0.5	<0.5	<0.5	7.7	<10
	7/27/2004	<50	<50	<300	<0.5	<0.5	<0.5	<0.5	9.1	<10
	10/28/2004	<50	<1.0	<1.0	<0.5	<0.5	<0.5	<1.0	6.4	<2.5
	1/11/2005	<50	200 HY	900	<0.5	<0.5	<0.5	<0.5	4.7	<10
	4/12/2005	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	7.49	<2.5
	7/19/2005	<200	<50	<300	<0.5	<2.0	<0.5	<1.0	4.94	<10
	10/18/2005	<50	<50	<300	<0.5	<2.0	<0.5	<1.0	5.33	<10
	2/6/2006	<50	920LY	<300	<0.5	<2.0	<0.5	<1.0	2.74	<10
	4/26/2006	<50	<50 [1]	<250 [1]	<0.5	<2.0	<0.5	<1.0	5.28	<10
	8/3/2006	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	4.52	<10
	10/30/2006	<50	<50	<250	<0.5	<2.0	<0.5	<1.0	3.38	<10
	1/8/2007	<50	<50 [4]	<250 [4]	<0.5	<2.0	<0.5	<2.0	3.07	<2.0
	6/14/2007	<50	<50 [4]	<250 [4]	<0.5	<2.0	<0.5	<2.0	1.91	<2.0
	9/13/2007	**<50**	**<50 [1]**	**<250 [1]**	**<0.5**	**<2.0**	**<0.5**	**<2.0**	**0.85**	**<2.0**
SOMA-2	4/22/2004	1,900	690 LY	<300	<0.5	<0.5	5.2	9.9	1,900	<100
	7/27/2004	1,500	710 LY	<300	8.9 C	<0.5	1.5 C	2.9 C	740	<33
	10/28/2004	955	790 LY	<1.0	<2.5	<2.5	<2.5	< 5	785	36.3
	1/11/2005	3,700	2100 LY	380	3.7	<2.0	3.5	102	310	67
	4/12/2005	5,960	1200 LY	<300	1.19	<0.5	20.6	25	241	71
	7/19/2005	2,480	800 LY	<300	1.09	<2.0	2.65	0.73	162	74.2
	10/18/2005	2,710	1,100 LY	<300	1.41	<2.0	2.24	0.64	130	81.7
	2/6/2006	2,730	66Y	<300	0.68	<2.0	0.71	6.33	49	37.8
	4/26/2006	6,490	1,580 [1,2,3]	<250 [1]	<0.5	<2.0	15.3	8.49	38.5	36.1
	8/3/2006	3,580	286 [1,3]	<250	0.8	0.7	2.65	0.7	44.8	32.4
	10/30/2006	1,680	608 [2,3]	448	<0.5	<2.0	3.78	<1.0	51.4	20.7
	1/8/2007	1,720	1010 [3,Y]	<250	<0.5	<2.0	2.75	<2.0	33.3	22.2
	6/14/2007	988	427 [3,4,Y]	<250 [4]	<0.5	<2.0	4.80	2.46	28.9	35.6
	9/13/2007	**906**	**427 [1,2,3]**	**<250 [1]**	**<0.5**	**<2.0**	**4.64**	**2.37**	**58**	**61.1**
SOMA-3	4/22/2004	190	120 Y	<300	<0.5	<0.5	<0.5	<0.5	5.1	<10
	7/27/2004	130	120 LY	<300	<0.5	<0.5	<0.5	<0.5	9.1	<10
	10/28/2004	57	280 LY	<1.0	<0.5	<0.5	<0.5	<2	11.3	<2.5

Table 6
Historical Groundwater Analytical Results
5725 Thornhill Drive, Oakland California

Monitoring Well	Date	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	MtBE* 8260B (µg/L)	TBA (µg/L)
SOMA-3 cont	1/11/2005	140	210 Y	<300	<0.5	<0.5	<0.5	<0.5	5.8	<10
	4/12/2005	<200	<50	<300	<0.5	<0.5	<0.5	<1.0	4.53	<2.5
	7/19/2005	<200	120 Y	<300	<0.5	<2.0	<0.5	<1.0	4.69	<10
	10/18/2005	50.1	120 Y	<300	<0.5	<2.0	<0.5	<1.0	8.63	<10
	2/6/2006	1,010	220Y	<300	<0.5	<2.0	<0.5	2.06	32	40.9
	4/26/2006	121	123 [1,2,3]	<250 [1]	<0.5	<2.0	<0.5	<1.0	5.49	<10
	8/3/2006	<50	60 [1,2]	<250	<0.5	<0.5	<0.5	<1.0	8.05	<10
	10/30/2006	<50	199 [2,3]	<250	<0.5	<2.0	<0.5	<1.0	7.37	<10
	1/8/2007	<50	181 [3,Y]	<250	<0.5	<2.0	<0.5	<2.0	8.65	<2.0
	6/14/2007	<50	569 [3,Y]	<250	<0.5	<2.0	<0.5	<2.0	5.57	<2.0
	9/13/2007	**<50**	**<50 [1]**	**<250 [1]**	**<0.5**	**<2.0**	**<0.5**	**<2.0**	**8.55**	**<2.0**
SOMA-4	7/19/2005	3,350	1,200 LY	<300	<1.0	<4.0	<1.0	<2.0	455	84.1
	10/18/2005	1,580	1,200 LY	<300	<2.15	<8.6	<2.15	<4.3	425	314
	2/6/2006	1,940	830 LY	<300	<2.15	<8.60	<2.15	<4.3	409	417
	4/26/2006	3,930	1,080 [1,2,3]	<250 [1]	<0.5	<2.0	<0.5	<1.0	231	357
	8/3/2006	4,340	357 [1,3]	<250	<0.5	0.52	<0.5	0.52	34.2	216
	10/30/2006	4,320	1070 [2,3]	<250	<0.5	<2.0	3.34	0.54	37.4	269
	1/8/2007	2,280	977 [3,Y]	<250	<0.5	<2.0	<0.5	<2.0	36	233
	6/14/2007	2,600	407 [3,4,Y]	<250 [4]	<0.5	<2.0	4.39	2.69	10.3	87.9
	9/13/2007	**2,670**	**642 [1,2,3]**	**<250 [1]**	**<0.5**	**<2.0**	**4.52**	**2.79**	**25.3**	**278**
Maximum		**6,490**	**2,100**	**900**	**9**	**1**	**21**	**102**	**1,900**	**417**
Sample Size		**51.0**	**51.0**	**51.0**	**51.0**	**51.0**	**51.0**	**51.0**	**51.0**	**51.0**
Average		**1,295.5**	**451.0**	**33.9**	**0.4**	**0.0**	**1.6**	**3.3**	**126.0**	**56.3**
Standard Deviation		**1,699.9**	**496.8**	**148.1**	**1.4**	**0.1**	**3.7**	**14.6**	**309.5**	**103.7**
95% Confidence		**466.5**	**136.3**	**40.6**	**0.4**	**0.0**	**1.0**	**4.0**	**84.9**	**28.5**
95% Uppler Confidence Lin		**1,762.0**	**587.3**	**74.5**	**0.7**	**0.1**	**2.7**	**7.4**	**211.0**	**84.8**
ESLs**		***500***	***640***	***640***	***46***	***130***	***290***	***100***	***1,800***	***18,000***

Notes:

<: not detected at or above laboratory reporting limits.
C: Presence confirmed, but RPD between columns exceeds 40%.
H: Heavier hydrocarbons contributed to the quantitation.
L: Lighter hydrocarbons contributed to the quantitation.
Y: Sample exhibits chromatographic pattern which did not resemble standard.

1 To reduce matrix interference , the sample extract has undergone silica-gel clean-up, method 3630, which is specific to polar compound contamination, diesel 2Q06.
2 The sample chromatographic pattern does not resemble fuel standard used for quantitation, diesel 2Q06 to 4Q06.
3 Unidentified hydrocarbons C9-C16, diesel 2Q06 to 3Q07.
4 Surrogate recovery for this sample is outside of established control limits due to sample matrix effect, diesel & motor oil 1Q07, 2Q07.

The Second Quarter 2004 was the first time SOMA monitored the site. Wells SOMA-1 to SOMA-3 were monitored at that time.
Well SOMA-4 was installed on May 27, 2005. The Third Quarter 2005 was the first time SOMA monitored this well.

** Environmental Screening Levels (ESL) residential scenario, groundwater is not current or potential drinking water source, California Regional Water Quality Control Board, February 2005
Environmental Screening Levels (ESL) residential scenario, Regional Water Quality Control Board, February 2005

FIGURES

N

approximate scale in feet

0 100 200

Figure 1: Site vicinity map.

ENVIRONMENTAL ENGINEERING, INC.

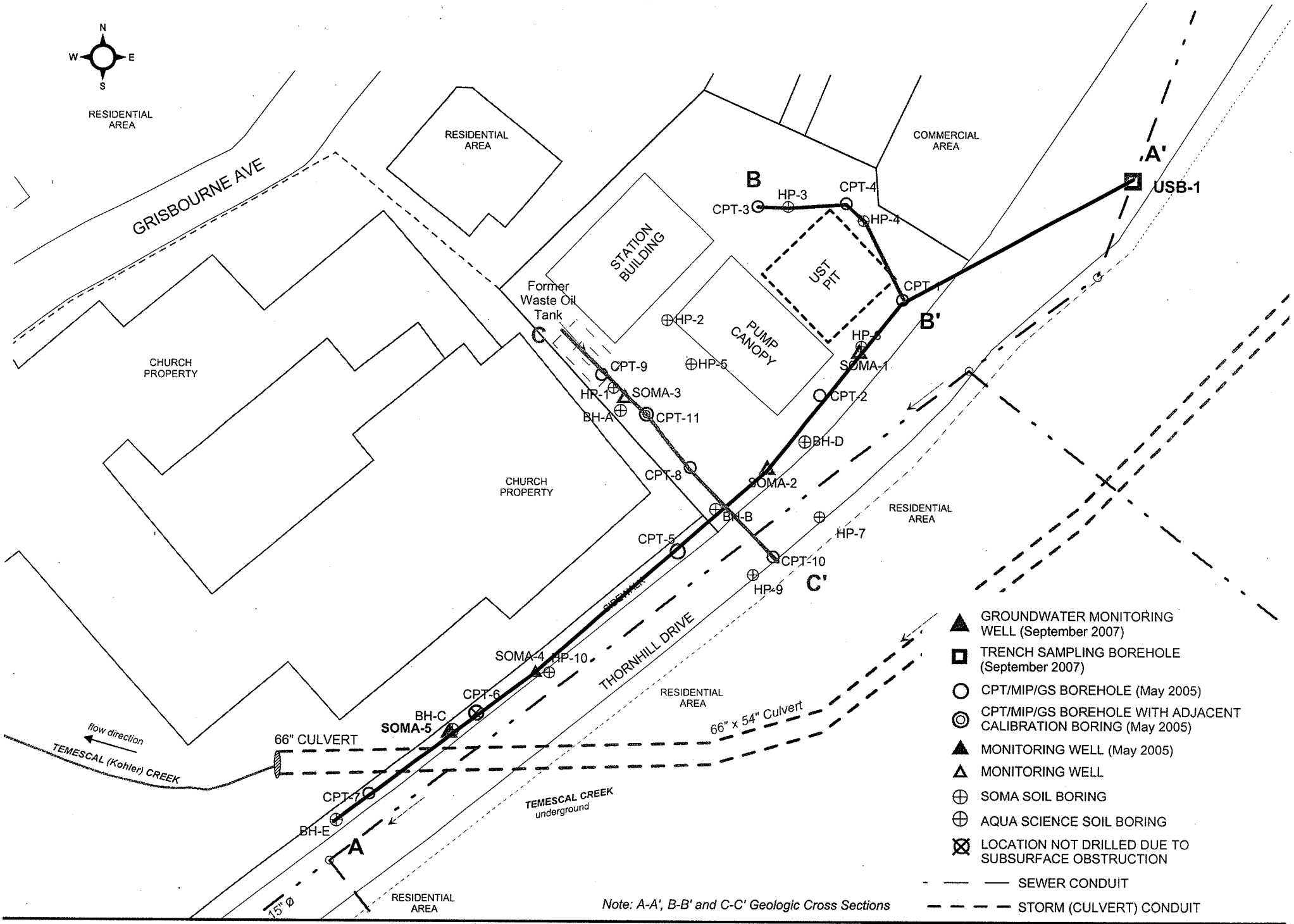


Figure 2: Site Map Showing the Locations of existing and newly installed borings and groundwater monitoring wells

ENVIRONMENTAL ENGINEERING, INC

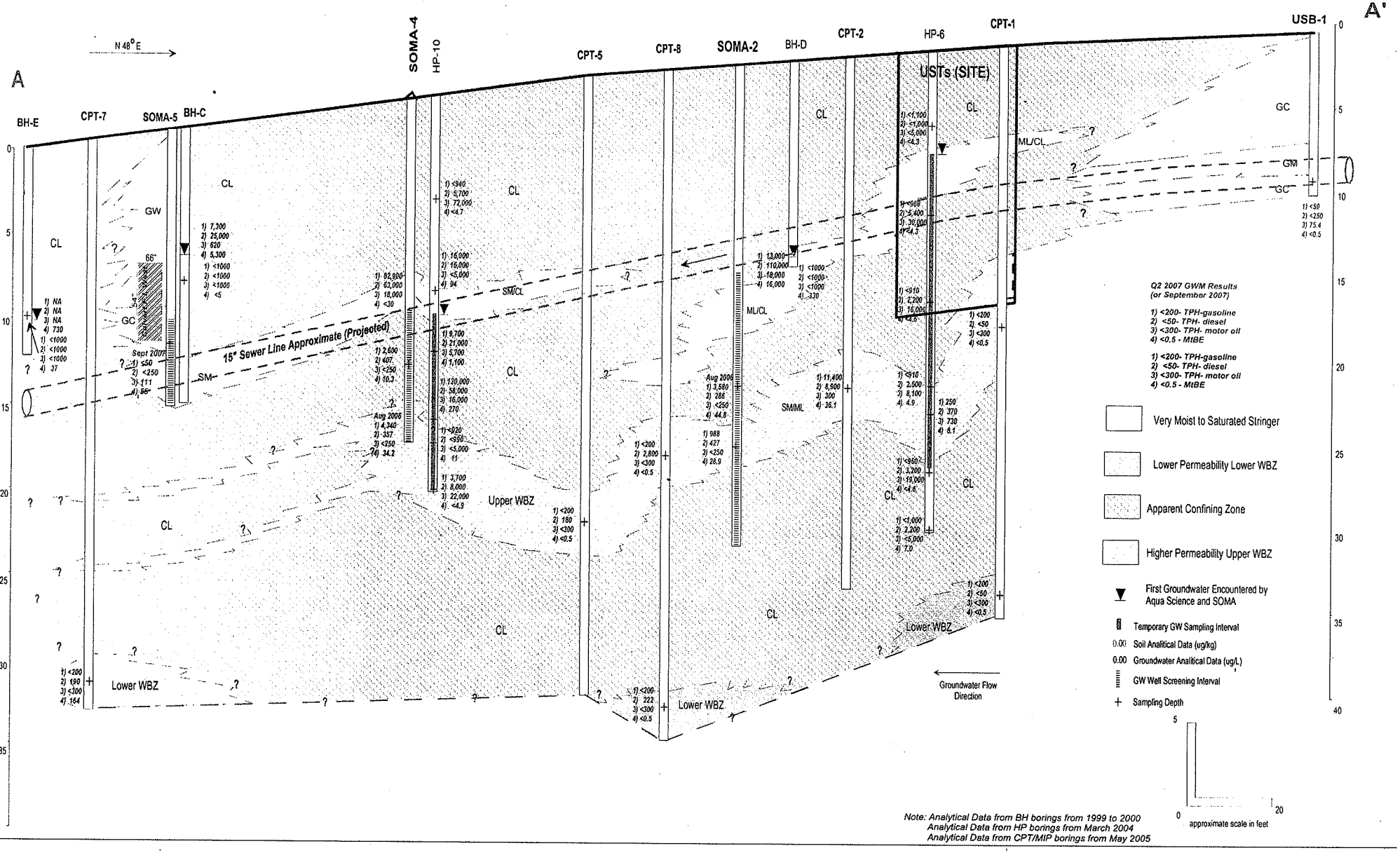
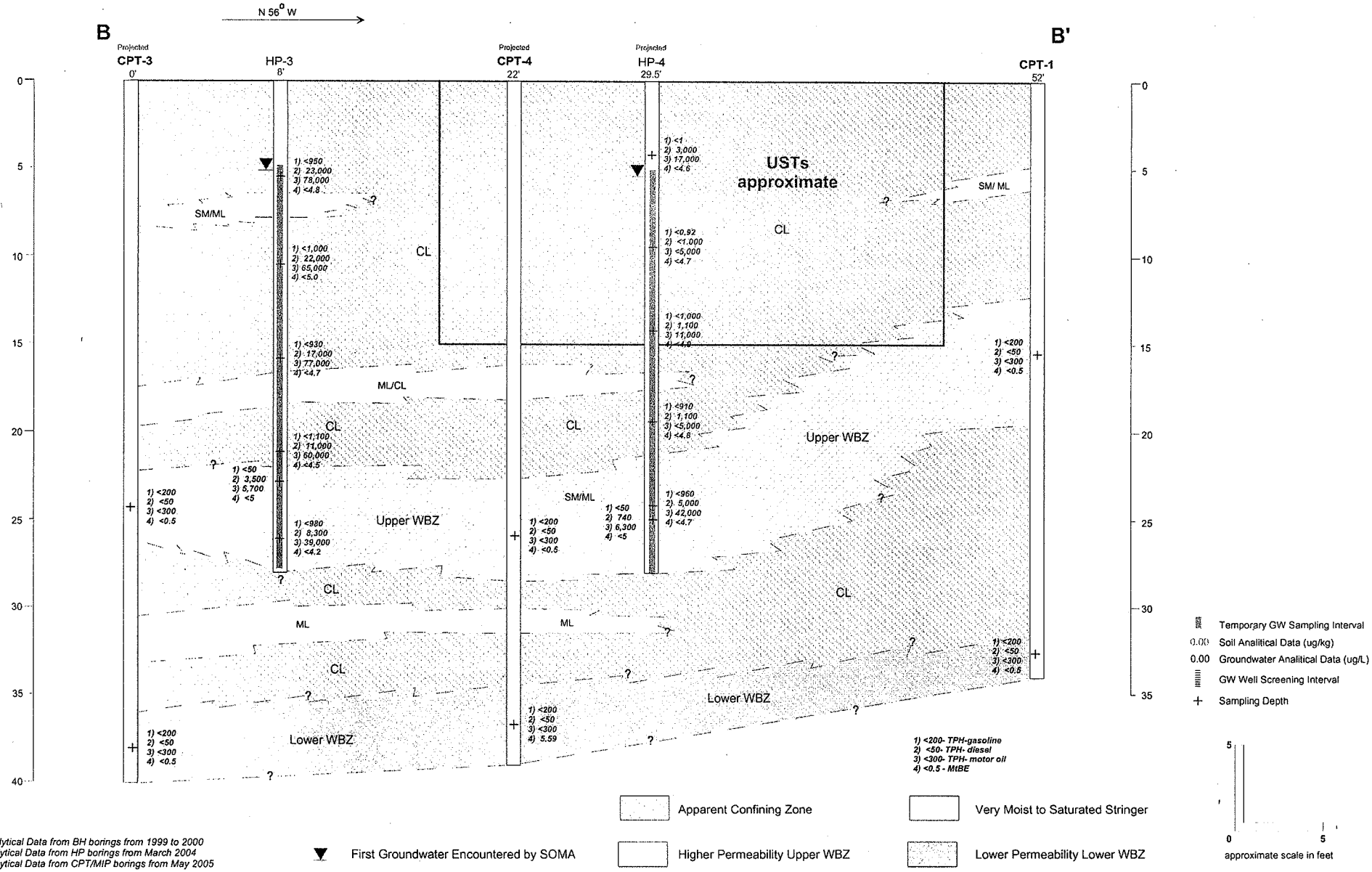


Figure 3: Geologic Cross Section A-A'.



Note: Analytical Data from BH borings from 1999 to 2000
Analytical Data from HP borings from March 2004
Analytical Data from CPT/MIP borings from May 2005

Figure 3A: Geologic Cross Section B-B'.

SOMA ENVIRONMENTAL ENGINEERING, INC. SAN RAMON CA (510) 344-6810

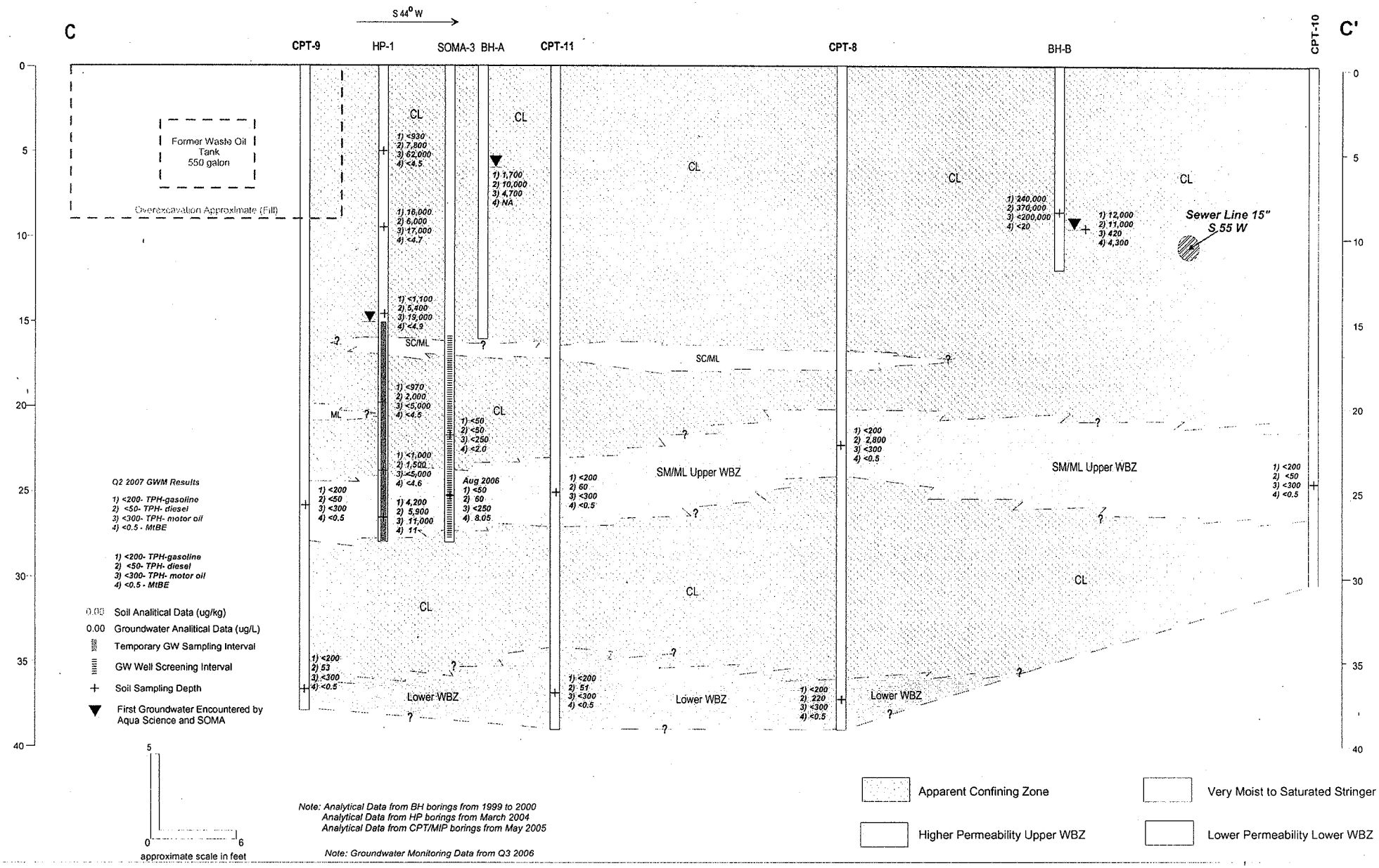


Figure 3B: Geologic Cross Section C-C'.

