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7:45 am, May 31, 2007

Alameda County  
Environmental Health



ENVIRONMENTAL ENGINEERING, INC

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

May 30, 2007

Mr. Jerry Wickham  
Alameda County  
Department of Environmental Health Services  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Subject: **StID#3337**  
Site Address: 3609 International Blvd., Oakland, California

Dear Mr. Wickham:

SOMA's "Extraction Well Installation Report and Upgrade of the Groundwater Remediation System" for the subject property has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

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

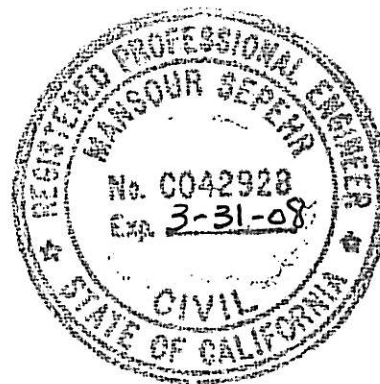
Sincerely,

Mansour Sepehr, Ph.D., PE  
Principal Hydrogeologist

Enclosure

cc: Mr. Abolghassem Razi w/report enclosure  
Tony's Express Auto Service

Mr. Vince Tong w/report enclosure  
Traction International



**EXTRACTION WELL INSTALLATION REPORT  
AND UPGRADE OF THE GROUNDWATER REMEDIATION  
SYSTEM**

**3609 International Boulevard  
Oakland, California**

**May 30, 2007**

**Project 2332**

**Prepared for:  
Mr. Abolghassem Razi  
50 Stewart Drive  
Tiburon, California**



**ENVIRONMENTAL ENGINEERING, INC.**

6620 Owens Drive Suite A Pleasanton CA 94588 Ph: 925.734.6400 F: 925.734-6401 [www.somaenv.com](http://www.somaenv.com)

## CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mr. Abolghassem Razi, the property owner of 3609 International Boulevard, Oakland, California to comply with the Alameda County Environmental Health Services approval letter dated December 12, 2006.



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



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# 1. INTRODUCTION

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Abolghassem Razi, the owner of Tony's Express Auto Services. It is based on SOMA's workplan dated November 13, 2006, which was approved by the Alameda County Environmental Health Services (ACEHS). The property, an operating gasoline station, is located at 3609 International Boulevard, at the intersection of International Boulevard and 36<sup>th</sup> Avenue in Oakland, California (the Site), as shown in Figure 1.

The Site is located in an area of primarily commercial and residential use. During the Third Quarter 2002, the station was remodeled and several hydraulic hoists were removed. The station no longer has an auto repair facility. Figure 2 shows the location of the main service station, dispenser islands, underground storage tanks (USTs), the on-site and off-site groundwater monitoring wells, and neighboring properties.

Because continued detection of elevated concentrations of fuel hydrocarbons in the groundwater at the Site indicates that a significant contaminant source remains, the ACEHS requested that the rate of mass removal from the area of the UST cluster be increased. It was determined that mass removal could be increased by extracting groundwater from the UST cluster backfill.

## 1.1 Background

Below is a chronological summary of Site developments.

1992: Soil Tech Engineering, Inc. conducted an initial environmental investigation to determine whether soil near the product lines and USTs had been impacted by petroleum hydrocarbons.

July 1993: Soil Tech Engineering, Inc. removed one single-walled 10,000-gallon gasoline UST, one single-walled 6,000-gallon gasoline UST, and one 550-gallon waste oil UST, and replaced them with the three USTs currently beneath the Site: one 10,000-gallon gasoline UST, and two 6,000-gallon gasoline USTs, all double walled. The locations of the USTs are shown in Figure 2.

December 1997: Mr. Razi retained Western Geo-Engineers to conduct additional investigations and quarterly groundwater monitoring, the results of which indicated elevated levels of petroleum hydrocarbons and methyl tertiary-butyl ethyl (MtBE) in the groundwater.

April 1999: Mr. Razi retained SOMA to conduct groundwater monitoring, risk-based corrective action (RBCA) and corrective action plan (CAP) studies, and soil and groundwater remediation. RBCA study results indicated that the Site is

a high-risk groundwater site and, therefore, soil and groundwater remediation in on- and off-site areas is warranted. The source of the petroleum hydrocarbons in the groundwater was believed to be the USTs removed in 1993, which had been used to store gasoline. CAP study results indicated that installation of a French drain combined with a vapor extraction system would be the most cost-effective remediation alternative.

August 1999: SOMA installed a French drain and groundwater treatment system to prevent further migration of the chemically impacted groundwater. This treatment system has been in operation since early December 1999.