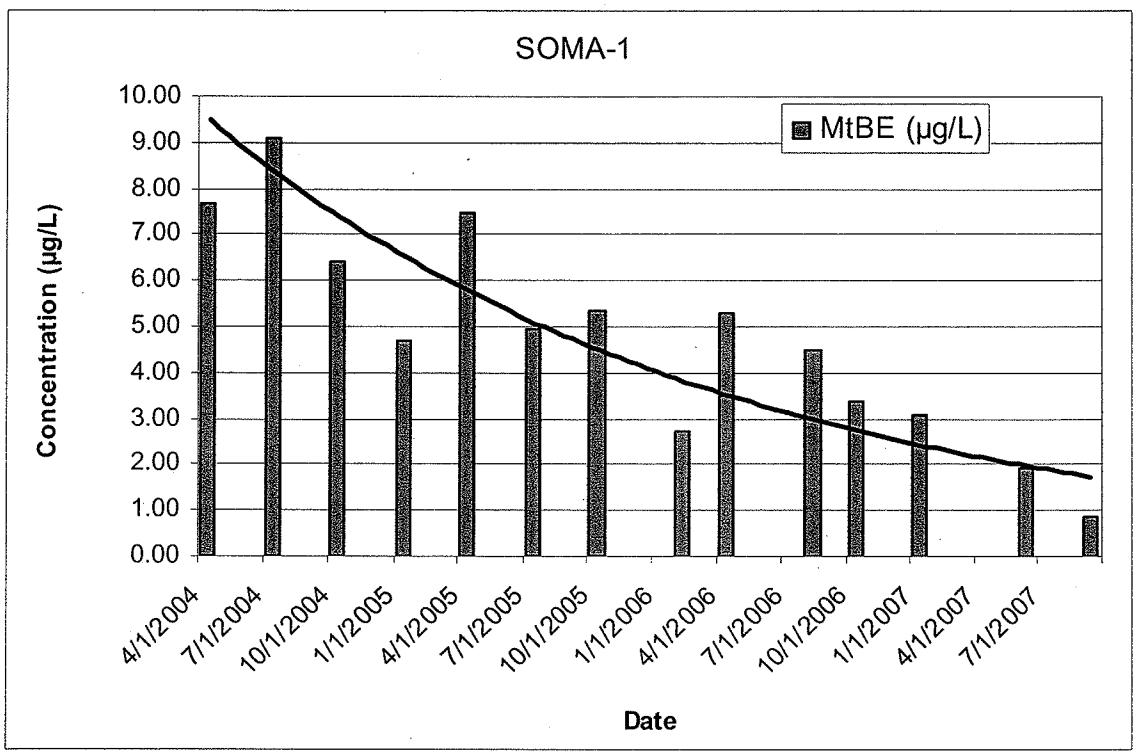
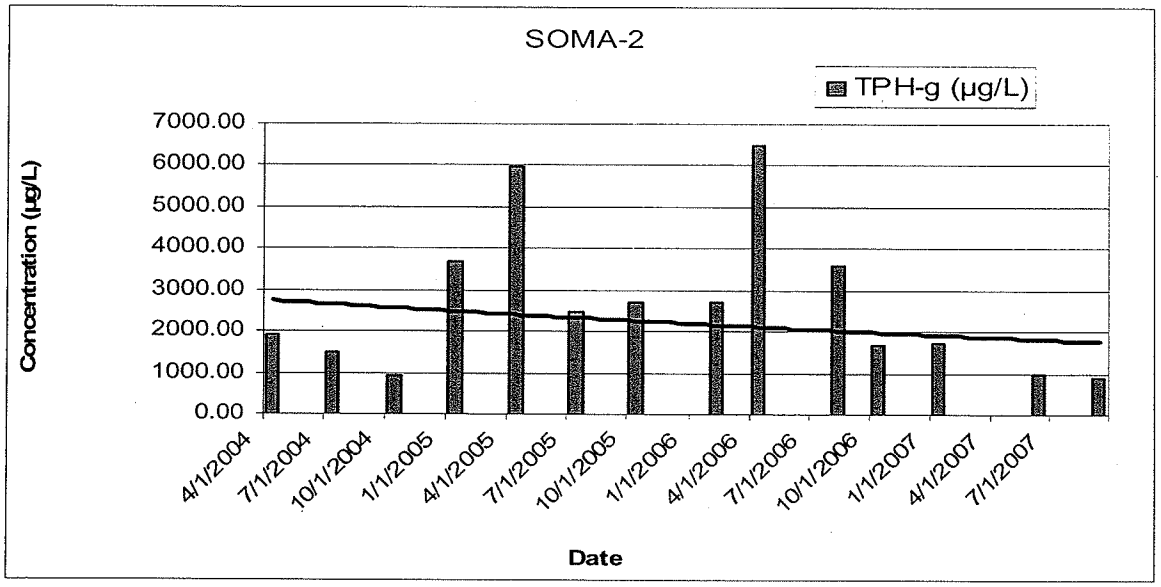
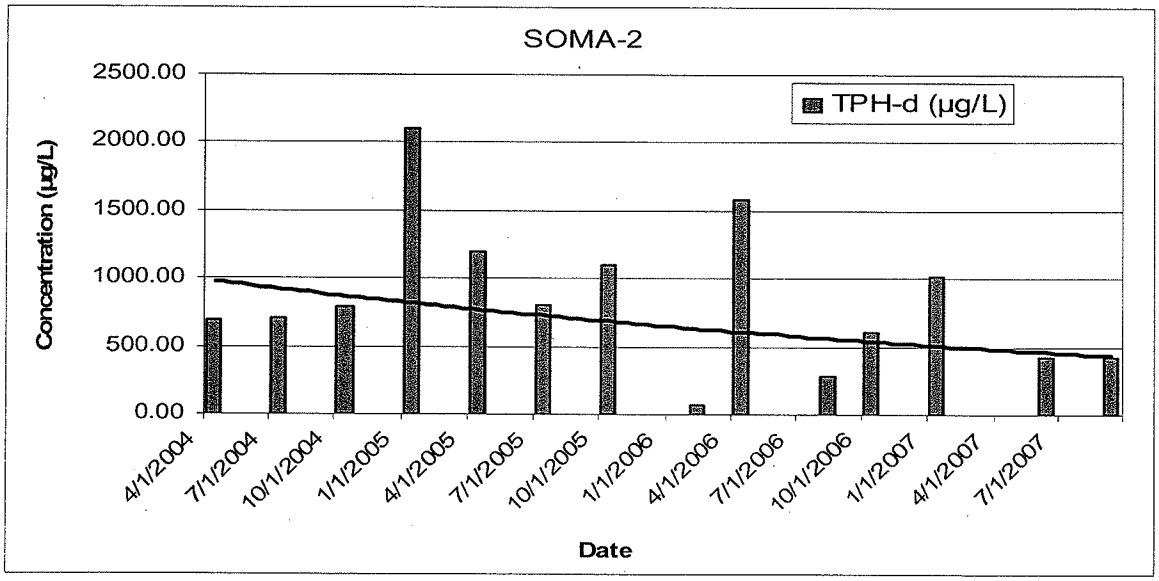


Figure 4: Concentration vs. Time Trend (Well SOMA-1)

ENVIRONMENTAL ENGINEERING, INC.





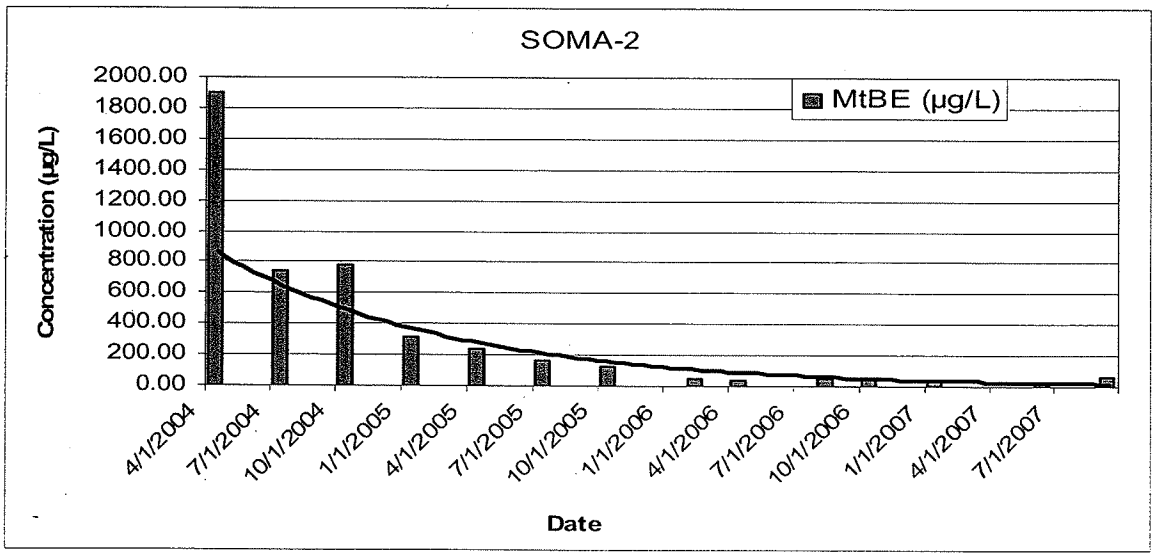
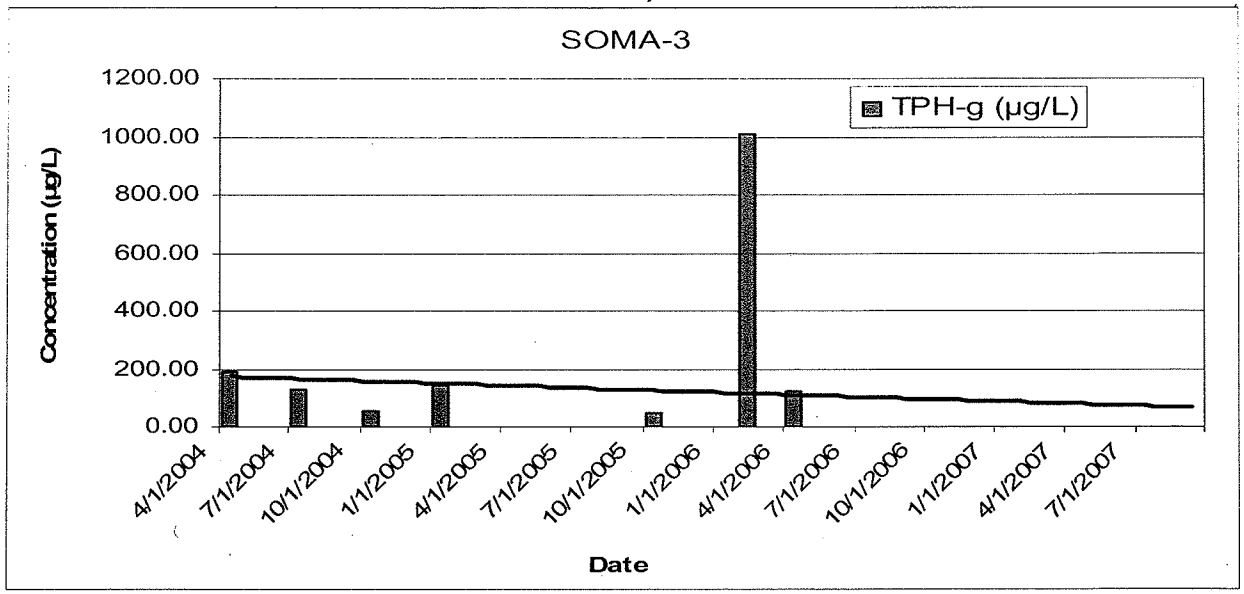
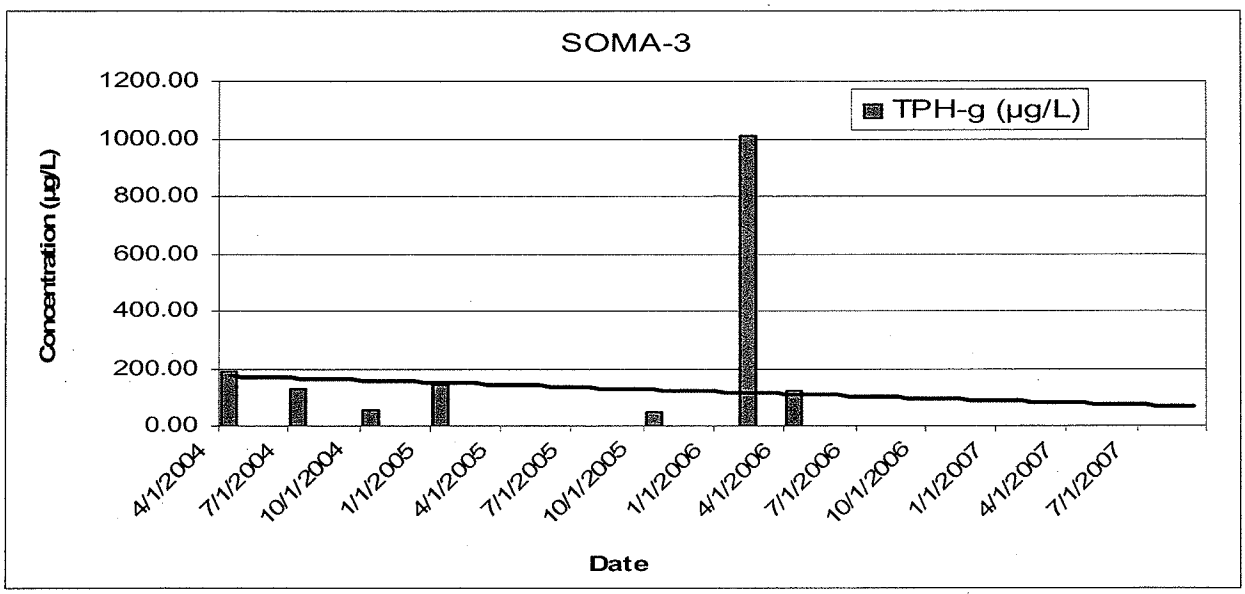


Figure 5: Concentration vs. Time Trend (Well SOMA-2)

ENVIRONMENTAL ENGINEERING, INC.





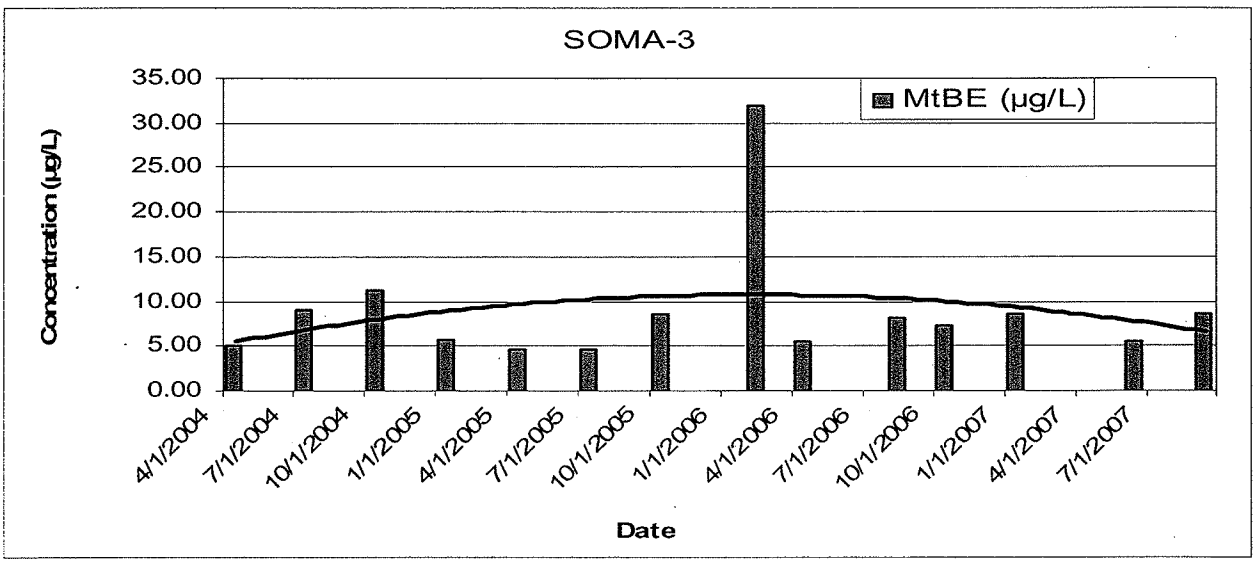
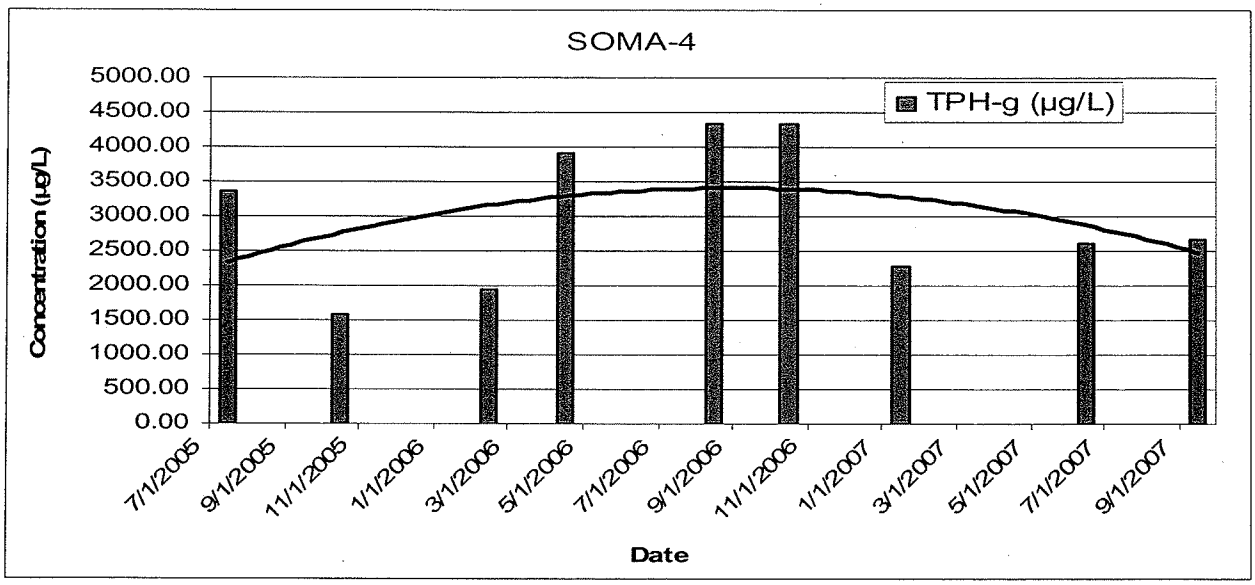
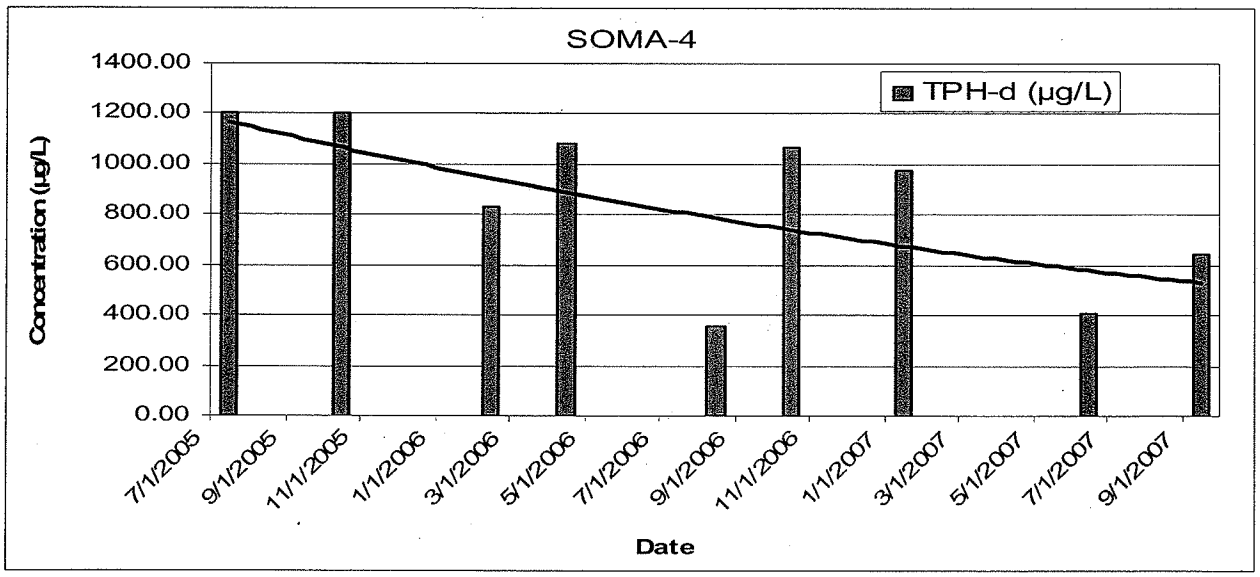


Figure 6: Concentration vs. Time (Well SOMA-3)

ENVIRONMENTAL ENGINEERING, INC.





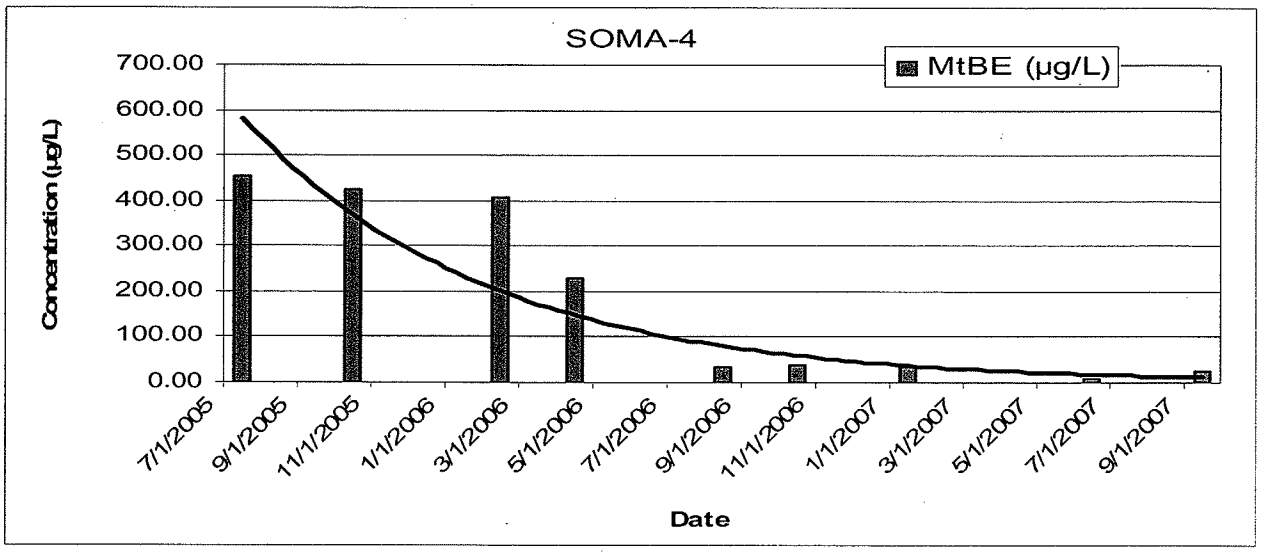


Figure 7: Concentration vs. Time Trend (Well SOMA-4)

ENVIRONMENTAL ENGINEERING, INC

Appendix A
Approval Correspondence

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

July 5, 2007

Mr. Mohammad Mashhoon
Mash Petroleum Inc.
5725 Thronhill Drive
Oakland, CA 94611

Subject: Fuel Leak Case No. RO0000317, Union 76, 5725 Thornhill Drive, Oakland, CA

Dear Mr Mashhoon:

Alameda County Environmental Health Department (ACEH) staff has reviewed the case file and reports entitled, "Supplemental Work Plan", dated November 2006 and "Evaluation of Possible Off-Site Petroleum Hydrocarbon Source Areas," and dated June 29, 2007 prepared on your behalf by SOMA Environmental Engineering, Inc. The off-site petroleum hydrocarbon preferential pathway study was prepared as the result of a request by ACEH dated June 10, 2007. ACEH generally concurs with the recommendations as proposed in the work plan, provided the technical comments discussed below are implemented.

Based on ACEH staff review of the documents referenced above, we request that you address the following technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to steven.plunkett@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Utility Corridor Sampling.** SOMA has proposed offsite, up gradient soil sampling in the utility corridor to determine if an up gradient source of dissolved phase MtBE exists, and if it has impacted your site. Review of historical data including aerial photos, Sanborn maps and other documents indicates that several up-gradients sources historically used hazardous materials that may have impacted your site; in particular, a former gasoline service station located at 5745 Thornhill Drive, Oakland. ACEH concurs with the recommendation to evaluate the utility corridor as a possible preferential pathway for dissolved phase petroleum hydrocarbon contamination migration. Please present the results from the utility corridor investigation in the report requested below.

2. **Soil Boring Locations.** In conjunction with the utility corridor investigation ACEH requests proposed soil boring DPT/HSA-6, which is in close proximity to a 66 inch culvert that diverts Temescal Creek, must be installed to determine if dissolved phase petroleum hydrocarbon contamination is adversely impacting Temescal Creek. According to the boring log for soil boring BH-C, strong petroleum hydrocarbon odor and elevated PID readings of 3,620 ppm was detected at 13 to 15 feet bgs; pay particular attention to this interval when collecting soil and groundwater sample. After the soil boring has been completed to the proposed depth, and soil and groundwater samples have been collected, ACEH requests the soil boring be converted into a groundwater monitoring well. ACEH recommends the use of monitoring

wells designed with screen intervals of 5 feet or less, as these wells will likely be representative of depth discrete groundwater conditions. Please present results from soil boring and monitoring well installation in the report requested below.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Steven Plunkett), according to the following schedule:

- **September 1, 2007** – Monitoring Well Installation and Utility Corridor Evaluation

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

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

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

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

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

If you have any questions, please call me at (510) 383-1767.

Sincerely,

Steven Plunkett
Hazardous Materials Specialist

cc: Mansour Sepehr
SOMA Environmental Engineering, Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588-3334

Donna Drogos, ACEH
Steven Plunkett, ACEH
File

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

June 14, 2007

Mr. Mohammad Mashhoon
Mash Petroleum Inc.
5725 Thronhill Drive
Oakland, CA 94611

Subject: Fuel Leak Case No. RO0000317, Union 76, 5725 Thornhill Drive, Oakland, CA

Dear Mr Pazdel:

Alameda County Environmental Health Department (ACEH) staff has reviewed the case file and reports entitled, "Supplemental Work Plan", dated November 2006 and "First Quarter 2007 Groundwater Monitoring Report", prepared on your behalf by SOMA Environmental Engineering, Inc. The work plan was submitted in response to a request by ACEH dated August 15, 2006. ACEH agrees with the need for additional investigation to characterize the contaminant plume and the potential plume migration issues beneath nearby residences. The scope of work as proposed in the Work Plan recommends the installation of three soil borings in the vicinity of the former waste oil tank and one soil boring downgradient of the site adjacent to soil boring BH-C.

Based on ACEH staff review of the documents referenced above, we request that you address the following technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to steven.plunkett@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **Soil Boring Locations.** Review of onsite soil and groundwater data from soil borings HP-1 and CPT- 9 indicate that contamination in the area of the former waste oil tank is well defined. Consequently, proposed soil boring DPT-2 is not necessary at this time. In addition, soil boring DPT-3 is bounded by soil borings CPT-11 and CPT 8, which are approximately six feet away from soil boring DPT-3. MIP data from a previous investigation completed in May 2005 identified distinct hydrocarbon peaks for soil contamination in CPT-8 and CPT-11; however, the MIP data indicate the concentration of petroleum hydrocarbon contamination in soil is well below ESLs. Therefore, proposed soil boring DPT-3 is not necessary at this time. Lastly, considering the extent of onsite investigation near the former waste oil tank ACEH does not consider soil boring DPT-1 to be necessary at this time.

   Proposed soil boring DPT/HAS-6, which is in close proximity to a 66 inch culvert that diverts Temescal Creek must be installed to determine if dissolved phase petroleum hydrocarbon contamination is adversely impacting Temescal Creek. According to the boring log for soil boring BH-C, strong petroleum hydrocarbon odor and elevated PID readings of 3,620 ppm was detected at 13 to 15 feet bgs; pay particular attention to this interval when collecting soil and groundwater sample. After the soil boring has been completed to the proposed depth,

and soil and groundwater samples have been collected, ACEH requests the soil boring be converted into a groundwater monitoring well. ACEH recommends the use of monitoring wells designed with screen intervals of 5 feet or less, as these wells will likely be representative of depth discrete groundwater conditions. Please present results from soil boring and monitoring well installation in the report requested below.

2. **Utility Corridor Sampling.** SOMA has proposed offsite, up gradient soil sampling in the utility corridor to determine if an up gradient source of dissolved phase MtBE exists, and if it has impacted your site. Yet, no detailed review or evaluation of a potential offsite, up gradient source(s) has been discussed. Prior to approval of up gradient sampling in the utility corridor, ACEH request that you complete an extensive review of possible up gradient sources. At a minimum, your discussion should include historical land use practices, historical site activities, and possible hazardous material storage practices that may have occurred at up gradient sites. In addition, please review historical documents including Sanborn maps, aerial photographs and other sources of information that may provide an understanding of possible contamination from offsite, up gradient sources. Please present the results from your detailed review of possible offsite up gradient sources in the report requested below

3. **Soil Sampling and Analysis.** All soils from the boreholes are to be examined for staining and odor and screened using a PID. Soil samples are to be collected from any interval where staining, odor, or elevated PID readings are observed or changes in lithology occur. If no staining, odor, or elevated PID readings are observed, soil samples are to be collected from each boring at the capillary fringe, where groundwater is first encountered, changes in lithology, and at five foot intervals until total depth of the boring is reached.

   All soil samples must be analyzed for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and fuel oxygenates MTBE, Tertiary Amyl Methyl Ether (TAME), Ethyl Tertiary Butyl Ether (ETBE), Di-Isopropyl Ether (DIPE), Tertiary Butyl Alcohol (TBA), and Ethanol by EPA Method 8260 and the lead scavengers, Ethylene Dibromide (EDB), Ethylene Dichloride (EDC) and total petroleum hydrocarbons as diesel (TPHd) using EPA method 8015M. Please present the results from soil sampling in the report requested below

   Groundwater Sampling and Analysis. ACEH recommends collection of groundwater samples at 2 to 5 feet below first encountered groundwater and at depth intervals determined during soil boring installation. All groundwater samples are to be analyzed for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and xylenes (BTEX), and fuel oxygenates MTBE, Tertiary Amyl Methyl Ether (TAME), Ethyl Tertiary Butyl Ether (ETBE), Di-Isopropyl Ether (DIPE), Tertiary Butyl Alcohol (TBA), and Ethanol by EPA Method 8260 and the lead scavengers, Ethylene Dibromide (EDB), Ethylene Dichloride (EDC) and total petroleum hydrocarbons as diesel (TPHd) using EPA method 8015M. Please present the results from soil sampling in the report requested below

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Steven Plunkett), according to the following schedule:

- **July 1, 2007** – Possible Offsite Petroleum Hydrocarbon Source Areas
- **August 1, 2007** – site Conceptual Model with Monitoring Well Installation Report.

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

ELECTRONIC SUBMITTAL OF REPORTS

The Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

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PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

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

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

If you have any questions, please call me at (510) 383-1767.

Sincerely,

Steven Plunkett
Hazardous Materials Specialist

cc: Mansour Sepehr
SOMA Environmental Engineering, Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588-3334

Donna Drogos, ACEH
Steven Plunkett, ACEH
File

Appendix B
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: 08/01/2007 By jamesy

Permit Numbers: W2007-0891 to W2007-0892
Permits Valid from 09/21/2007 to 09/24/2007

Application Id: 1185909077367
Site Location: 5725 Thornhill Drive, Oakland, CA
City of Project Site: Oakland

Project Start Date: 08/30/2007
Extension Start Date: 09/21/2007
Extension Count: 1

Completion Date: 08/31/2007
Extension End Date: 09/24/2007
Extended By: vickyh1

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

Property Owner: Mo Mashhoon
1721 Jefferson St, Oakland, CA 94612
Phone: --

Client: ** same as Property Owner **

Receipt Number: WR2007-0350
Payer Name : Mansour Sepehr

Total Due: $500.00
Total Amount Paid: $500.00
Paid By: VISA
PAID IN FULL

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 1 Wells
Driller: Gregg Drilling & Testing - Lic #: 485165 - Method: hstem

Work Total: $300.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-0891	08/01/2007	11/28/2007	SOMA-5	8.00 in.	2.00 in.	0.00 ft	35.00 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, property 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.

Borehole(s) for Investigation-Contamination Study - 2 Boreholes
Driller: USB-1, DPT-6 - Lic #: 485165 - Method: other **Work Total: $200.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2007-0892	08/01/2007	11/28/2007	2	12.00 in.	40.00 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

permits and requirements have been approved or obtained.

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. 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.

CITY OF OAKLAND
Office of Planning and Building

4655

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

CIVIL ENGINEERING

Permit valid for 90 days from date of issuance.

PERMIT NUMBER	SITE ADDRESS/LOCATION
X 0 7 0 0 9 6 6	5725 Thornhill Drive, Oakland, CA

APPROX. START DATE	APPROX. END DATE	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number)
Aug 30, 2007	Aug 31, 2007	(925)734-6400

CONTRACTOR'S LICENSE # AND CLASS	CITY BUSINESS TAX #
C-57(#485165) Gregg Drilling	585033

ATTENTION:

1- State law requires that the contractor/owner call Underground Service Alert (USA) two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1-800-642-2444. Underground Service Alert (USA) # _____

2- 48 hours prior to starting work, you MUST CALL (510) 238-3651 to schedule an inspection.

3- 48 hours prior to re-paving, a compaction certificate is required (waived for approved slurry backfill).

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sole requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____ B&PC for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.12 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X Elena Manzo — August 2, 2007

Signature of Permittee ☒ Agent for ☐ Contractor ☐ Owner — Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☐ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☒ NO	LIMITED OPERATION AREA? (7AM-9AM & 4PM-6PM) ☐ YES ☒ NO

ISSUED BY	DATE ISSUED

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • Fax (510) 238-2263

Applications for which no permit is issued within 180 days shall expire by limitation.

Job Site 5725 THORNHILL DR Parcel# 048G-7420-007-00 Appl# X0700966

Descr to allow placement of monitoring wells in Thornhill Dr (SOMA-4) & (SOMA-5) & soil boring per Traffic Control Plan Permit Issued 09/17/07

Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job # Acctg#:
Util Fund #:

	Applcnt	Phone#	Lic#	License Classes
Owner MASH PETROLEUM, INC.				
Contractor GREGG DRILLING & TESTING, INC.	X	(925) 313-5800	485765	C57
Arch/Engr				
Agent SOMA ENVIRONMENTAL/ E. MANZO		(925) 734-6400		

Applic Addr 950 HOWE RD, MARTINEZ, CA. 94553

$416.55 TOTAL FEES PAID AT ISSUANCE

$63.00 Applic	$300.00 Permit
$.00 Process	$34.49 Rec Mgmt
$.00 Gen Plan	$.00 Invstg
$.00 Other	$19.06 Tech Enh

JOB SITE

ADDRESS:

DIST:

Date: 09/17/07 Amt Paid: $416.55
By: SKJ Register R02 Receipt# 107774

CITY OF OAKLAND

250 FRANK H. OGAWA PLAZA, 2ND FLOOR · OAKLAND, CALIFORNIA 94612-2031

Community and Economic Development Agency
Building Services Division

(510) 238-3102
FAX (510) 238-6445
TDD (510) 238-6312

9/17, 2007

Mr. Mo Mashhoon, Mash Petroleum, Inc.
c/o Soma Environmental, E. Manzo
6620 Owens Drive, Suite A
Pleasanton, California 94588-6401

RE: **5725 Thornhill Dr. Minor Encroachment Permit no. ENMI07246**

Dear Mr. Mashhoon:

Enclosed is a Minor Encroachment Agreement allowing you to encroach onto Thornhill Drive with two monitoring wells. Before the agreement becomes effective, the person(s) having the legal authority to do so, must sign and properly notarize the document with a notary acknowledgement slip, and return the documents to this office, attention of Chris Bacina for recordation with the County of Alameda.

Additionally, there are fees due in the amount of $397.04 on the application for overtime dedicated to the project. Please arrange to pay these fees as soon as possible.

Appl#: ENMI07246
5725 THORNHILL DR Parcel: 048G-7420-007-00
Descr: To allow placement of monitoring wells in Thornhill Dr

Type	Amount	Date	Paid
FILING	974.23	09/12/07	09/13/07
PLANCHECK OT	**$397.04**	**09/14/07**	**DUE**

If you have any questions, please call Chris Bacina at 238-3759 any workday from 8:00 AM to 4:00 PM.

Sincerely,

TIMOTHY LOW, P.E.
SUPERVISING CIVIL ENGINEER

Enclosures

Date: 09/17/07 Amt Paid: $397.04
By: SKJ Register R02 Receipt# 107775

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • Fax (510) 238-2263

Applications for which no permit is issued within 180 days shall expire by limitation.

Job Site 5725 THORNHILL DR Parcel# 048G-7420-007-00 Appl# OB070645

to allow placement of monitoring wells in Thornhill Dr (SOMA-4) & (SOMA-5) per approved TCP

Permit Issued 09/17/07

Nbr of days: 1 Linear feet: 75
Effective: 09/21/07 Expiration: 09/21/07

SHORT TERM NON-METERED

	Applcnt	Phone#	Lic#	License Classes
Owner MASH PETROLEUM INC				
Contractor GREGG DRILLING & TESTING, INC.	X	(925)313-5800	485165	C57
Arch/Engr				
Agent SOMA ENVIRONMENTAL/ E. MANZO		(925)734-6400		
Applic Addr 950 HOWE RD, MARTINEZ, CA, 94553				

$125.08 TOTAL FEES PAID AT ISSUANCE

$63.00 Applic	$46.00 Permit
$.00 Process	$10.36 Rec Mgmt
$.00 Gen Plan	$.00 Invstg
$.00 Other	$5.72 Tech Enh

ADDRESS:

CITY OF OAKLAND

JOB SITE

DIST

TCP needs to be approved by Transportation Services every 30 days or whenever deviated from the previously approved plan.

Applicant: _____ 9/17/07

Issued by: _____

Date: 09/17/07 Amt Paid: $125.08
By: SKJ Register R02 Receipt# 107776

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • Fax (510) 238-2263

Applications for which no permit is issued within 180 days shall expire by limitation.

Job Site 5725 THORNHILL DR Parcel# 048G-7420-007-00 Appl# ENMI07246

Descr to allow placement of monitoring well in Thornhill Dr (SOMA-5) Filed 09/12/07

Insurance Required? YES Carrier Expires

	Applcnt	Phone#	Lic#	License Classes
Owner MASH PETROLEUM INC				
Contractor				
Arch/Engr				
Agent SOMA ENVIRONMENTAL/ E MANZO	X	(925)734-6400		

Applic Addr

$974.23 TOTAL FEES PAID AT FILING $.00 TOTAL FEES PAID AT ISSUANCE

$63.00	Applic	$.00	Permit
$786.00	Process	$80.66	Rec Mgmt
$.00	Gen Plan	$.00	Invstg
$.00	Other	$44.57	Tech Enh

CITY OF OAKLAND

JOB SITE

JOB SITE

PAID
2021075 77
Rec 9/13/07

DIST: ADDRESS: 5725 Thornhill Dr

CITY OF OAKLAND

PUBLIC WORKS AGENCY • 250 FRANK H. OGAWA PLAZA • SUITE 4344 • OAKLAND, CALIFORNIA 94612-2033
Transportation Services Division
Office (510) 238-3466
FAX (510) 238-7415
TDD (510) 839-6451

Traffic Engineering Services Analysis Fee Invoice

Date: August 29, 2007

TSD Invoice # : 07-0163

To: Elena Manzo
Company: SOMA Environmental Eng.
Address: 6620 Owens Drive, Ste A, Pleasanton, CA
Phone: 925-734-6400

Created/Received By: Joe Watson

Location	Description of Work	Project Name / Permit #	# of Hours *
5725 Thornhill Drive	Lane Closure		1

Total Hours	1
TSD Service Rate	$ 100.00
Total Fee	$ 100.00

* - minimum 1 hour service

FOR CITY USE ONLY	
Cost Center No.	W659
Organization No.	30262
Account No.	45119
Fund No.	1750

Cc: Rosalie

APPLICATION FOR TRAFFIC CONTROL PLAN

Transportation Services Fee: $100/hour
(Check or Money Order Only)

City of Oakland

Public Works Agency
Transportation Services Division

Check the box that apply:
- ☒ **New Application** (Utility, Excavation)
- ☒ **Renewal Application**
- ☐ **New Development w/ Mgmt Plan**
- ☐ **City of Oakland Project**

Please read the following:

1. Processing time for a Traffic Control Application is a minimum of 10 working days.
2. Traffic Control review is scheduled only on Tuesdays and Thursdays from 8:30am thru 11:30am by appointment only.
3. A scheduled appointment by phone or email with a TSD staff member is necessary to discuss any and all traffic control application and plans.
4. Please call ahead to confirm that the traffic control application is ready for pickup @ 510-238-3467.
5. Businesses and residences adjacent to the work area must be provided 72 hour advance notice.
6. A completed traffic control application may be faxed to (510) 238-7415.
7. Incomplete traffic control applications will not be processed and will be returned to applicant.
8. The initial approval for a traffic control plan is 1 month, the renewal submittal may be approved up to 3 months.
9. The traffic control provision dates cannot be changed or extended if work has already commenced.
10. Upon receiving TSD approval of the traffic control plan, the applicant (or contractor) shall proceed to the Building Services Division of CEDA to obtain an "Obstruction Permit." CEDA is located at 250 Frank Ogawa Plaza, 2nd Floor, Oakland, CA 94612.

Contact Person: ELENA MANZO Phone: (925)734-6400

Name of Company: SOMA ENVIRONMENTAL ENG. Fax: (925)734-6401

Address of Company: 6620 OWENS DRIVE, SUITE A, PLEASANTON, CA

Describe type of work to be performed: DRILL ONE TEMPORARY BOREHOLE USING DIRECT PUSH TECHNOLOGY, UPON COMPLETION CONVERT the BORING INTO MONITORING WELL, ADVANCE ONE UTILITY TRENCH SAMPLING BOREHOLE USING AIR KNIFE TECHNOLOGY.

Location of work: 5325 Thornhill Dr. Between* GRISBORNE And* GRISBORNE AVE

Between* And*

* Name the streets that are the boundaries of your work area.

Work date (s): August 30, 07 ☒ Mon-Fri ☐ Sat-Sun ☐ Mon-Fri ☐ Sat-Sun Work Hours: 0700 to 1600 to

Please Follow these Steps to Complete a Traffic Control Plan

Sept 21, 2007

A. **Drawing Area:** The full width of all streets adjacent to the site MUST be included in the drawing. Include the entire block in which your work is located for every street that is adjacent to your site.

B. **Include Street Names, Direction of Traffic on the Street, and North Arrow**

C. **Show Existing Number of Lanes in all Directions** (with any pavement arrows)

D. **Check the Box(s) that Apply:** All checked items MUST be shown on the drawing

- ☒ Lane Closure (1/2 each side)
- ☐ Street Closures (must provide detour plan)
- ☐ Use of Median
- ☐ Use Parking Lane
- ☐ Sidewalk Closure (must provide pedestrian walk way)

E. **Show All Dimensions** of street widths (curb to curb), lane widths, sidewalk widths, and work area dimension.
(Note: Traffic Control Application / Plans missing the above information will not be accepted or processed.)

F. **Show the Name and Locations** of all advanced warning devices, flaggers, delineators, warning and construction signs to be used.

RENEWAL PROCESS: Resubmit a completed Traffic Control Application with the old approved plan (with the necessary modifications / changes to the plans).

FOR HELP in constructing a traffic control plan please refer to the "WATCH" hand book or chapter 5 of the MUTCD manual available online at: http://www.dot.ca.gov/hq/traffops/signtech/signdel/chp5/chap5.htm

For our Website: http://www.oal.landpw.com/transportation/traffic_control_plan.htm

SPECIAL PROVISION 7-10.1 TRAFFIC REQUIREMENTS

Project Name: _____
Project Number: TSD-07-0163
Reviewed By: J.Watson
Date: 8/29/2007
Permit good from 9/21/2007
to 9/21/2007

OB070645

ADD NEW SUBSECTION TO READ:
SP 7-10.1.4 Vehicular Traffic

Attention is directed to Section 7-10. Public Convenience and Safety, of the City of Oakland Standard Specification for Public Works Construction, 2000 Edition (Include this paragraph for p-jobs, excavation permits or obstruction permits).

The Contractor shall conduct its work in such a manner as to provide public convenience and safety and according to the provisions in this subsection. The provisions shall not be modified or altered without written approval from the Engineer.

Standard traffic control devices shall be placed at the construction zone according to the latest edition of the Work Area Traffic Control Handbook or Caltrans Traffic Manual, Chapter 5 – "Traffic Controls for Construction and Maintenance Work Zone," or as directed by the Engineer.

All trenches and excavations in any public street or roadway shall be back filled and opened to traffic, or covered with suitable steel plates securely placed and opened to traffic at all times except during actual construction operations unless otherwise permitted by the Engineer.

Each section of work shall be completed or temporarily paved and open to traffic in not more than 5 days after commencing work unless otherwise permitted in writing by the Engineer.

Where construction encroaches into the sidewalk area, a minimum of 5 ½ feet of unobstructed sidewalk shall be maintained at all times for pedestrian use. Pedestrian barricades, shelter, and detour signs per Caltrans standards may be required.

The contractor shall conduct its operation in such a manner as to leave the following traffic lanes unobstructed and in a condition satisfactory for vehicular travel during the Obstruction Period. At all times traffic lanes will be restricted and reopened to travel. Emergency access shall be provided at all times.

Street Name Limits	Obstruction Period	North Bound	South Bound	East Bound	West Bound
Thornhill Drive between Grisborne and Grisborne Avenue	Mon. – Fri. 7am – 4pm	N/A	N/A	1-12' lane open minimum	

The Contractor Shall Also include all check item:

1. ☐ Design a construction traffic control plan and submit (2) copies to the Engineer for approval prior to starting any work.
2. ☒ Replace all signs, pavement markings, and traffic detector loops damaged or removed due to construction within 3 days of completion of work or the final pavement lift.
3. ☒ Provide advance notice to Oakland Police at (510) 777-3333 (24-hrs) and Oakland Fire at (510) 238-3331 (2-rhs) when a single lane of traffic or less is provided on any street.
4. ☒ Provide 72-hour advance notice to AC Transit at (510) 891-4909 when affecting a bus stop.
5. ☒ For Caltrans roadways, ramps, or maintained facilities, the Contractor shall obtain appropriate permits and notify the Traffic Management Center 24 hours in advance of any work.
6. ☒ Flagger control is required. Certified Flagger is required.
7. ☐ Pedestrian walkway by K-rail, Canopy or Plywood is required. (See detour plan)
8. ☒ Pedestrian traffic shall be maintained and guided through the project at all times.
9. ☒ Provide advance notice to Business and Residence within 72-hours.
10. ☒ Allow all traffic movement at intersection.

Nothing specified herein shall prohibit emergency work and/or repair necessary to ensure public health and safety.