July 2000: Following approval from ACEHS, SOMA installed a vapor extraction system as recommended in our CAP document dated July 1, 1999.

January 2002: Environmental Fabric removed old product dispensers and installed new ones in the fuel islands.

July 25, 2003: SOMA installed an additional on-site extraction pump in the western French drain riser, to create a capture zone around the USTs and contain off-site migration in the southwestern corner of the Site.

April 1, 2005: SOMA conducted a pilot test to evaluate the use of ozone sparging to actively remediate the groundwater at the Site. The test revealed that the unsaturated zone was permeable enough to allow operation of an ozone sparging system. However, ozone injection, especially in the region of more impacted wells MW-1 and MW-3 in the vicinity of the UST cavity, posed a potential explosion hazard. Based on safety concerns, air-sparging technology was selected for site remediation.

November 17 to 23, 2005: SOMA oversaw the installation of air sparge and vapor extraction wells by Woodward Drilling of Rio Vista, California. From February 22, 2006 to March 6, 2006, SOMA oversaw the installation of the air sparge system by ACRC, Inc. of San Ramon, California.

## **1.2 Site Hydrogeology**

Based on data from previous investigations, groundwater was encountered at depths ranging between 7 and 14 feet. Figure 2 shows the locations of on-site and off-site groundwater monitoring wells. Groundwater flows from north to south with an average gradient of 0.014 ft/ft. Based on results of the pumping test conducted by SOMA, hydraulic conductivity of the saturated sediments ranges between 1.5 and 18.3 feet per day. Assuming an effective porosity of saturated sediments of 0.35, the groundwater flow velocity ranges between 22 and 267 feet per year.

## **2. SCOPE OF WORK**

The scope of work included the following tasks:

1. Permit acquisition and preparation of a Health and Safety Plan
2. Construction of one extraction well within the UST pit
3. Development of the extraction well
4. Well survey by a licensed land surveyor

These tasks are described in more detail below.

### **2.1 Permits and Health and Safety Plan**

Before starting field activities, SOMA prepared a site-specific health and safety plan (HASP) designed to address safety provisions during field activities and provide procedures to protect the field crew against potential physical and chemical hazards from drilling. The HASP established personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans.

Before drilling began, SOMA obtained the necessary well decommissioning and construction permits from the Alameda County Public Works Agency (Appendix A).

### **2.2 Construction of Extraction Well EX-1**

On February 5, 2007, Gregg Drilling & Testing, Inc. installed extraction well EX-1 under supervision of a SOMA field geologist. A truck-mounted hollow stem auger drill rig was used to drill the well borehole. Figure 2 illustrates the location of EX-1.

Before drilling commenced, a 2-foot-square section of the concrete pad above the UST cavity was cut and removed. Drilling then began to recover a sample from the native soil directly beneath the backfill. The soil sample was collected at 9:40 and SOMA's field geologist noted the soil characteristics of the sample and documented them on a geologic log. The sample was then immediately stored in a cooler with ice, pending delivery to Curtis & Tompkins, Ltd., Analytical Laboratories (C&T), a California state-certified analytical laboratory. The laboratory report is included as Appendix E. Drilling of the well then proceeded, using a 10-inch hollow stem auger to drill the well.

The extraction well was constructed using a 4-inch-diameter, flush threaded PVC casing fitted with a 15-foot-long (0.02 inch slotted) screen inside the well borehole. A sand pack of Monterey #3 sand was emplaced in the annular space around the casing to a minimum of 1 foot above the screen, extending from 3 feet bgs to 20 feet bgs. Bentonite chips were then emplaced in the annular space above the sand pack. Approximately 1 to 2 gallons of water was added to hydrate the bentonite, creating a seal. After allowing the bentonite to hydrate, the well was grouted with Type II-V cement grout, to approximately 1 foot bgs. A 12-inch-diameter Traffic-rated Christy Box with a steel lid and lock was installed, followed by cement to surface grade. The drilling cuttings were stored in 2 DOT-rated drums. The drums were picked up on March 1, 2007, and the waste manifest has been included as Appendix C. The extraction well construction details and boring log are included as Appendix B.

Since the extraction well was completed inside the UST cavity full of pea gravel, no well development was necessary.