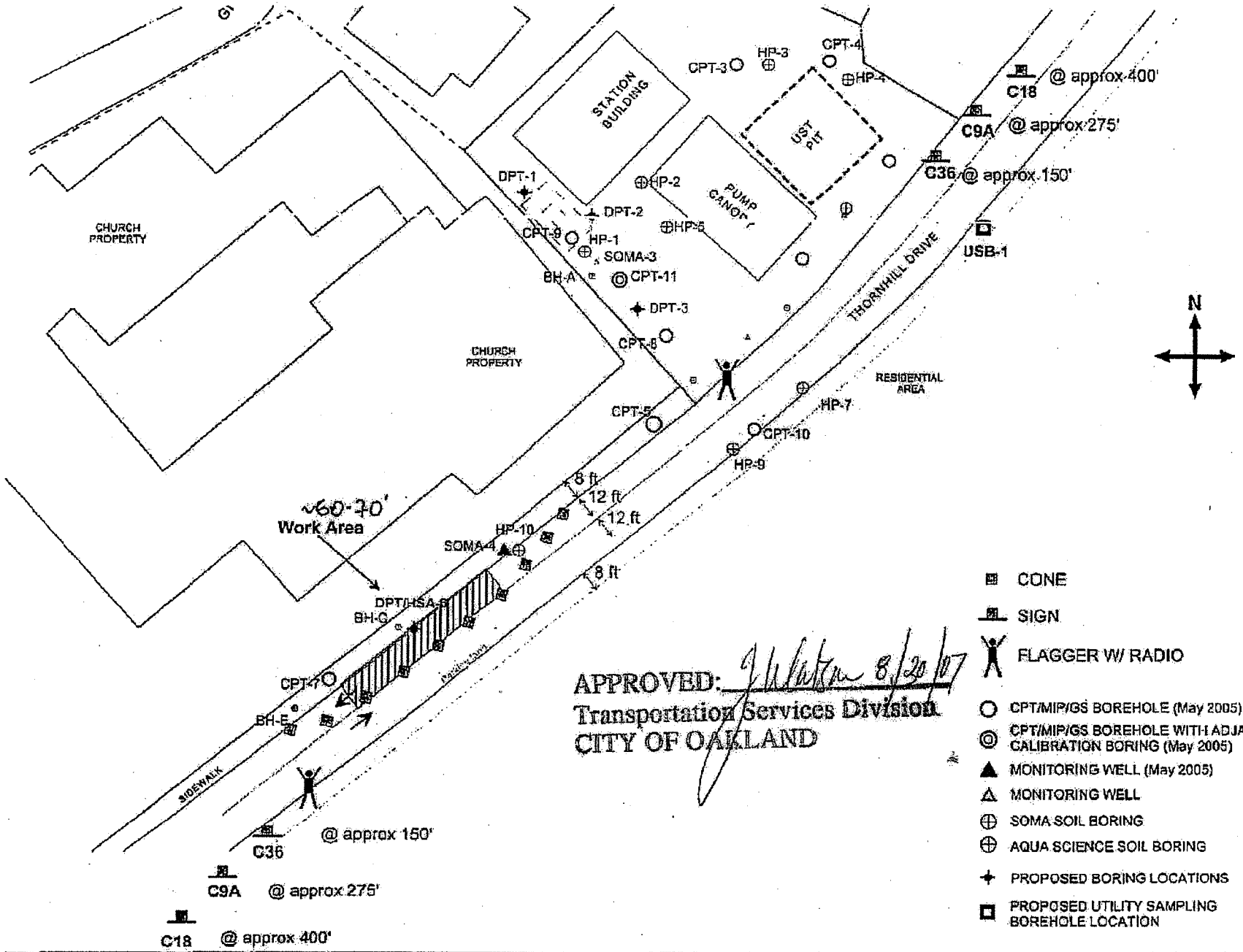


Figure: Traffic control plan

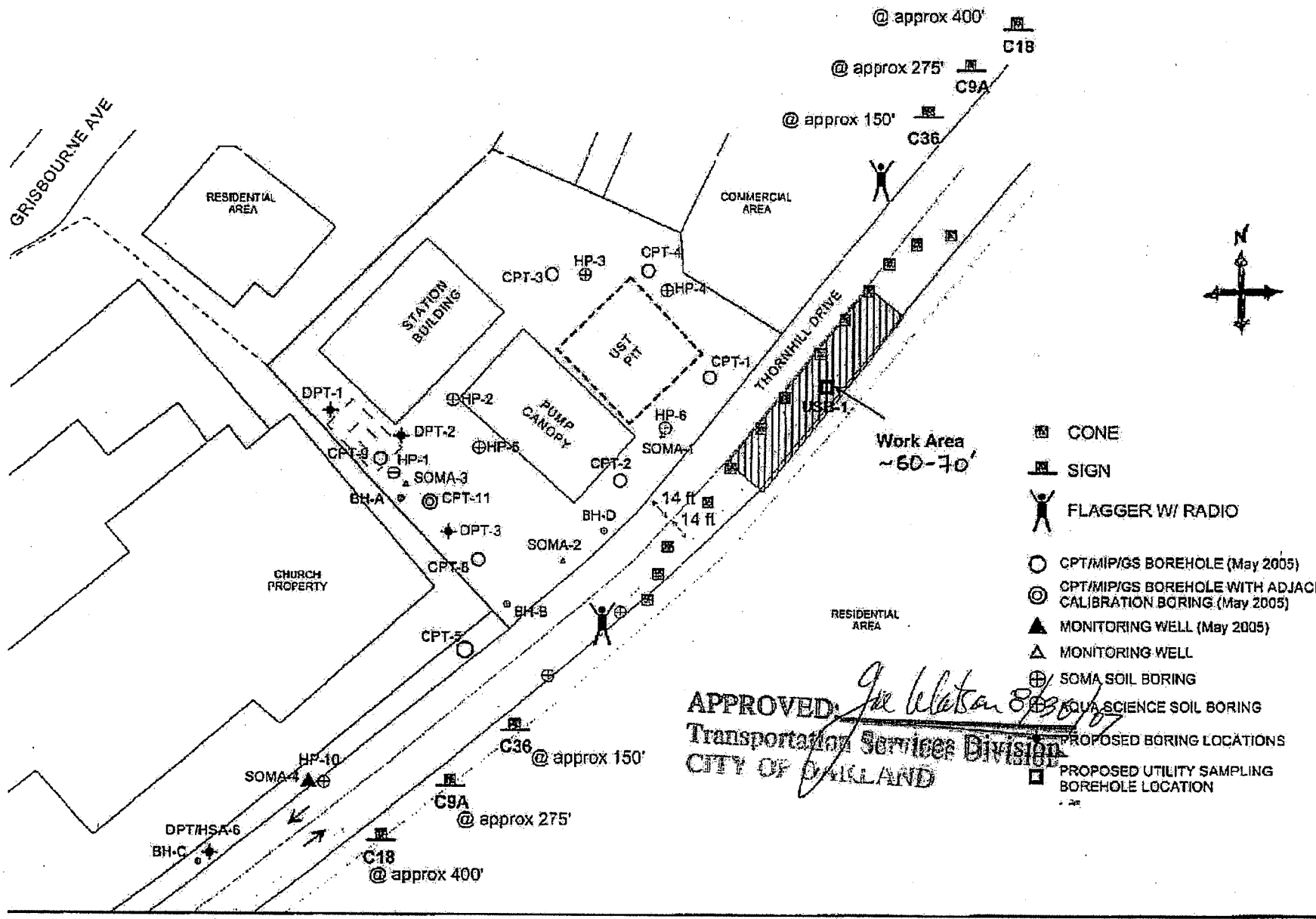


Figure: Traffic control plan

Message Number: 0345631 Received by USAN at 13:46 on 09/17/07 by JMM

Work Begins: 09/21/07 at 07:00 Notice: 033 hrs Priority: 2

Expires: 10/15/07 at 17:00 Update By: 10/11/07 at 16:59

Caller: CORA PISCIOTTO
Company: GREGG DRILLING & TESTING
Address: 950 HOWE RD
City: MARTINEZ State: CA Zip: 94553
Business Tel: 925-313-5800 Fax: 925-313-0302
Email Address: CPISCIOTTO@GREGGDRILLING.COM

Nature of Work: VERTICAL BORING FOR WELL INST
Done for: SOMA Explosives: N
Foreman: ELENA
Field Tel: Cell Tel: 510-381-3457
Area Premarked: Y Premark Method: WHITE PAINT
Permit Type: NO
Vac / Pwr Equip Use In The Approx Location Of Member Facilities Requested: N
Excavation Enters Into Street Or Sidewalk Area: Y

Location:
Street Address: 5725 THORNHILL DR
Cross Street: GRISBORN AVE
FR PRT/O/ADDR GO 70^S ON W/SI/O THORNHILL DR 2) FR PRT/O/ADDR GO 100^N ON S/SI/O THORNHILL DR

Place: OAKLAND County: ALAMEDA State: CA

Long/Lat Long: -122.215904 Lat: 37.831657 Long: -122.210091 Lat: 37.837608

Sent to:
COALAM = COUNTY ALAMEDA
CTYOAK = CITY OAKLAND CONST DEPT
PBTHAY = PACIFIC BELL HAYWARD
SPRINT = SPRINT
COMOAK = COMCAST-OAKLAND
EBWOK3 = EAST BAY WATER OAKLAND 3
PGEOAK = PGE DISTR OAKLAND

Service Area		Day Phone	Emergency Phone
COALAM	COUNTY ALAMEDA	510-670-5991	
COMOAK	COMCAST-OAKLAND	510-534-3364	
CTYOAK	CITY OAKLAND CONST DEPT	510-238-6540	
EBWOK3	EAST BAY WATER OAKLAND 3	510-287-1829	
PBTHAY	PACIFIC BELL HAYWARD	510-645-2929	
PGEOAK	PGE DISTR OAKLAND	800-743-5000	
SPRINT	SPRINT	800-521-0579	

Attn: Elena
Fr: Cora

SOMA USA: 347841

Minor Encroachment Permit ENMI Application:
Site: 5725 Thornhill Drive, Oakland, CA

List of Attachments:

1) Cover Letter (including site maps and well diagram)

2) Encroachment permit application (including excavation permit as well as the overtime plan check request)

   - Letter from the property owner requesting an encroachment
   - Letter from the contractor (Gregg Drilling & Testing) authorizing SOMA Engineering to sign any permit related applications and forms
   - Site Plan
   - Fees ($947.23)
   - A certificate of insurance
   - A copy of recorded Grant Deed

3) City Business License

4) Boring and well Installation permits (W2007-0891 to W2007-0892)

Please note: The traffic control application has been submitted to the Transportation Services Division.

ENVIRONMENTAL ENGINEERING, INC
6620 Owens Drive, Suite A • Pleasanton, CA 94588-3334
TEL (925)734-6400 • FAX (925)734-6401

August 27, 2007

City Of Oakland
Director of Building Services
(City Engineer)
250 Frank H. Ogawa Plaza, Suite 2340
Oakland, CA 94612

Re: Encroachment Permit Request for the property located at 5725 Thornhill Drive, Oakland, CA (Field work scheduled for September ~~1~~, 2007)
(September 21, 2007)

To Whom It May Concern:

SOMA Environmental Engineering Inc. would like to request encroachment, traffic, and other permits necessary to complete a well installation and utility trench sampling for an environmental site investigation, as requested by the Alameda County Environmental Health Department (ACEHD) in its letter dated July 5, 2007. The subject site is an active gasoline station, which is bordered on the northwest by residential property, on the northeast by commercial property, on the southeast by Thornhill Drive, and on the southwest by church property. Please see attached Figure 1, Figure 1a, and Zoning and General Plan.

Type of Work:

Gregg Drilling &Testing, Inc. (C-57 license 485165) will advance:

- One Direct Push/ Hollow Stem Auger (DPT/HAS) borehole; on the same day, the borehole will be converted to a monitoring well (SOMA-5).
- One Utility Sampling Borehole (USB-1), utilizing "air knife" technology.

Request and Justification to Install the Monitoring Well in the Sidewalk Area:

SOMA requests the aforementioned well (SOMA-5) to be completed in the sidewalk area adjacent to Thornhill Drive (northbound) in the same manner as the well SOMA-4, the location of which was approved by the City of Oakland in 2005. The following describes the reasoning for installing the well in the sidewalk area:

1) Thornhill drive is a busy, narrow, two-lane, two-way street without a parking or a bike lane; therefore, if installed in the street area, the well will need to be installed in a traffic lane.

2) Per request from the ACEHD, SOMA-5 will be monitored quarterly as part of the groundwater monitoring program at the subject site; therefore, if installed in a traffic lane encroachment and traffic control plans will have to be submitted each quarter. This will result in unnecessary time and cost investment as well as continuous traffic disruptions.

Accordingly, SOMA requests authorization to install monitoring well SOMA-5 in the sidewalk area.

Scope of Field Activities:

The boring and monitoring well location in the northbound sidewalk of Thornhill Drive (DPT-6/SOMA-5) will require an 8-inch round core in the existing pavement to gain access to the subsurface. Similarly, the location of USB-1 in the southbound sidewalk of Thornhill Drive (upgradient of the subject site) will require an 8-inch core in the existing pavement to gain access to the subsurface.

Monitoring well SOMA-5 will be completed to grade; the attached drawing illustrates the well completion diagram. Upon completion, boring USB-1 will be backfilled with neat cement grout to existing subgrade, and completed to existing grade with material as directed by the City of Oakland.

If you have any questions or comments, please do not hesitate to call me at (925) 734-6400.

Sincerely,

Mansour Sepehr, Ph.D., PE
Principal Hydrogeologist

Enclosures: Site Maps (Figure 1, Figure 1a, and Zoning and General Plan)
Well Construction Diagram

cc: Mr. Mo Mashhoon, Property Owner

CITY OF OAKLAND
Office of Planning and Building

EXCAVATION PERMIT

TO EXCAVATE IN STREETS OR OTHER SPECIFIED WORK

416 55

CIVIL ENGINEERING

PAGE 2 of 2

Permit valid for 90 days from date of issuance.

PERMIT NUMBER	SITE ADDRESS/LOCATION
X 0 7 0 _ _ _ _	* 5725 Thornhill Drive, Oakland, CA
APPROX. START DATE: Aug 30, 2007 / APPROX. END DATE: Aug 31, 2007	24-HOUR EMERGENCY PHONE NUMBER (Permit not valid without 24-Hour number): (925)734-6400
CONTRACTOR'S LICENSE # AND CLASS: C-57(# 485165) Gregg Drilling	CITY BUSINESS TAX #: 585033

ATTENTION:

1- State law requires that the contractor/owner call Underground Service Alert (USA) two working days before excavating. This permit is not valid unless applicant has secured an inquiry identification number issued by USA. The USA telephone number is 1-800-642-2444. Underground Service Alert (USA) # _____

2- 48 hours prior to starting work, you MUST CALL (510) 238-3651 to schedule an inspection.

3- 48 hours prior to re-paving, a compaction certificate is required (waived for approved slurry backfill).

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5 Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as an owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exempt from the sole requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale, (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption on this subdivision on more than two structures more than once during any three-year period. (Sec. 7044 Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project, (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License law).

☐ I am exempt under Sec. _____, B&P'C for this reason _____

WORKER'S COMPENSATION

☐ I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3700, Labor Code).

Policy # _____ Company Name _____

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California (not required for work valued at one hundred dollars ($100) or less).

NOTICE TO APPLICANT: If, after making this Certificate of Exemption, you should become subject to the Worker's Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked. This permit is issued pursuant to all provisions of Title 12 Chapter 12.52 of the Oakland Municipal Code. It is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims, or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance. This permit is void 90 days from the date of issuance unless an extension is granted by the Director of the Office of Planning and Building.

I hereby affirm that I am licensed under provisions of Chapter 9 of Division 3 of the Business and Professions Code and my license is in full force and effect (if contractor), that I have read this permit and agree to its requirements, and that the above information is true and correct under penalty of law.

X Elena Manzo — August 2, 2007

Signature of Permittee ☒ Agent for ☐ Contractor ☐ Owner — Date

DATE STREET LAST RESURFACED	SPECIAL PAVING DETAIL REQUIRED? ☐ YES ☐ NO	HOLIDAY RESTRICTION? (NOV 1 - JAN 1) ☐ YES ☒ NO	LIMITED OPERATION AREA? (6AM-9AM & 3PM-6PM) ☐ YES ☒ NO
ISSUED BY		DATE ISSUED	

forms/ops/excavate.pg2 (04/98)

3 hours or less.

CITY OF OAKLAND
COMMUNITY & ECONOMIC DEVELOPMENT AGENCY

250 Frank H. Ogawa Plaza
Second Floor, Suite 2114
Oakland, CA 94612
(510) 238-6993
Fax (510) 238-2263

REQUEST FOR OVERTIME PLAN CHECK

I hereby request plan check services ***OUTSIDE OF NORMAL WORK HOURS***. I understand that the plan check I am requesting can involve staff of multiple departments including: Building Services, Planning & Zoning, and Fire. I further understand that staff will perform plan check and permit processing work that involves review of survey, grading, plot plan and structural plans for compliance with the Fire Code, Building Code and Planning Code.

I agree to pay the overtime rates listed below. I understand that I will be charged a one-hour minimum by each department I select. I understand that the plan reviewer may determine that review by other departments is required. The plan reviewer will make a reasonable effort to notify me if referral to another department is deemed necessary.

I understand that the City of Oakland will not guarantee immediate availability of staff that can perform work outside of normal work hours, but will make reasonable effort to provide expedited service.

Applicant's Signature — August 22, 2007 (Date)

Mansour Sepehr, Ph.D, P.E (Print Name) — (925) 734-6400 (Phone No.)

emanzo@somaenv.com (Email Address) — (925) 734-6401 (Fax No.)

COMPLETE THE FOLLOWING INFORMATION:

Permit Application #: _____

Zoning/Design Review Application #: _____

Project Address: 5725 Thornhill Drive, Oakland

Type of Project/Work: Well Installation, Utility trench sampling

☐ REQUEST BUILDING (plan review & processing) ☐ REQUEST FIRE ☐ REQUEST ZONING

No specific plan checker may be requested. Overtime work is assigned based on plan checker's availability for fastest turnaround.

OFFICE USE ONLY

Plan Checker Assigned: _____ Hours @ $173.00/hr + $25.52/hr: ___

Process Coordinator Assigned: _____ Hours @ $173.00/hr + $25.52/hr: ___

Approved By: _____ Date: _____ Amount Due: $ _____

Planner Assigned: _____ Hours @ $155.00/hr + $22.86/hr: ___

Approved By: _____ Date: _____ Amount Due: $ _____

Fire Prevention Engineer Assigned: _____ Hours @ $ /hr.: _____

Approved By: _____ Date: _____ Amount Due: $ _____

August 7, 2007

City Of Oakland
Director of Building Services
(City Engineer)
250 Frank H. Ogawa Plaza, Suite 2340
Oakland, CA 94612

To Whom It May Concern:

Please be notified that I, Mo Mashhoon, the legal owner of the property located at 5725 Thornhill Drive, Oakland, CA, would like to request encroachment, traffic, and other permits necessary to complete a well installation and utility trench sampling for an environmental site investigation, as requested by the Alameda County Environmental Health Department in its letter dated July 5, 2007, and hereby grant to SOMA Environmental Engineering, Inc. the right to obtain all the requisite permits from the City of Oakland, in order to complete said process.

Sincerely,

Mo Mashhoon 8/24/07

GREGG DRILLING & TESTING, INC.
SPECIALIZING IN ENVIRONMENTAL, GEOTECHNICAL AND IN-SITU TESTING

August 7, 2007

City of Oakland
5725 Thornhill Drive
Oakland, CA 94612

To Whom It May Concern:

Please allow Mr. Mansour Sepehr of Soma Environmental Engineering, Inc., to sign the permits for the drilling services to be performed in the City of Oakland. For your reference our C-57 license # is 485165 and our City of Oakland business license # is 585033

If you have any questions or need any other information regarding this please contact me at (925) 313-5800.

Sincerely,
GREGG DRILLING & TESTING, INC.

Christopher Pruner
Operations Manager

ACORD. CERTIFICATE OF LIABILITY INSURANCE

OP ID KN SOMAE-2 | DATE (MM/DD/YYYY) 07/27/07

PRODUCER
Lawson-Hawks Insurance Assoc.
Lic. #0401806
1091 N.Shoreline Blvd,POBox 39
Mountain View CA 94042
Phone: 800-964-8121 Fax:650-964-0816

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED
Soma Envir. Engineering Inc
Joyce Bobek
6620 Owens Dr., Ste A
Pleasanton CA 94588

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A: USF Insurance Company	
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	X	GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [ ] PRO-JECT [ ] LOC	LCBGL29884R3	07/07/07	07/07/08	EACH OCCURRENCE	$ 1,000,000
						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
						MED EXP (Any one person)	$ 5,000
						PERSONAL & ADV INJURY	$ 1,000,000
						GENERAL AGGREGATE	$ 2,000,000
						PRODUCTS - COMP/OP AGG	$ 1,000,000
		AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [ ] HIRED AUTOS [ ] NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident)	$
						BODILY INJURY (Per person)	$
						BODILY INJURY (Per accident)	$
						PROPERTY DAMAGE (Per accident)	$
		GARAGE LIABILITY [ ] ANY AUTO				AUTO ONLY - EA ACCIDENT	$
						OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS/UMBRELLA LIABILITY [ ] OCCUR [ ] CLAIMS MADE [ ] DEDUCTIBLE [ ] RETENTION $				EACH OCCURRENCE	$
						AGGREGATE	$
							$
							$
							$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				[ ] WC STATU-TORY LIMITS [ ] OTH-ER	
						E.L. EACH ACCIDENT	$
						E.L. DISEASE - EA EMPLOYEE	$
						E.L. DISEASE - POLICY LIMIT	$
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

City of Oakland, Community & Economic Development Agency is named as additional insured per form CG 20 10 11 85.
RE: 5725 Thornhill Drive, Oakland, CA
*Except 10 Days Notice of Cancellation for Non-Payment of Premium

CERTIFICATE HOLDER

City of Oakland, Community
& Economic Development Agency
City Engineer
250 Frank H. Ogawa Plaza #2340
Oakland CA 94612

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL *30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

NOTEPAD: INSURED'S NAME: [illegible] | PAGE [illegible] | OP ID [illegible] | DATE [illegible]

Not withstanding any other provisions in this policy, the insurance afforded hereunder to the City of Oakland shall be primary as to any other insurance or reinsurance covering or available to the City of Oakland, and such other insurance or reinsurance shall not be required to contribute to any liability of loss until and unless the appropriate limit of liablity afforded hereunder is exhausted

Appendix C
Boring Logs

ENVIRONMENTAL ENGINEERING, INC

GEOLOGIC LOG OF BOREHOLE: USB-1

PROJECT: 2832

DATE DRILLED: 9/21/2007

SITE LOCATION: 5725 Thornhill Drive
Oakland, CA

CASING ELEVATION: NA

DRILLER: Gregg Drilling

DEPTH TO GW: 9 feet

DRILLING METHOD: Hollow Stem Auger (HSA)

T.O.C. TO SCREEN: 10 feet

BORING DIAMETER: 8 inches

SCREEN LENGTH: 5 feet

LOGGED BY: E. Hightower

APPROVED BY: M. Sepehr, Ph.D., P.E.

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	SAMPLED (SPLIT SPOON / CORE)	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
				8" Asphault				
	5		GP	SANDY GRAVEL (GP): Reddish Brown; soft; moist; fine- to medium-grained sand; medium- to large-grained gravel; no PHC odor.				
			GM	PEA GRAVEL (GM): Dark Brown; soft; wet; fine- to large-grained gravel intermixed with silt; no PHC odor.				
	10		GC	GRAVELLY CLAY (GC): Dark Brown; soft; saturated; medium-grained gravel; no PHC odor.	Soil sample @ 9:20 am	▽		
	15							
	20							
	25							

COMMENTS:

ENVIRONMENTAL ENGINEERING, INC

GEOLOGIC LOG OF BOREHOLE: SOMA-5

PROJECT: 2832

SITE LOCATION: 2725 Thornhill Dr.
Oakland

DRILLER: Gregg Drilling

DRILLING METHOD: Hollow Stem Avger

BORING DIAMETER: 8"

LOGGED BY: E. Hightower

DATE DRILLED: 9/21/07

CASING ELEVATION: 572.23 ft

DEPTH TO GW: 12 ft.

T.O.C. TO SCREEN: 10 feet

SCREEN LENGTH: 5 ft.

APPROVED BY: M. Sepehr, Ph.D., P.E.

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
				5" Concrete
			GW	GRAVELLY SAND (GW): dark brown, soft, moist, no PHC fine- to med-grained sand, med- to large-grained
	5		GW	GRAVELLY SAND (GW): dark brown, soft, moist, slight PHC odor
	10		GC	CLAYEY GRAVEL (GC): dark brown, soft, saturated, strong PHC odor, med-grained and small-grained gravel
			SM	SILTY SAND (SM): dark brown, soft, moist, PHC odor, greenish mottling throughout
	15			
	20			
	25			

SAMPLED: SPLIT SPOON / CORE

GW LEVEL

BLOWCOUNTS

Sampled at 1230 pm

1.7 ppm

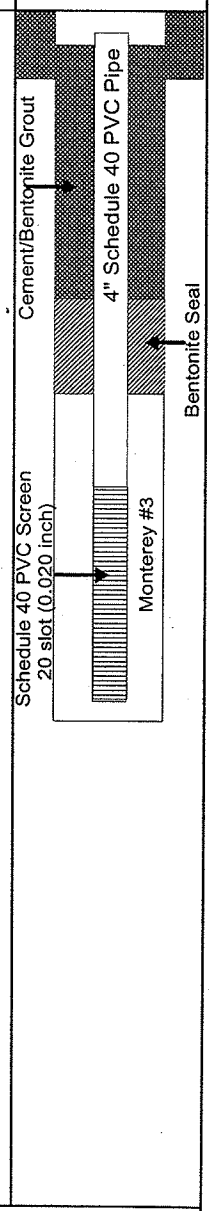
5.5 ppm

Sampled at 1235 pm

Sampled at 1240 pm

4.0 ppm

WELL DIAGRAM



COMMENTS:

Appendix D
Well Development Data Sheet

ENVIRONMENTAL ENGINEERING, INC

Well No.: SOMA-5
Casing Diameter: 2 inches
Depth of Well: 15.00 feet
Top of Casing Elevation: 572.23 feet
Depth to Groundwater: 8.14 feet
Groundwater Elevation: 564.09 feet
Water Column Height: 6.86 feet
Purged Volume: 26.00 gallons

Project No.: 2832
Address:

Date: 10/03/2007
Sampler: Lizzie Hightower

Purging Method: Bailer ■ Pump ■

Sampling Method: Bailer ■ Pump □ Not sampled

Color: No ☑ Yes □ Describe: _____

Sheen: No ☑ Yes □ Describe: _____

Odor: No ☑ Yes □ Describe: _____

Field Measurements:

Time	Vol (gallons)	pH	Temp (°C)	E.C. (µS/cm)	D.O. (mg/L)	Turbidity (NTU)	ORP (mV)	Fe^{+2} (mg/L)	$NO3^{-1}$ (mg/L)	SO_4^{-2} (mg/L)
1214 pm	Started developing well									
103 pm	6	8.07	25.00	825	1.15		-59.9			
119 pm	9	7.68	32.30	585	1.20		-54.4			
138 pm	12	7.62	34.49	466	1.13		-65.2			
155 pm	15	7.40	26.77	320	1.57		-75.7			
209 pm	18	7.42	37.18	315	1.18		-80.2			
225 pm	21	7.53	41.17	445	0.95		-87.3			
235 pm	23	7.43	36.90	444	1.17		-79.1			
247 pm	26	7.48	36.83	443	1.16		-80.1			

ENVIRONMENTAL ENGINEERING, INC.

FIELD REPORT

Site Address: 5725 Thornhill Dr., Oakland Proj. No: 2832

Job Performing: Well Development Date: 10/3/07

Arrival Time: 1153 am Departure Time: 4:10 pm

Travel Time to Site & Back: ______

Field Technician Signature: [signature]

Time: 945 Am Loaded up truck
1000 Am Left office
1110 Am Arrived at EI
1153 Am Arrived on site.

Time: 1214 Pm Started Developing Well.
330 Pm Finished Developing Well.
410 PM Left Site

Time: [illegible]
~~4~~55 Pm Arrived at EI
545 pm Arrived at office

Time: 550 Pm Unloaded truck into shed.

Time:

Time:

Appendix F
Non-Hazardous Waste Manifest

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: EXEMPT | 2. Page 1 of 1 | 3. Emergency Response Phone: NRCES 510 749 1380 | 4. Waste Tracking Number: 31077-03

5. Generator's Name and Mailing Address
MASH PETROLEUM, INC.
1721 JEFFERSON STREET
OAKLAND, CA 94612
Generator's Phone: 5 1 0 8 9 1 9 8 8

Generator's Site Address (if different than mailing address)
MASH PETROLEUM, INC.
5725 THORNHILL DR.
OAKLAND, CA 94611

6. Transporter 1 Company Name: NRC ENVIRONMENTAL SERVICES INC. | U.S. EPA ID Number: C A R 0 0 0 0 3 0 1 1 7 4

7. Transporter 2 Company Name | U.S. EPA ID Number

8. Designated Facility Name and Site Address
Crosby & Overton, Inc.
1630 W. 17th Street
Long Beach, CA 90813
Facility's Phone: 562 432 5445
U.S. EPA ID Number: C A D 0 2 8 4 0 9 0 1 9

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
GENERATOR	1. NON HAZARDOUS WASTE LIQUID (PURGE WATER WITH HYDROCARBONS) (PROFILE# 61545)	3	DM	150	G	NONE
	2. NON HAZARDOUS WASTE SOLID (SOIL WITH HYDROCARBONS) (PROFILE# 61544)	2	DM	10	P	NONE
	3.					
	4.					

13. Special Handling Instructions and Additional Information
WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.
JOB#/PO#: 31077
CONSULTANT: SOMA ENVIRONMENTAL, 6620 OWENS DRIVE, SUITE A, PLEASANTON, CA.

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: Kathryn Davis DeMasi on behalf of CRW | Signature | Month 10 | Day 10 | Year 07

INT'L
15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER
16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Damon Murillo | Signature | Month 10 | Day 10 | Year 07
Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY
17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) | U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name | Signature | Month | Day | Year

Appendix E
Survey Data

DATE: 10/04/07
Job No. 205072.1
DATE OF SURVEY 10/03/07
INSTRUMENT LEICA TCA 1100L

TABLE OF ELEVATIONS & COORDINATES ON MONITORING WELLS

SOMA ENVIRONMENTAL, PROJECT # 2831
5725 THORNHILL DRIVE, OAKLAND

WELL ID #	NORTHING (FT.) / LATITUDE (D.M.S.) / LATITUDE (D.D.)	EASTING (FT.) / LONGITUDE (D.M.S.) / LONGITUDE (D.D.)	ELEVATION (FT.)	DESCRIPTION
SOMA-5	2130693.310	6067027.659	572.23	TOP PIPE, BLACK MARK ON N. SIDE (FELT TIP)
	N 37°50'02.66001"	W 122°12'46.38426"	572.70	RIM
	N 37.834072225°	W 122.212884517°	571.93	CONC.

LOCAL CONTROL

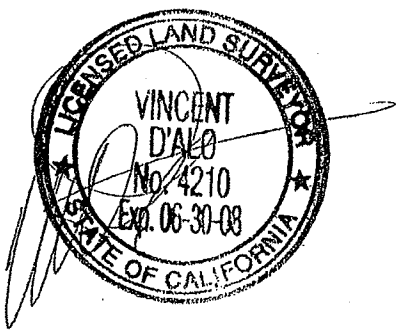
SOMA-2	2130764.55	6067114.08	575.50	TOP PIPE, BLACK MARK ON N. SIDE (FELT TIP)
	N 37°50'03.37985"	W 122°12'45.32339"		
SOMA-3	2130785.85	6067071.01	575.92	TOP PIPE, BLACK MARK ON N. SIDE (FELT TIP)
	N 37°50'03.58261"	W 122°12'45.86506"		

NOTE
THE VALUES FOR SOMA-5 ARE DERIVED FROM A LOCAL CONTROL BASED UPON CONTROL VALUES USED FROM A PREVIOUS SITE SURVEY AS PROVIDED BY KIER AND WRIGHT

VERTICAL CONTROL:
BENCH MARK: NGS Bench mark No.PID# HT2487
DESCRIPTION FROM NGS DATA SHEET:
DESCRIBED BY EAST BAY MUNICIPAL UTILITIES DISTRICT 1947 (SPH) THE AZIMUTH MARK IS AN EBMUD TRIANGULATION STATION DISC SET 1 FOOT BELOW THE SURFACE AND COVERED BY AN 8 INCH IRON CASTING WITH A REMOVABLE LID MARKED CITY MONUMENT. IT IS IN THE SIDEWALK IN FRONT OF A SAFEWAY STORE AT THE INTERSECTION OF GRAND AND WILDWOOD AVENUES. IT IS 1.5 FEET SOUTHEAST OF THE SOUTHEAST CURB OF WILDWOOD AVE., 6.2 FEET OF EAST CURB OF GRAND AVE. AND 10.4 FEET NORTHEAST OF POWERPOLE. THE MARK IS STAMPED LINDA AZIMUTH MARK 1947.
Elevation =37. FEET NAVD88 Datum
BY VERTCON

HORIZONTAL CONTROL:
PID - AA5496
NORTHING =1,988,577.07 , EASTING = 6,077,862.13 FEET; EPOCH DATE = 1991.35
PID - HT2541
NORTHING = 2,130,331.28 , EASTING = 6,062,624.49 FEET; EPOCH DATE = 1991.35

Coordinate values are based on the California Coordinate System, Zone III NAD 83 Datum.



ALIQUOT ASSOCIATES
1390 South Main Street, Suite 310
Walnut Creek, CA 94596
(925) 476-2300 / FAX (925) 476-2350

Appendix G
Certified Analytical Reports and Chain-Of-Custody Documentation

CHAIN OF CUSTODY

Pacific Analytical Laboratory
851 W Midway Ave, Suite 201B
Alameda, CA 94501

(510)864-0364 Phone
(510)864-0365 Fax

PAL LOGIN # 7090007

Project No: 2832

Project Name: 5725 Thornhill Dr. Oakland, CA

Turnaround Time: Standard

Sampler: Lizzie Hightower

Report To: Joyce Bobek

Company : SOMA Environmental

Telephone: 925-734-6400

Fax: 925-734-6401

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Matrix: Water	Matrix: Waste	# of Containers	Preservative: HCL	Preservative: H_2SO_4	Preservative: HNO_3	Preservative: ICE	Preservative:	Analyses: TPH-g, TPH-d, TPH-mo, Method 8015B	Analyses: Gas Oxygenates, Method 8260B	Analyses: Ethanol, Method 8260B
	HSB-1	9/21/07 932 Am		X		3 VOAs/1-1L Amber	X			X		X	X	X
	SOMA-5	9/23/07 915 Am		X		3 VOAs/1-1L Amber	X			X		X	X	X

Notes:

EDF OUTPUT REQUIRED

Gas Oxygenates: BTEX; MtBE; TBA; DIPE; ETBE; TAME; 1,2-Dichloroethane; 1,2-Dibromoethane

RELINQUISHED BY:	RECEIVED BY:
Elizabeth Hightower 9/21/07 1141Am DATE/TIME	9.24.07 1:15 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

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

09 October 2007

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

RE: 5725 Thornhill Dr., Oakland

Work Order Number: 7090007

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

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 18:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
USB-1	7090007-01	Water	21-Sep-07 09:32	24-Sep-07 13:15
SOMA-5	7090007-02	Water	23-Sep-07 09:15	24-Sep-07 13:15

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 18:54

Extractable Petroleum Hydrocarbons by 8015 DRO

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
USB-1 (7090007-01) Water Sampled: 21-Sep-07 09:32 Received: 24-Sep-07 13:15									
Diesel (C10-C24)	**75.4**	50.0	ug/l	1	BI72601	27-Sep-07	27-Sep-07	EPA 8015M	
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
Surrogate: Pentacosane		*85.8 %*	*50.4-137*		"	"	"	"	
SOMA-5 (7090007-02) Water Sampled: 23-Sep-07 09:15 Received: 24-Sep-07 13:15									
Diesel (C10-C24)	**111**	50.0	ug/l	1	BI72601	27-Sep-07	28-Sep-07	EPA 8015M	D-06, D-30
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
Surrogate: Pentacosane		*113 %*	*50.4-137*		"	"	"	"	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 18:54

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
USB-1 (7090007-01) Water Sampled: 21-Sep-07 09:32 Received: 24-Sep-07 13:15									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BI72702	27-Sep-07	27-Sep-07	EPA 8260B	
Benzene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**4.31**	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	ND	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*95.6 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*103 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*97.2 %*		*70-130*	"	"	"	"	
SOMA-5 (7090007-02) Water Sampled: 23-Sep-07 09:15 Received: 24-Sep-07 13:15									
Gasoline (C6-C12)	ND	50.0	ug/l	1	BI72702	27-Sep-07	27-Sep-07	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	**54.9**	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	**203**	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	1000	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*103 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*99.6 %*		*70-130*	"	"	"	"	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 18:54

Extractable Petroleum Hydrocarbons by 8015 DRO - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BI72601 - EPA 3510B										
Blank (BI72601-BLK1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*53.2*		*ug/l*	*50.0*		*106*	*50.4-137*			
Diesel (C10-C24)	ND	50.0	"							
Motor Oil (C24-C36)	ND	250	"							
LCS (BI72601-BS1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*51.3*		*ug/l*	*50.0*		*103*	*50.4-137*			
Diesel (C10-C24)	838	50.0	"	1000		83.8	70-130			
LCS Dup (BI72601-BSD1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*61.2*		*ug/l*	*50.0*		*122*	*50.4-137*			
Diesel (C10-C24)	831	50.0	"	1000		83.1	70-130	0.839	40	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 18:54

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 BI72702 - EPA 5030 Water MS										
Blank (BI72702-BLK1)				Prepared & Analyzed: 27-Sep-07						
Surrogate: 4-Bromofluorobenzene	*48.7*		*ug/l*	*50.0*		*97.4*	*70-130*			
Surrogate: Dibromofluoromethane	*52.5*		*"*	*50.0*		*105*	*70-130*			
Surrogate: Perdeuterotoluene	*48.6*		*"*	*50.0*		*97.2*	*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	50.0	"							
1,2-dichloroethane	ND	0.500	"							
1,2-Dibromoethane (EDB)	ND	0.500	"							
Ethanol	ND	1000	"							
Benzene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
m&p-Xylene	ND	2.00	"							
o-xylene	ND	0.500	"							
Toluene	ND	2.00	"							
LCS (BI72702-BS1)				Prepared & Analyzed: 27-Sep-07						
Surrogate: 4-Bromofluorobenzene	*61.4*		*ug/l*	*50.0*		*123*	*70-130*			
Surrogate: Dibromofluoromethane	*48.7*		*"*	*50.0*		*97.4*	*70-130*			
Surrogate: Perdeuterotoluene	*54.2*		*"*	*50.0*		*108*	*70-130*			
MTBE	100	0.500	"	100		100	70-130			
ETBE	97.3	0.500	"	100		97.3	70-130			
TAME	99.1	2.00	"	100		99.1	70-130			
TBA	532	2.00	"	500		106	70-130			
Gasoline (C6-C12)	2050	50.0	"	2000		102	70-130			
Benzene	97.2	0.500	"	100		97.2	70-130			
Toluene	98.8	2.00	"	100		98.8	70-130			

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 18:54

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 BI72702 - EPA 5030 Water MS										
LCS Dup (BI72702-BSD1)				Prepared & Analyzed: 27-Sep-07						
Surrogate: 4-Bromofluorobenzene	*63.0*		*ug/l*	*50.0*		*126*	*70-130*			
Surrogate: Dibromofluoromethane	*51.5*		*"*	*50.0*		*103*	*70-130*			
Surrogate: Perdeuterotoluene	*54.8*		*"*	*50.0*		*110*	*70-130*			
MTBE	117	0.500	"	100		117	70-130	15.7	20	
ETBE	109	0.500	"	100		109	70-130	11.3	20	
TAME	112	2.00	"	100		112	70-130	12.2	20	
Gasoline (C6-C12)	2130	50.0	"	2000		106	70-130	3.83	20	
TBA	549	2.00	"	500		110	70-130	3.15	20	
Benzene	116	0.500	"	100		116	70-130	17.6	20	
Toluene	120	2.00	"	100		120	70-130	19.4	20	

SOMA Environmental Engineering Inc. 6620 Owens Drive, Suite A Pleasanton CA, 94588	Project: 5725 Thornhill Dr., Oakland Project Number: 2832 Project Manager: Mansour Sepehr	**Reported:** 09-Oct-07 18:54

Notes and Definitions

D-30	Unidentified hydrocarbons C9-C16.
D-06	The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
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

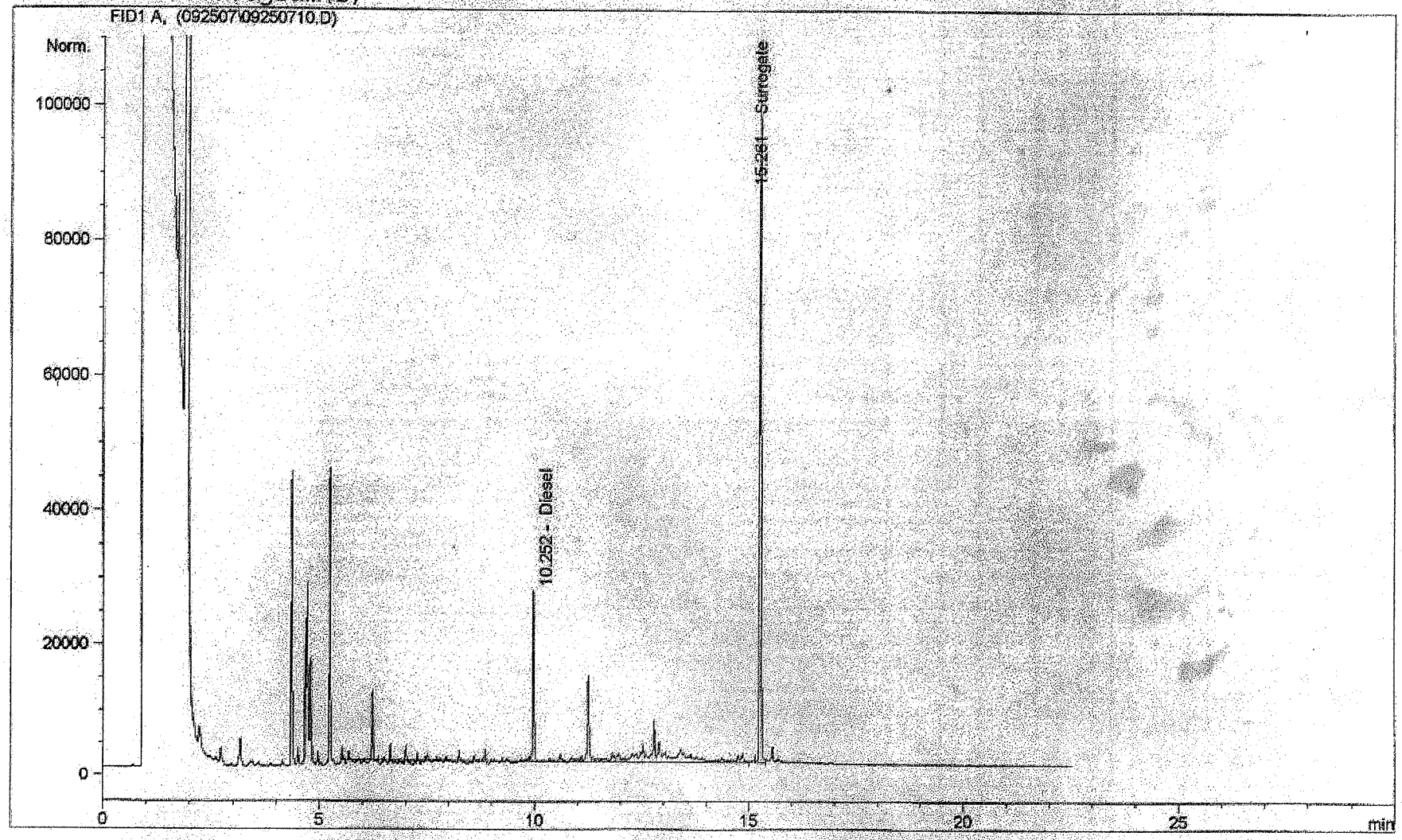
Print of window 38: Current Chromatogram(s)

Injection Date : 9/26/07 8:42:39 PM
Sample Name : BI72601-BLK1
Acq. Operator : jz

Seq. Line : 3
Vial : 3
Inj : 1
Inj Volume : 2 ul

Acq. Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 9/25/07 5:50:29 PM by jz
Analysis Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 10/9/07 6:24:11 PM by jz
(modified after loading)

Current Chromatogram(s)



Instrument 1 10/9/07 6:24:19 PM jz

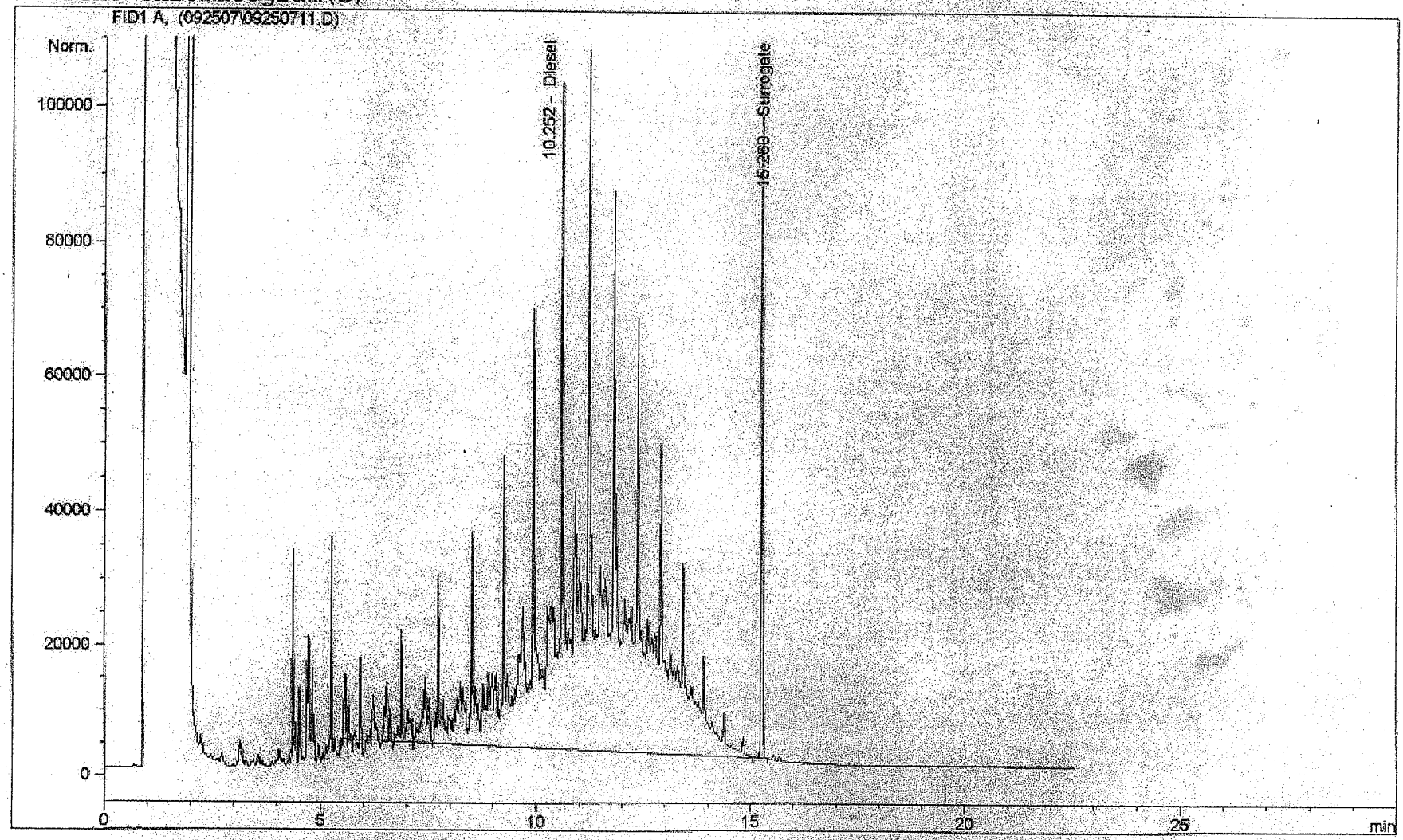
Print of window 38: Current Chromatogram(s)

Injection Date : 9/26/07 9:15:09 PM
Sample Name : BI72601-BS1
Acq. Operator : jz

Seq. Line : 4
Vial : 4
Inj : 1
Inj Volume : 2 ul

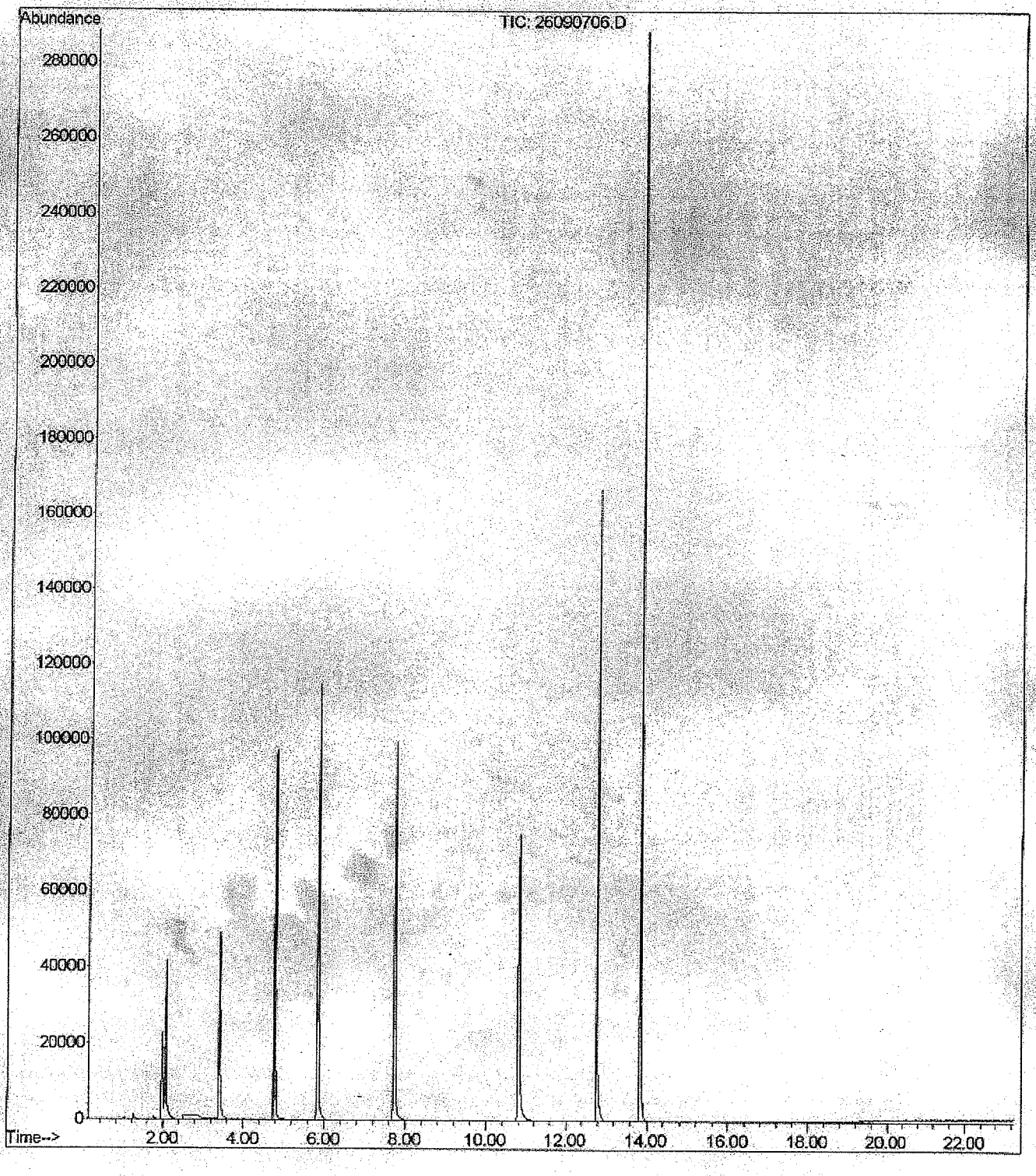
Acq. Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 9/25/07 5:50:29 PM by jz
Analysis Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 10/9/07 6:24:11 PM by jz
(modified after loading)

Current Chromatogram(s)

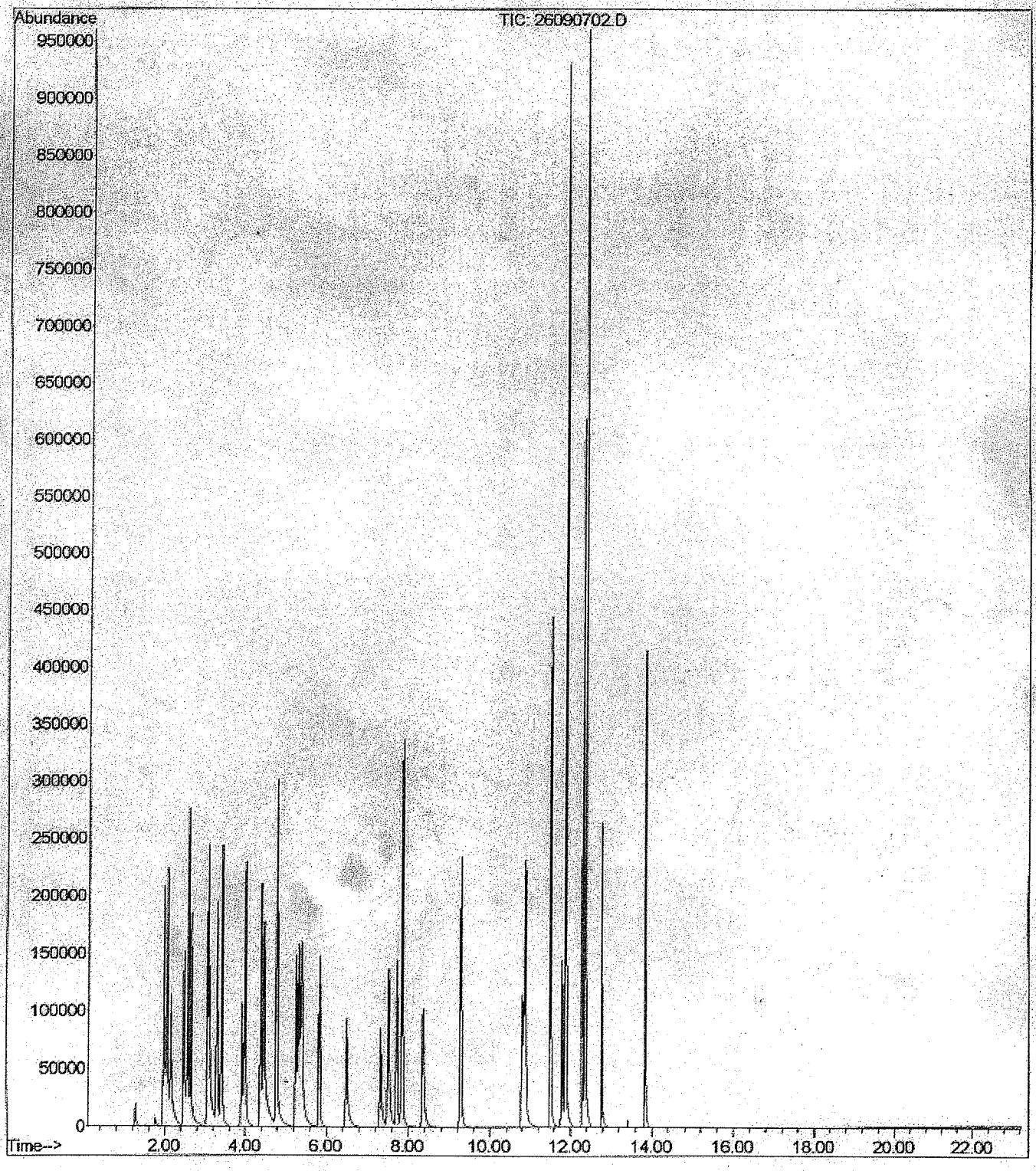


Instrument 1 10/9/07 6:24:37 PM jz

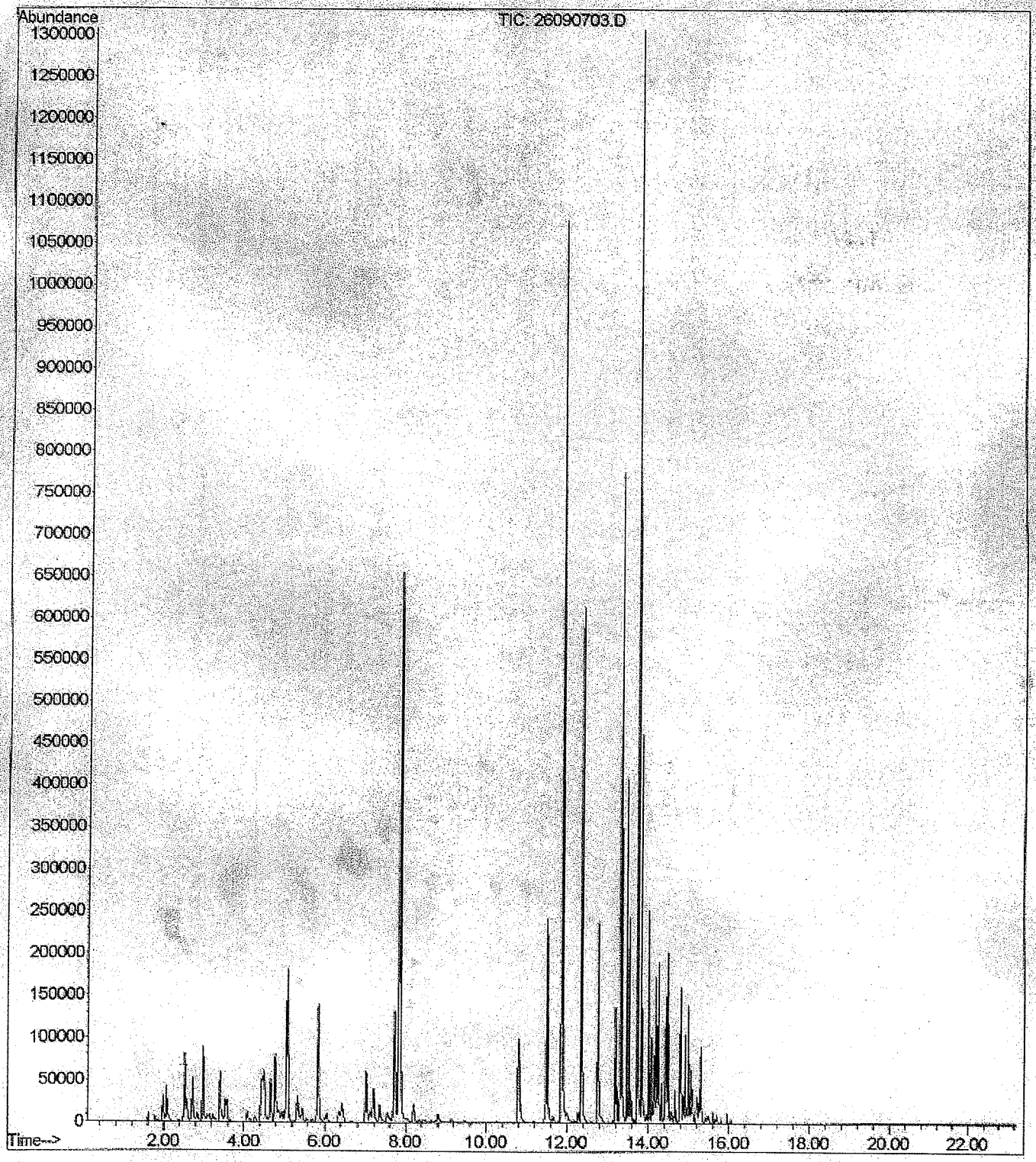
File :C:\MSDChem\1\DATA\2007-Sep-26-1753.b\26090706.D
Operator :
Acquired : 26 Sep 2007 8:47 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BI72702-BLK1
Misc Info :
Vial Number: 6



File :C:\MSDChem\1\DATA\2007-Sep-26-1753.b\26090702.D
Operator :
Acquired : 26 Sep 2007 6:39 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BI72702-BS1@voc
Misc Info :
Vial Number: 2



File :C:\MSDChem\1\DATA\2007-Sep-26-1753.b\26090703.D
Operator :
Acquired : 26 Sep 2007 7:11 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BI72702-BS1@gas
Misc Info :
Vial Number: 3



CHAIN OF CUSTODY

Pacific Analytical Laboratory
851 W Midway Ave, Suite 201B
Alameda, CA 94501

(510)864-0364 Phone
(510)864-0365 Fax

PAL LOGIN # 7090008

Sampler: Lizzie Hightower

Report To: Joyce Bobek

Company : SOMA Environmental

Telephone: 925-734-6400

Fax: 925-734-6401

Project No: 2832

Project Name: 5725 Thornhill Dr. Oakland, CA

Turnaround Time: Standard

Lab No.	Sample ID.	Sampling Date Time	Matrix: Soil	Water	Waste	# of Containers	Preservative: HCL	H_2SO_4	HNO_3	ICE	Analyses: TPH-G, TPH-d, TPH-mo, Method 8015B	MTBE Gas oxygenates, Method 8260B	Ethanol, Method 8260B
	USB-1	9/21/07 920 Am	X			1				X	X	X	X
	SOMA-5	9/21/07 1230 Pm	X			1				X	X	X	X
	SOMA-5	9/21/07 1235 Pm	X			1				X	X	X	X
	SOMA-5	9/21/07 1240 Pm	X			1				X	X	X	X

Notes:

EDF OUTPUT REQUIRED

Gas oxygenates; BTEX; MtBE; TBA; DIPE; ETBE; TAME; 1,2-Dichloroethane; 1,2-Dibromoethane

RELINQUISHED BY:	RECEIVED BY:
Elizabeth Hightower 9/24/07 1147 Am DATE/TIME	9.24.07 1:16 DATE/TIME
DATE/TIME	DATE/TIME
DATE/TIME	DATE/TIME

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

09 October 2007

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

RE: 5725 Thornhill Dr., Oakland

Work Order Number: 7090008

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: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
USB-1	7090008-01	Soil	21-Sep-07 09:20	24-Sep-07 13:32
SOMA-5A	7090008-02	Soil	21-Sep-07 12:30	24-Sep-07 13:32
SOMA-5B	7090008-03	Soil	21-Sep-07 12:35	24-Sep-07 13:32
SOMA-5C	7090008-04	Soil	21-Sep-07 12:40	24-Sep-07 13:32

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

Extractable Petroleum Hydrocarbons by 8015 DRO

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
USB-1 (7090008-01) Soil Sampled: 21-Sep-07 09:20 Received: 24-Sep-07 13:32									
Diesel (C10-C24)	ND	50.0	mg/kg	1	BI72701	28-Sep-07	28-Sep-07	EPA 8015M	
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
Surrogate: Pentacosane		*165 %*	*50.4-137*		"	"	"	"	*A-01*
SOMA-5A (7090008-02) Soil Sampled: 21-Sep-07 12:30 Received: 24-Sep-07 13:32									
Diesel (C10-C24)	ND	50.0	mg/kg	1	BI72701	28-Sep-07	28-Sep-07	EPA 8015M	
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
Surrogate: Pentacosane		*113 %*	*50.4-137*		"	"	"	"	
SOMA-5B (7090008-03) Soil Sampled: 21-Sep-07 12:35 Received: 24-Sep-07 13:32									
Diesel (C10-C24)	ND	50.0	mg/kg	1	BI72701	28-Sep-07	28-Sep-07	EPA 8015M	
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
Surrogate: Pentacosane		*159 %*	*50.4-137*		"	"	"	"	*A-01*
SOMA-5C (7090008-04) Soil Sampled: 21-Sep-07 12:40 Received: 24-Sep-07 13:32									
Diesel (C10-C24)	ND	50.0	mg/kg	1	BI72701	28-Sep-07	28-Sep-07	EPA 8015M	
Motor Oil (C24-C36)	ND	250	"	"	"	"	"	"	
Surrogate: Pentacosane		*102 %*	*50.4-137*		"	"	"	"	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
USB-1 (7090008-01) Soil Sampled: 21-Sep-07 09:20 Received: 24-Sep-07 13:32									
Gasoline (C6-C12)	ND	50.00	ug/kg	1	BJ70201	28-Sep-07	28-Sep-07	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	"	"	"	"	"	"	
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	"	"	"	"	"	"	
Ethanol	ND	950	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.2 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*101 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*98.2 %*		*70-130*	"	"	"	"	
SOMA-5A (7090008-02) Soil Sampled: 21-Sep-07 12:30 Received: 24-Sep-07 13:32									
Gasoline (C6-C12)	ND	50.00	ug/kg	1	BJ70201	28-Sep-07	28-Sep-07	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	"	"	"	"	"	"	
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	"	"	"	"	"	"	
Ethanol	ND	950	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.4 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*98.4 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*95.2 %*		*70-130*	"	"	"	"	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

Volatile Organic Compounds by EPA Method 8260B

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SOMA-5B (7090008-03) Soil Sampled: 21-Sep-07 12:35 Received: 24-Sep-07 13:32									
Gasoline (C6-C12)	ND	50.00	ug/kg	1	BJ70201	28-Sep-07	28-Sep-07	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	**0.680**	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	**5.33**	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	950	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*95.6 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*103 %*		*70-130*	"	"	"	"	
SOMA-5C (7090008-04) Soil Sampled: 21-Sep-07 12:40 Received: 24-Sep-07 13:32									
Gasoline (C6-C12)	**354.0**	50.00	ug/kg	1	BJ70201	28-Sep-07	28-Sep-07	EPA 8260B	
Benzene	ND	0.5000	"	"	"	"	"	"	
Ethylbenzene	**4.520**	0.5000	"	"	"	"	"	"	
m&p-Xylene	ND	2.000	"	"	"	"	"	"	
o-xylene	**2.510**	0.5000	"	"	"	"	"	"	
Toluene	ND	2.000	"	"	"	"	"	"	
MTBE	**0.860**	0.500	"	"	"	"	"	"	
DIPE	ND	0.500	"	"	"	"	"	"	
ETBE	ND	0.500	"	"	"	"	"	"	
TAME	ND	2.00	"	"	"	"	"	"	
TBA	**20.9**	2.00	"	"	"	"	"	"	
1,2-dichloroethane	ND	0.500	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.500	"	"	"	"	"	"	
Ethanol	ND	950	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*117 %*		*70-130*	"	"	"	"	
Surrogate: Dibromofluoromethane		*94.4 %*		*70-130*	"	"	"	"	
Surrogate: Perdeuterotoluene		*104 %*		*70-130*	"	"	"	"	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

Extractable Petroleum Hydrocarbons by 8015 DRO - Quality Control

Pacific Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BI72701 - EPA 3550A										
Blank (BI72701-BLK1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*52.9*		*mg/kg*	*50.0*		*106*	*50.4-137*			
Diesel (C10-C24)	ND	50.0	"							
Motor Oil (C24-C36)	ND	250	"							
LCS (BI72701-BS1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*50.2*		*mg/kg*	*50.0*		*100*	*50.4-137*			
Diesel (C10-C24)	870	50.0	"	1000		87.0	70-130			
LCS Dup (BI72701-BSD1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*47.6*		*mg/kg*	*50.0*		*95.2*	*50.4-137*			
Diesel (C10-C24)	884	50.0	"	1000		88.4	70-130	1.60	40	
Matrix Spike (BI72701-MS1)	**Source: 7090008-01**			Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*62.1*		*mg/kg*	*50.0*		*124*	*50.4-137*			
Diesel (C10-C24)	997	50.0	"	1000	38.7	95.8	0-200			
Matrix Spike Dup (BI72701-MSD1)	**Source: 7090008-01**			Prepared & Analyzed: 02-Oct-07						
Surrogate: Pentacosane	*63.1*		*mg/kg*	*50.0*		*126*	*50.4-137*			
Diesel (C10-C24)	1020	50.0	"	1000	38.7	98.1	0-200	2.28	200	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

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 BJ70201 - EPA 5030 Soil MS										
Blank (BJ70201-BLK1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: 4-Bromofluorobenzene	*44.6*		*ug/kg*	*50.0*		*89.2*	*70-130*			
Surrogate: Dibromofluoromethane	*48.9*		*"*	*50.0*		*97.8*	*70-130*			
Surrogate: Perdeuterotoluene	*47.3*		*"*	*50.0*		*94.6*	*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	"							
Ethanol	ND	950	"							
Benzene	ND	0.5000	"							
Ethylbenzene	ND	0.5000	"							
m&p-Xylene	ND	2.000	"							
o-xylene	ND	0.5000	"							
Toluene	ND	2.000	"							
LCS (BJ70201-BS1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: 4-Bromofluorobenzene	*50.9*		*ug/kg*	*50.0*		*102*	*70-130*			
Surrogate: Dibromofluoromethane	*41.4*		*"*	*50.0*		*82.8*	*70-130*			
Surrogate: Perdeuterotoluene	*50.5*		*"*	*50.0*		*101*	*70-130*			
MTBE	87.5	0.500	"	100		87.5	70-130			
ETBE	110	0.500	"	100		110	70-130			
TAME	93.4	2.00	"	100		93.4	70-130			
TBA	508	2.00	"	500		102	70-130			
Gasoline (C6-C12)	1680	50.00	"	2000		84.0	70-130			
Benzene	116	0.5000	"	100		116	70-130			
Toluene	114	2.000	"	100		114	70-130			

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

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 BJ70201 - EPA 5030 Soil MS										
LCS Dup (BJ70201-BSD1)				Prepared & Analyzed: 02-Oct-07						
Surrogate: 4-Bromofluorobenzene	*68.2*		*ug/kg*	*50.0*		*136*	*70-130*			*S-GC*
Surrogate: Dibromofluoromethane	*45.1*		*"*	*50.0*		*90.2*	*70-130*			
Surrogate: Perdeuterotoluene	*56.9*		*"*	*50.0*		*114*	*70-130*			
MTBE	77.8	0.500	"	100		77.8	70-130	11.7	20	
ETBE	79.9	0.500	"	100		79.9	70-130	31.7	20	QR-02
TAME	80.0	2.00	"	100		80.0	70-130	15.5	20	
TBA	350	2.00	"	500		70.0	70-130	36.8	20	QR-02
Gasoline (C6-C12)	1670	50.00	"	2000		83.5	70-130	0.597	20	
Benzene	79.8	0.5000	"	100		79.8	70-130	37.0	20	QR-02
Toluene	78.2	2.000	"	100		78.2	70-130	37.3	20	QR-02
Matrix Spike (BJ70201-MS1)		**Source: 7090008-01**		Prepared & Analyzed: 02-Oct-07						
Surrogate: 4-Bromofluorobenzene	*54.5*		*ug/kg*	*50.0*		*109*	*70-130*			
Surrogate: Dibromofluoromethane	*45.4*		*"*	*50.0*		*90.8*	*70-130*			
Surrogate: Perdeuterotoluene	*52.2*		*"*	*50.0*		*104*	*70-130*			
MTBE	103	0.500	"	100	ND	103	70-130			
DIPE	154	0.500	"	100	ND	154	70-130			QM-05
ETBE	124	0.500	"	100	ND	124	70-130			
TAME	102	2.00	"	100	0.940	101	70-130			
TBA	435	2.00	"	500	ND	87.0	70-130			
Benzene	131	0.5000	"	100	ND	131	70-130			QM-05
Ethylbenzene	106	0.5000	"	100	ND	106	70-130			
m&p-Xylene	131	2.000	"	100	ND	131	70-130			QM-05
o-xylene	103	0.5000	"	100	ND	103	70-130			
Toluene	121	2.000	"	100	ND	121	70-130			
Matrix Spike Dup (BJ70201-MSD1)		**Source: 7090008-01**		Prepared & Analyzed: 02-Oct-07						
Surrogate: 4-Bromofluorobenzene	*53.0*		*ug/kg*	*50.0*		*106*	*70-130*			
Surrogate: Dibromofluoromethane	*46.4*		*"*	*50.0*		*92.8*	*70-130*			
Surrogate: Perdeuterotoluene	*50.9*		*"*	*50.0*		*102*	*70-130*			
MTBE	88.1	0.500	"	100	ND	88.1	70-130	15.6	20	
DIPE	133	0.500	"	100	ND	133	70-130	14.6	20	QM-05
ETBE	110	0.500	"	100	ND	110	70-130	12.0	20	
TAME	92.5	2.00	"	100	0.940	91.6	70-130	9.77	20	
TBA	468	2.00	"	500	ND	93.6	70-130	7.31	20	
Benzene	113	0.5000	"	100	ND	113	70-130	14.8	20	

PAL

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

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 BJ70201 - EPA 5030 Soil MS										
Matrix Spike Dup (BJ70201-MSD1)		**Source: 7090008-01**		Prepared & Analyzed: 02-Oct-07						
Ethylbenzene	104	0.5000	ug/kg	100	ND	104	70-130	1.90	20	
m&p-Xylene	129	2.000	"	100	ND	129	70-130	1.54	20	
o-xylene	109	0.5000	"	100	ND	109	70-130	5.66	20	
Toluene	106	2.000	"	100	ND	106	70-130	13.2	20	

SOMA Environmental Engineering Inc.	Project: 5725 Thornhill Dr., Oakland	
6620 Owens Drive, Suite A	Project Number: 2832	**Reported:**
Pleasanton CA, 94588	Project Manager: Mansour Sepehr	09-Oct-07 19:08

Notes and Definitions

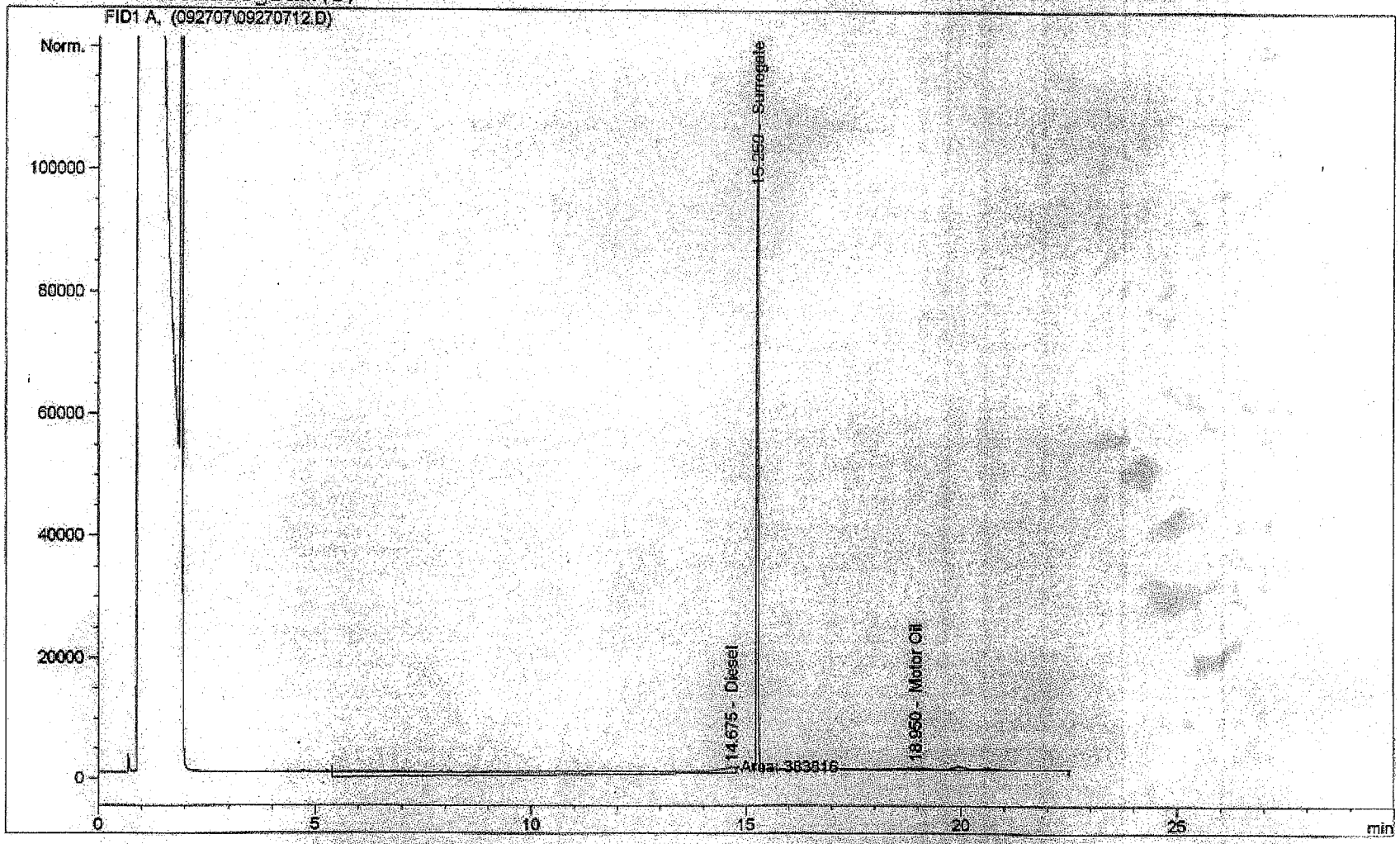
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries 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.
A-01	Sample double-spiked.
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

Print of window 38: Current Chromatogram(s)

Injection Date : 9/28/07 1:02:53 AM Seq. Line : 10
Sample Name : BI72701-BLK1 Vial : 10
Acq. Operator : jz Inj : 1
Inj Volume : 2 ul

Acq. Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 9/25/07 5:50:29 PM by jz
Analysis Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 10/9/07 6:24:11 PM by jz
(modified after loading)

Current Chromatogram(s)



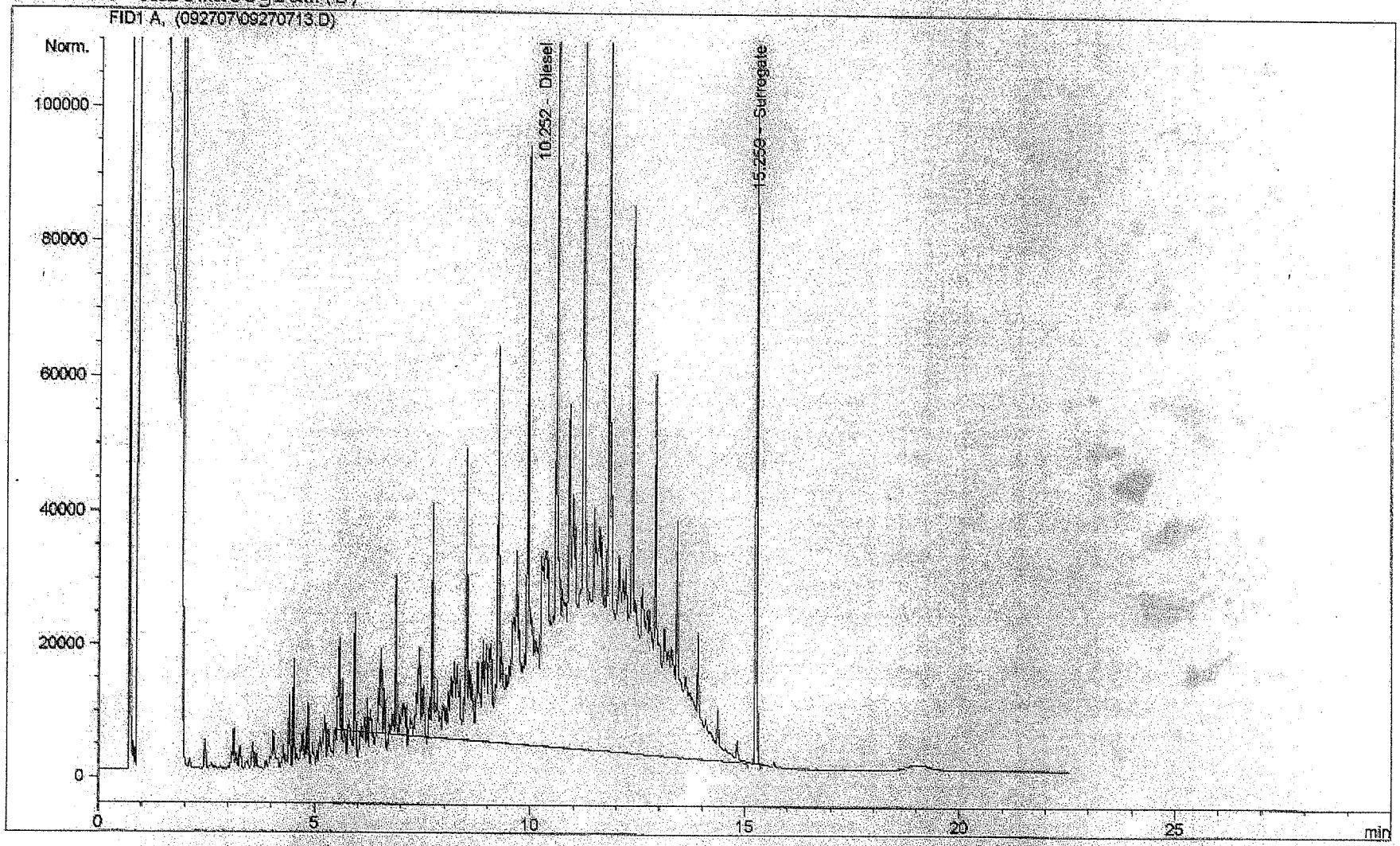
Print of Window 38: Current Chromatogram(s)

Injection Date : 9/28/07 1:35:09 AM
Sample Name : BI72701-BS1
Acq. Operator : jz

Seq. Line : 11
Vial : 11
Inj : 1
Inj Volume : 2 ul

Acq. Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 9/25/07 5:50:29 PM by jz
Analysis Method : C:\HPCHEM\1\METHODS\GC071707.M
Last changed : 10/9/07 6:24:11 PM by jz
(modified after loading)

Current Chromatogram(s)

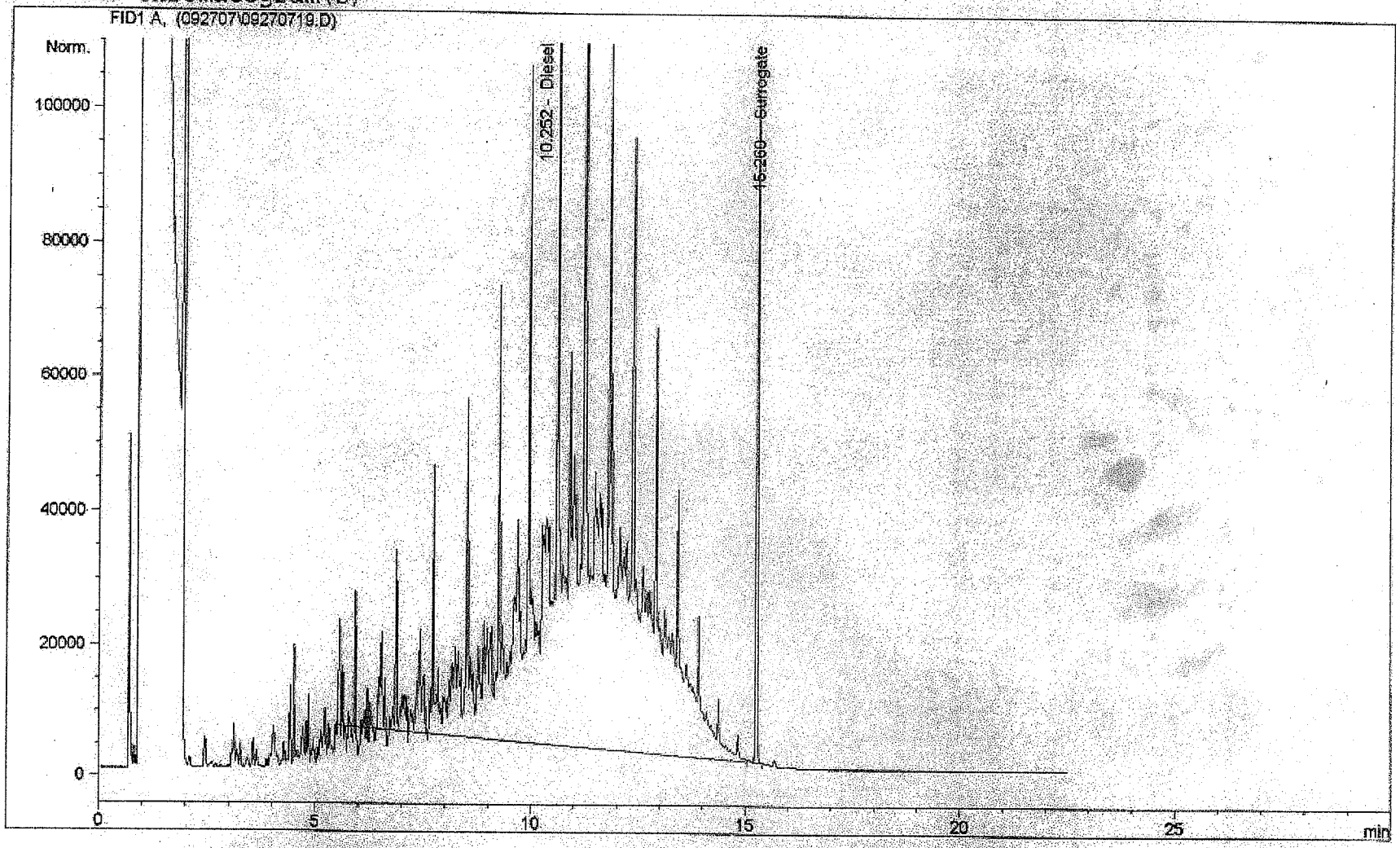


Instrument 1 10/9/07 6:25:35 PM jz

Print of window 38: Current Chromatogram(s)

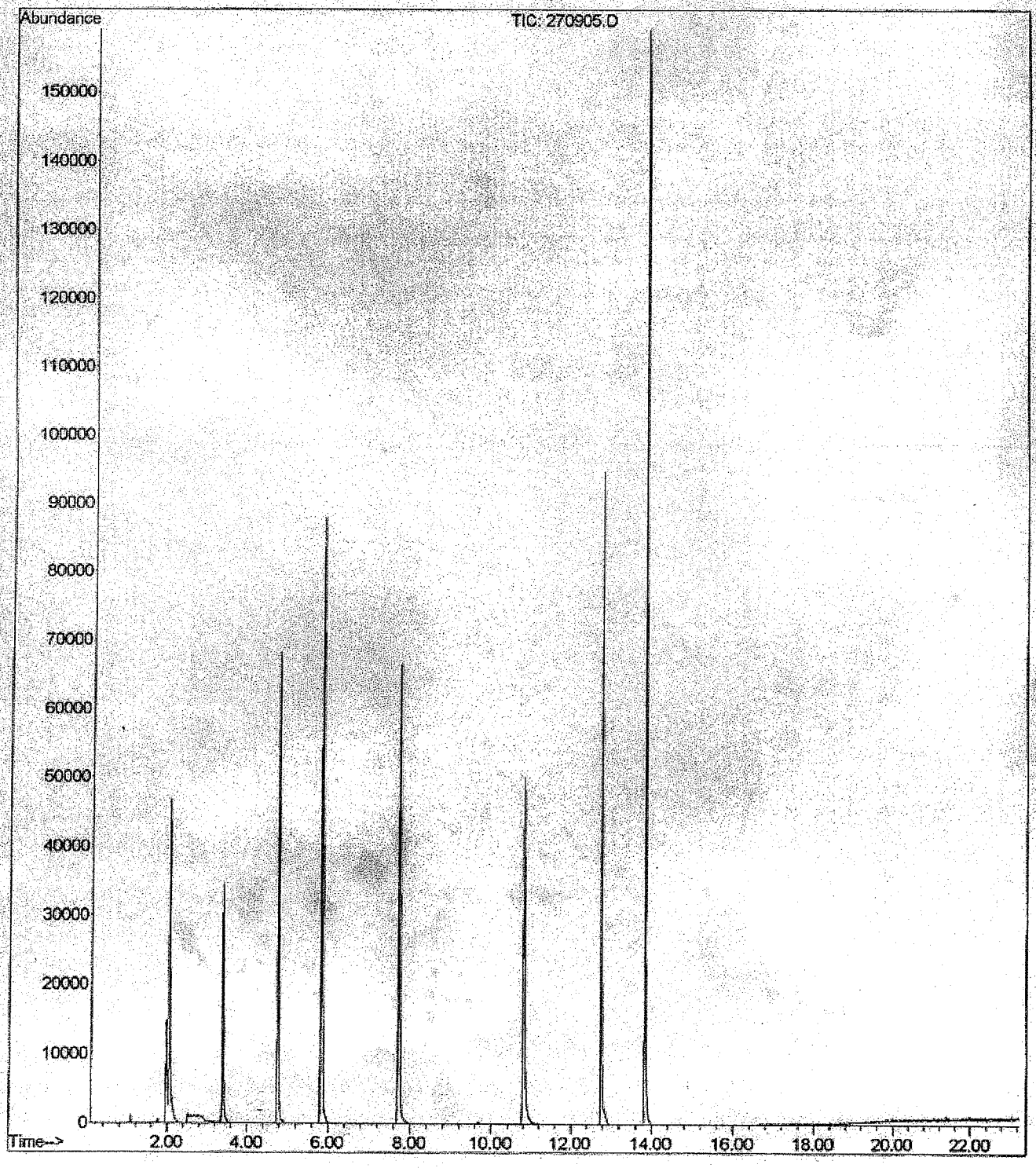
Injection Date	: 9/28/07 4:48:29 AM	Seq. Line	: 17
Sample Name	: BI72701-MS1	Vial	: 17
Acq. Operator	: jz	Inj	: 1
		Inj Volume	: 2 ul
Acq. Method	: C:\HPCHEM\1\METHODS\GC071707.M		
Last changed	: 9/25/07 5:50:29 PM by jz		
Analysis Method	: C:\HPCHEM\1\METHODS\GC071707.M		
Last changed	: 10/9/07 6:24:11 PM by jz (modified after loading)		

Current Chromatogram(s)

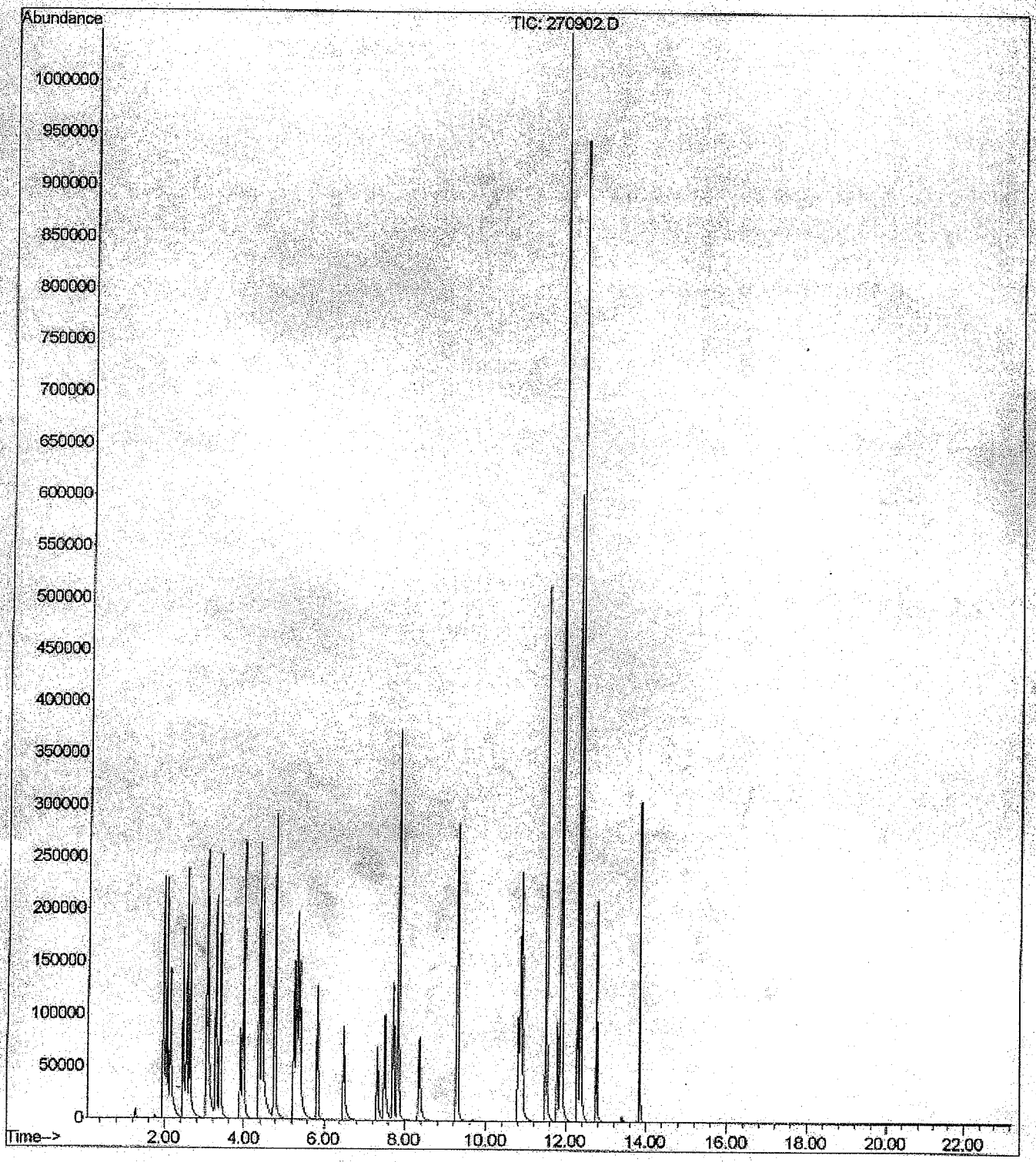


Instrument 1 10/9/07 6:25:49 PM jz

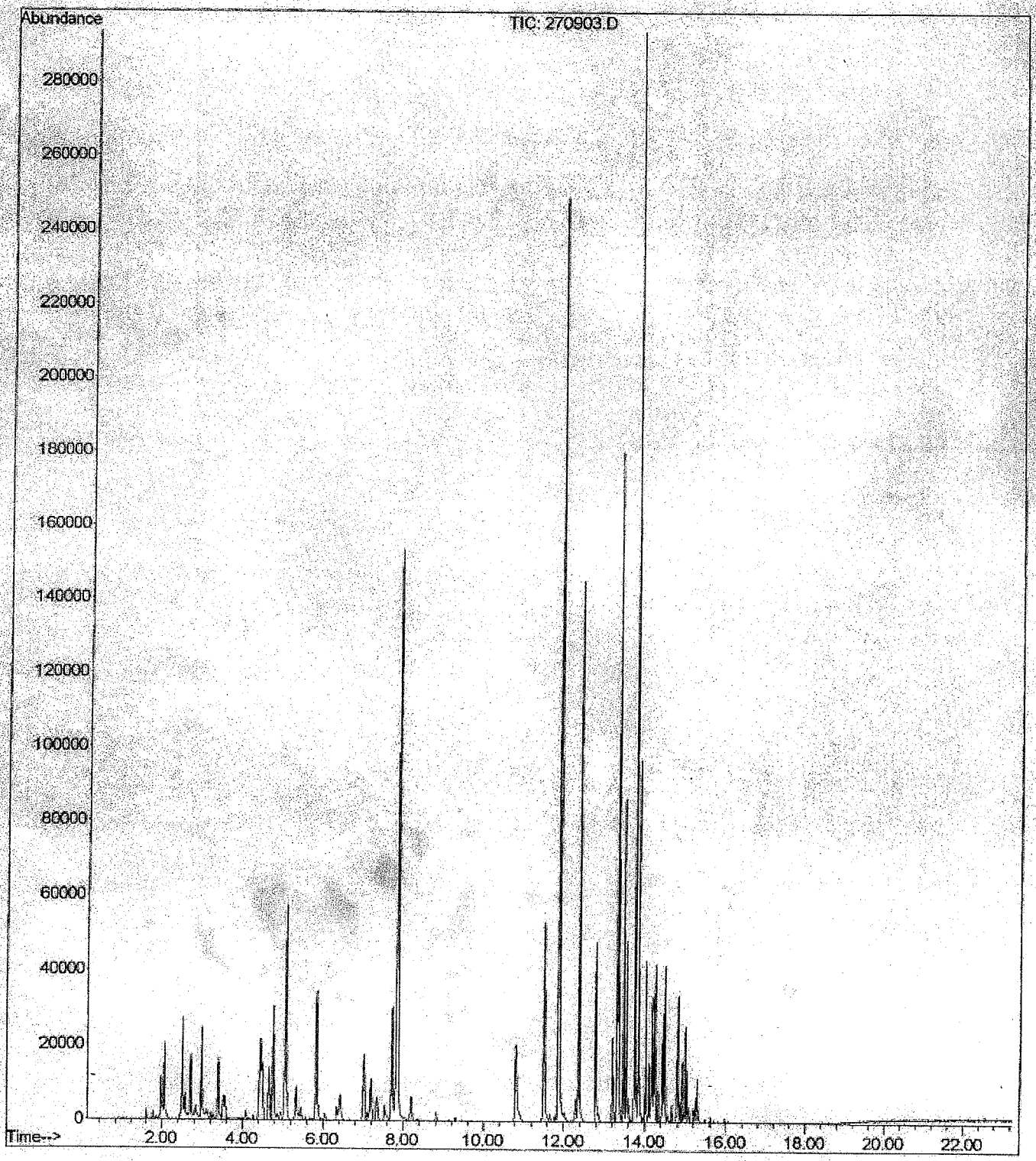
File :C:\MSDChem\1\DATA\2007-Sep-27-1757.b\270905.D
Operator :
Acquired : 27 Sep 2007 9:58 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BJ70201-BLK1
Misc Info :
Vial Number: 5



File : C:\MSDChem\1\DATA\2007-Sep-27-1757.b\270902.D
Operator :
Acquired : 27 Sep 2007 8:24 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BJ70201-BS1@voc
Misc Info :
Vial Number: 2



File :C:\MSDChem\1\DATA\2007-Sep-27-1757.b\270903.D
Operator :
Acquired : 27 Sep 2007 8:55 pm using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BJ70201-BS1@gas
Misc Info :
Vial Number: 3



File :C:\MSDChem\1\DATA\2007-Sep-27-1757.b\270910.D
Operator :
Acquired : 28 Sep 2007 12:37 am using AcqMethod OXY21506.M
Instrument : PAL GCMS
Sample Name: BJ70201-MS1
Misc Info :
Vial Number: 10

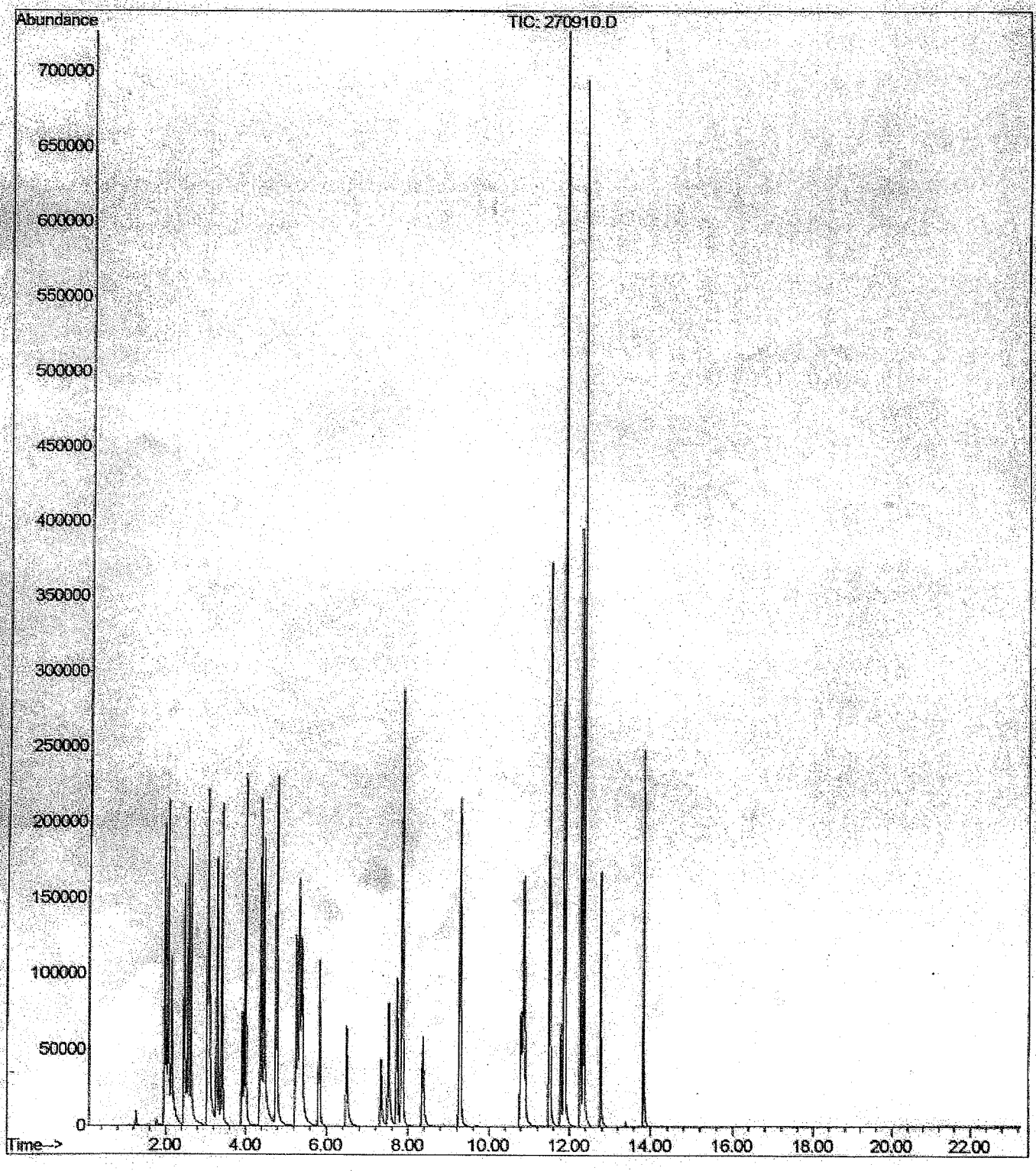


EXHIBIT B

RO317

February 1, 2008

Mr. Steven Plunkett
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: Request For Site Closure
Site Location: 5725 Thornhill Drive, Oakland, California
Fuel Leak Case#RO0000317

Dear Mr. Plunkett:

Based on the Alameda County Environmental's approval letter dated July 5, 2007, I directed my consultant SOMA Environmental Engineering, Inc. (SOMA) to conduct additional investigation as you requested. The result of this investigation was reported to the Alameda County on August 15, 2007. The report, entitled" Further Site Investigation for Updating Site Conceptual Model and Site Closure Request". As recommended by SOMA, no further action (NFA) status should be adopted for the subject site. As such, I request NFA status be granted by the Alameda County at your earliest convenience.

Please do not hesitate to call me at (510) 891-9988, if you have any questions or comments.

Sincerely,

Mo Mashhoon
Property Owner

EXHIBIT C

F

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

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

April 15, 2008

Mr. Mohammad Mashhoon
Mash Petroleum Inc.
5725 Thronhill Drive
Oakland, CA 94611

Subject: Fuel Leak Case No. RO0000317 Global ID # T0600102278, Mashhoon Property/Union 76, 5725 Thornhill Drive, Oakland, CA

Dear Mr. Mashhoon:

Alameda County Environmental Health Department (ACEH) staff has reviewed the case file and reports entitled, "Further Site Investigation and Site Closure Request", dated October 18, 2007 and prepared on your behalf by SOMA Environmental Engineering, Inc. In a correspondence dated July 5, 2007 ACEH requested additional offsite investigation to assess soil and groundwater contamination downgradient of the site. The off-site upgradient preferential pathway study and investigation was performed in order to evaluate the potential for underground utilities to act as a preferential pathway and to assess the potential impacts to Temescal Creek.

Based on your correspondence dated February 1, 2008 for "No further Action and Site Closure Request", ACEH does not agree that site closure is warranted at this time. This decision is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to Section 25299.39(b) of the Health and Safety Code (Thompson-Richter Underground Storage Tank Reform Act - Senate Bill 562). Please contact the SWRCB Underground Storage Tank Program at (916) 341-5851 for information regarding the appeal process.

The recent installation of monitoring well SOMA-5 and the observation of "strong hydrocarbon odor" detected during well installation indicate that contamination is present at this location. Moreover, our review of soil and groundwater analytical data collected during the installation soil boring BH-C suggests that TPHg and TPHd and MtBE is present in groundwater at concentrations of up to 7,300 ppb, 25,000 ppb and 5,300 ppb, respectively. Additionally, MtBE was detected at concentrations of up to 730 ppb in the soil boring BH-E, which is the most distant, downgradient soil boring. Furthermore, groundwater analytical data from monitoring well SOMA-5 indicate that the dissolved phase hydrocarbon plume may be impacting Temescal Creek. Subsequently, ACEH requests that you prepare a work plan that details your proposal to evaluate the potentential impacts to Temescal Creek and define the downgradinent extent of MtBE contamination. Please submit the work plan according to the schedule below.

Based on ACEH staff review of the documents referenced above, we request that you address the following technical comments, perform the proposed work, and send us the reports described below. Please provide 72-hour advance written notification to this office (e-mail preferred to steven.plunkett@acgov.org) prior to the start of field activities.

TECHNICAL COMMENTS

1. **MtBE in Groundwater.** Dissolved phase MtBE has been detected at high concentrations downgradient of you site. In October 2000, MtBE was detected in groundwater samples collected from soil borings BH-B, BH-C, BH-D and BH-E at concentrations of 4,300 parts per billion (ppb), 5,300 ppb, 16,000 bbp and 730 ppb, respectively. Additional investigation activities conducted in 2005 confirmed the presence of dissolved phase MtBE downgradient of your site at up to 1,100 ppb.

   Soma states that dissolved phase MtBE contamination in the upper water-bearing zone is limited and it does not seem that higher concentrations reported previously are still valid. ACEH does not agree that higher concentrations reported previously are not still valid. It is commonly understood that MtBE is highly soluable, very mobile in groundwater, not readily biodegradable or adsorbed to soil. Considering the mobility of MtBE, it is unlikely that dissolved phase MtBE contamination would remain stationary, rather concentrations of MtBE would vary considerably both temporally and spatially between 2000 and 2005. Soma further asserts that recent groundwater monitoring data indicate the concentrations of MtBE have decreased significantly. However there is no discussion as to the possible mechanism for the decrease of dissolved phase MtBE concentrations. Furthermore, decreasing concentration of dissolved phase MtBE in monitoring wells is more likely a function of plume migration. Please present a scope of work (according to the schedule below) detailing you proposal to evaluate MtBE contamination downgradient of your site.

2. **Impacts to Temescal Creek.** It appears that Temescal Creek is in hydrogeologic connection with groundwater. Review of historic groundwater elevation data suggest the hydraulic gradient is toward Temescal Creek. In addition, our review of historic groundwater analytical data from soil borings HP-10 and BH-C indicate that impacted groundwater may have discharged via subflow into Temescal Creek. Our review of the October 23, 2000, Additional Soil and Groundwater Assessment report, (referenced by Soma in April 2004) recommends that groundwater samples be collected from Temescal Creek. However, ACEH has been unable to locate any water quality data to confirm that sampling of Temescal Creek occurred. Please present any documentation or water quality data to demonstrate that Temescal Creek was sampled as suggested by Soma in April 2004.

3. **Utility Corridor/Preferential Pathway.** Soma performed soil sampling in the utility corridor upgradient of the site to determine if a know upgradient source was impacting the site. Results from the investigation indicate that the site is not impacted from an upgradient source. Soma has demonstrated that the utility corridor is not a souce of contamination migration from an upgradient. However, it is probable that that utility corridor beneath the site may act as potential preferential pathway for downgradient MtBE contamination migration. In the work plan requested below, present a plan to sample the utility corridor downgradient of your site.

4. **Soil Boring Locations.** According to the boring log for soil boring BH-C, strong petroleum hydrocarbon odor and elevated PID readings of 3,620 ppm were detected at 13 to 15 feet bgs; pay particular attention to this interval when collecting soil and groundwater sample. During a the most recent investigation, proposed soil boring CPT-6 could not be installed due to the presence of underground utilities. This boring location is important to confirm the

presence of dissolved phase hydrocarbon contamination at this location. Furthermore, additional borings are necessary to assess the lateral extent of the MtBE plume downgradient of BH-E. Please present a work plan according to the schedule below detailing your proposal to evaluate the MtBE plume downgradient of your site.

5. **Soil Sampling and Analysis.** During soil boring installation, soil samples should be screened with a PID and examined for visible staining and hydrocarbon odor. Any interval where staining, odor, or elevated PID readings occur a soil sample is to be collected and submitted for laboratory analysis. If no staining, odor, or elevated PID readings are observed, soil sample are to be collected from each boring at the capillary fringe, where groundwater is first encountered, changes in lithology, and at the total depth of the boring at least 20 feet below ground surface.

   All soil samples collected during the investigation are to be analyzed for TPHg and TPHd by EPA Method 8015M or 8260, BTEX, EDB, EDC, MtBE, TAME, ETBE, DIPE, TBA and EtOH by EPA Method 8260. Please present the results from the soil sampling in the Soil and Groundwater Investigation Report requested below.

6. **Groundwater Sampling and Analysis.** All groundwater samples collected during the investigation are to be analyzed for TPHg, TPHd by EPA Method 8015M or 8260, BTEX, EDB, EDC, MtBE, TAME, ETBE, DIPE, TBA and EtOH by EPA Method 8260. Please present the results from the soil and groundwater sampling in the Soil and Groundwater Investigation Report requested below.

7. **Environmental Screening Levels.** During our review of the request for closure, ACEH determined that SOMA uses ESLs for a scenario where groundwater is not a current or potential drinking water source. However, currently accepted standards indicate that groundwater is a potential drinking water source. Please use screening levels that indicate groundwater is a potential drinking water source.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Mr. Steven Plunkett), according to the following schedule:

- **May 15, 2008** – Work Plan for Soil and Groundwater Investigation

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

ELECTRONIC SUBMITTAL OF REPORTS

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

information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program ftp site are provided on the attached "Electronic Report Upload (ftp) Instructions." Please do not submit reports as attachments to electronic mail.

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

PERJURY STATEMENT

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

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

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

UNDERGROUND STORAGE TANK CLEANUP FUND

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

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including

the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 383-1767.

Sincerely,

Steven Plunkett
Hazardous Materials Specialist

cc: Mansour Sepehr
SOMA Environmental Engineering, Inc.
6620 Owens Drive, Suite A
Pleasanton, CA 94588-3334

Donna Drogos, ACEH
Steven Plunkett, ACEH
File

EXHIBIT D

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May 15, 2008

VIA EMAIL AND U.S. MAIL

Donna Drogos
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94501-6577

Re: Fuel Leak Case No. RO0000317 Global ID #T0600102278. Mashhoon Property/Union 76, 5725 Thornhill Drive, Oakland, CA

Dear Ms. Drogos:

I am writing on behalf of Mash Petroleum, Inc. ("MPI") to respond to the ACEH's April 15, 2008 letter to MPI regarding the above-referenced property ("Property"). In its April 15th letter, ACEH requested the preparation of a Work Plan for Soil and Groundwater Investigation ("Work Plan") by May 15, 2008. **Please be advised that MPI has filed an appeal of the ACEH's request with the SWRCB.** MPI intends to continue to cooperate with the ACEH, but MPI believes that the work requested in the ACEH's April 15th letter is unwarranted.

Pending the resolution of this appeal, we request a meeting with the ACEH to evaluate whether we can reach an accommodation with the ACEH about any future work that may be necessary at the Property. Please let me know if and when you are available to meet. Meanwhile, we want to clarify and expand on some of the issues raised in the ACEH's April 15, 2008 letter.

Factual Background

The Property has been operating as a gasoline service station since the 1950s – long before MPI purchased the Property some nine years ago. Upon acquiring the Property in 1999, MPI promptly took steps to minimize any future releases from the Property and to remediate any prior releases. First, MPI arranged for the removal of a bare-steel waste oil tank at the Property. Second, MPI installed fiberglass non-jointed piping from the pre-existing fiberglass tanks to the pumps. Third, upon discovering contamination in the excavation pit of the waste oil tank, MPI excavated the contaminated soil and backfilled it with pea gravel.

Some eight years ago, MPI began working with the ACEH to investigate the extent of the release from the waste oil tank. Over the last few years, MPI installed approximately twenty borings, including cone penetrometer test (CPT) and membrane interface probe (MIP) – both at the Property and downgradient of the Property. MPI has collected in excess of 84 field data points. Various samples have been analyzed for total petroleum hydrocarbons as gasoline, motor oil and diesel, for MTBE, gasoline oxygenates, volatile organic compounds, and various metals, (lead scavengers). The results of these investigations were used to evaluate the site hydrogeology as well as the extent of petroleum hydrocarbons in on and off-site areas. MPI analyzed samples at shallow depths, intermediate depths, and even down to 34 to 40 feet below ground surface. MPI used the results of these studies to prepare a Site Conceptual Model ("SCM"), which identifies the site's hydrogeology, distribution of chemicals of concern (COCs) as well as exposure pathways, sensitive receptors and preferential flow pathways. The results of the sensitive receptor survey did not identify the presence of any drinking water, domestic, or irrigation wells within a quarter-mile radius of the Property.

More recently, MPI arranged for the installation and sampling of an off-site groundwater monitoring well immediately adjacent to Temescal Creek along Thornhill Drive – a busy street in the heart of Montclair, an active urban area. This work involved securing an excavation permit, an encroachment permit, an obstruction permit, a well boring permit, and approval of a traffic control plan, resulting in a lane closure on Thornhill Drive during drilling activities.

The work conducted by MPI over the last eight years has been substantial, both in the scope of the work and the costs incurred. To date, MPI has incurred fees in excess of $200,000 (most of which have been reimbursed by the UST Cleanup Fund). After much time and effort spent delineating the problem, recent sampling collected from borings both on and downgradient from the Property indicate that there are no contaminants in excess of San Francisco Bay Regional Water Quality Control Board ("RWQCB") Environmental Screening Levels ("ESLs") (where groundwater is not used for drinking water purposes).

Discussion

SOMA has previously submitted reports that form the basis for MPI's request that ACEH close the site. Some of that data is summarized here.

1. Summary of Basis for Closure Request

Five monitoring wells sampled on March 4, 2008 yielded results all below the applicable ESL's (i.e., where the groundwater is not used for drinking water). See Exhibit A, Table 1. These five wells are located downgradient and crossgradient from the former waste oil tank and from the operating USTs and include borings on the Property and downgradient of the Property. The farthest downgradient monitoring well (SOMA-5) is located adjacent to a culvert through which the Temescal Creek runs. SOMA-5 is completed within the perched zone located next to boring BH-C, where Aqua Science Engineering (ASE), in 2000, reported elevated levels of MTBE. MTBE was detected in SOMA-5 at 8.96 ppb, a level close to the drinking water standards of 5 ppb for MTBE based on taste and odor – and significantly below the standard of

1,800 ppb for MTBE where the groundwater is not a source of drinking water. The results of subsequent investigations since 2004 have not indicated the presence of elevated levels of MTBE in soil and groundwater as reported by ASE. According to SOMA, such discrepancy between the ASE investigation results and the results of subsequent investigations conducted by SOMA can be attributed to the natural bio-attenuation activities over the last eight years.

Further, MPI notes that while the ESLs are used as screening level, the SWRCB has approved closure of sites where the levels of gasoline and MTBE are above the ESLs. *See, e.g., In the Petition of Landis Incorporated*, Order WQ98-13-UST (November 19, 1998). In *Landis,* the SWRCB acknowledged that the time frame under which the MTBE at the site would likely degrade to drinking water standards could be "several decades" – and "possibly hundreds of years" for the gasoline. Nonetheless, under the circumstances, the SWRCB found that closure was appropriate.

The ACEH has asserted that the applicable ESLs in this case should be the ESLs applicable where groundwater is an actual or potential source of drinking water. Here, however, the Property in question is located in a well-developed urban area where the community is connected to a municipal water supply that does not depend on the underground aquifer. A survey of the area conducted by SOMA indicates that there are no domestic, irrigation, or water wells with a quarter mile radius of the Property. Nor is there any reasonable expectation that such wells would ever be installed in this well-developed urban area. In *In the Petition of Lois Green and Patricia Kelly*, WQ Order 2005-0002-UST (January 20, 2005), the SWRCB found that drinking water standards did not apply where "there is no evidence that groundwater at or down-gradient of petitioner's site is being used presently or that it has any likelihood of being used in the future, for domestic or municipal water supply."

We also note that SOMA submitted the Further Site Investigation for Updating Site Conceptual Model and Site Closure Request ("Closure Request") on October 15, 2007 – a few weeks before the RWQCB adopted its most recent ESLs. The November 2007 ESLs adopted by the RWQCB incorporate less stringent ESLs for petroleum products than the earlier ESLs in place when SOMA submitted the Closure Request. For your convenience we include Exhibit A, which compares the recent sampling data at SOMA-1 through SOMA-5 with the current ESLs.

2. Response to ACEH Letter.

We also want to clarify several points raised in the ACEH's April 15th letter.

The ACEH asserts that the recent installation of SOMA-5 (the monitoring well closest to Temescal Creek) and the observation of a hydrocarbon odor detected during well installation indicate that contamination is present at this location. We understand that where there are odors, sampling is warranted to define the extent of any contamination. Here, however, the well was sampled and those results have been reported to the ACEH – and those results are still below the applicable ESLs (i.e., where there is no source of drinking water). Moreover, not only was this well sampled, it was sampled at 15 feet below ground surface – the very interval which the

ACEH letter identifies as warranting special concern. SOMA informs us that the intensity of the odor as indicated is a qualitative term and may differ from one field person to another.

The ACEH letter repeatedly refers to the findings in samples collected from groundwater at boring BH-C in 2000 – where MPI's former consultant, AquaScience reported MTBE was present in the perched water zone at 5,300 ppb. According to the ACEH, "ACEH does not agree that higher concentrations reported previously are not still valid."

The prior sampling data at BH-C, however, cannot be considered valid because the sampling data is now over eight years old. It is highly unlikely that the sampling results reported in 2000 still represent site conditions. Moreover, recent sampling data clearly refutes the prior sampling data. **Samples recently collected from the same shallow perched water-bearing zone where the eight year old BH-C samples were collected,** show levels of 8.96 ppb MTBE – well below the applicable ESL of 1,800 ppb and only slightly above the ESL of 5 ppb for drinking water (which take odor and taste into account). Moreover, the sampling results collected in 2000 could not be verified in any other subsequent sampling of this area.

The ACEH requests in their April 15th letter that MPI install a soil boring at a location known as CPT-6 – an area where SOMA was unable to previously install a soil boring due to heavy traffic and an obstruction encountered. To avoid the traffic would require the closure of Thornhill Drive and securing multiple permits again – as MPI recently secured for the installation of SOMA-5. Even then, the obstruction previously detected may not permit safe drilling at this location. MPI believes it is unnecessary to install the CPT-6 boring. There are several boring points in the immediately vicinity of proposed CPT-6, including SOMA-4, SOMA-5, and HP-10. The SWRCB has held in the past that where there are substantial disruptions, such as substantial disruption of streets, and minimal benefits to be derived, further work is unnecessary. *See Landis.*

The ACEH also concludes that based on their review of historic groundwater data, including HP-10 and BH-C, "impacted groundwater may have discharged via subflow into Temescal Creek." Obviously, it would be unfortunate if any discharges were made to the Creek – particularly after MPI has spent eight years and over $200,000 complying with ACEH directives to further investigate the extent of a release caused by prior owners of the Property. According to SOMA, natural bio-attenuation activities can account for decreased levels of contaminants. If, however, ACEH's only explanation for the decreasing level of contaminants is that the hot spots of the plume were previously discharged and are no longer present in soil or groundwater, then the ACEH should instead close the site rather than spending more UST Fund public monies on monitoring contaminants that are no longer present.

Whatever may have happened years ago, or whatever may be the source of the MTBE and gasoline releases along Thornhill Drive – a road well-traveled where such releases from vehicles would not be surprising – MPI is committed to working cooperatively with ACEH to close this site expeditiously and cost-effectively in compliance with California law.

Conclusion

MPI believes that the area has been extensively sampled and that further delineation of the area is unwarranted. Eight years of monitoring and sampling show that the levels of contaminants at the Property and downgradient of the Property have been decreasing and are below applicable screening levels adopted to protect health, safety, and the environment.

For these reasons, MPI has appealed this case to the SWRCB. Pending the possibility of resolving this matter with the ACEH, we have requested that the SWRCB hold our petition in abeyance. Thus, we would like to meet with the ACEH to see if we can reach some resolution of this matter pending an appeal. After our meeting, if we are unable to resolve these issues, we will ask that the ACEH prepare an administrative record such that our appeal can be activated.

Thank you in advance for your time. We look forward to hearing from you and to resolving this matter.

Very truly yours,

WENDEL, ROSEN, BLACK & DEAN LLP

Catherine W. Johnson

cc: Steven Plunkett

bcc: Mo Mashhoon
Mansour Sepehr