### **2.3 Connection of Well to Groundwater Remediation System**

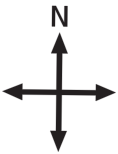
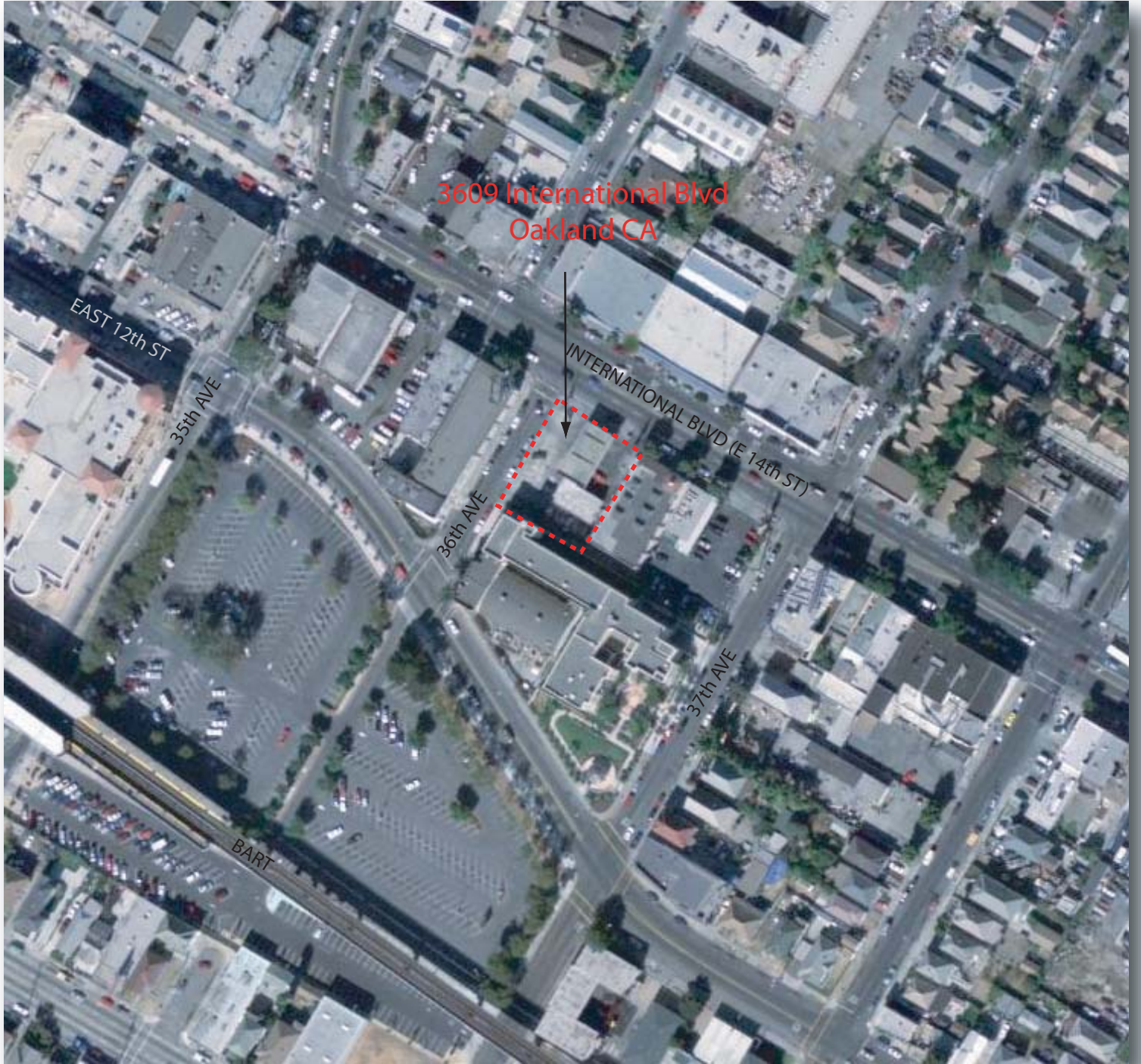
On April 20, 2007, SOMA installed an electric submersible pump within EX-1. The electric supply and water discharge lines were installed underground in a trench excavated in the site parking lot; the trench was backfilled and resurfaced with concrete following installation of the PVC piping. The electric submersible pump is powered on the same circuit as the two previously existing pumps inside the French drain, and the extracted groundwater is conveyed by the underground piping to the existing system influent surge tank. As part of the existing system, extracted groundwater is treated using a granular activated carbon system and discharged to the local sanitary sewer system in accordance with the requirements of a discharge permit for the site issued by the East Bay Municipal Utilities District.

### **2.4 Well Surveying**

On March 8, 2007, Joseph M. Brajkovich, a California state-licensed land surveyor, surveyed the well in compliance with the State of California EDF requirement (Appendix D).



# FIGURES



approximate scale in feet

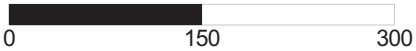
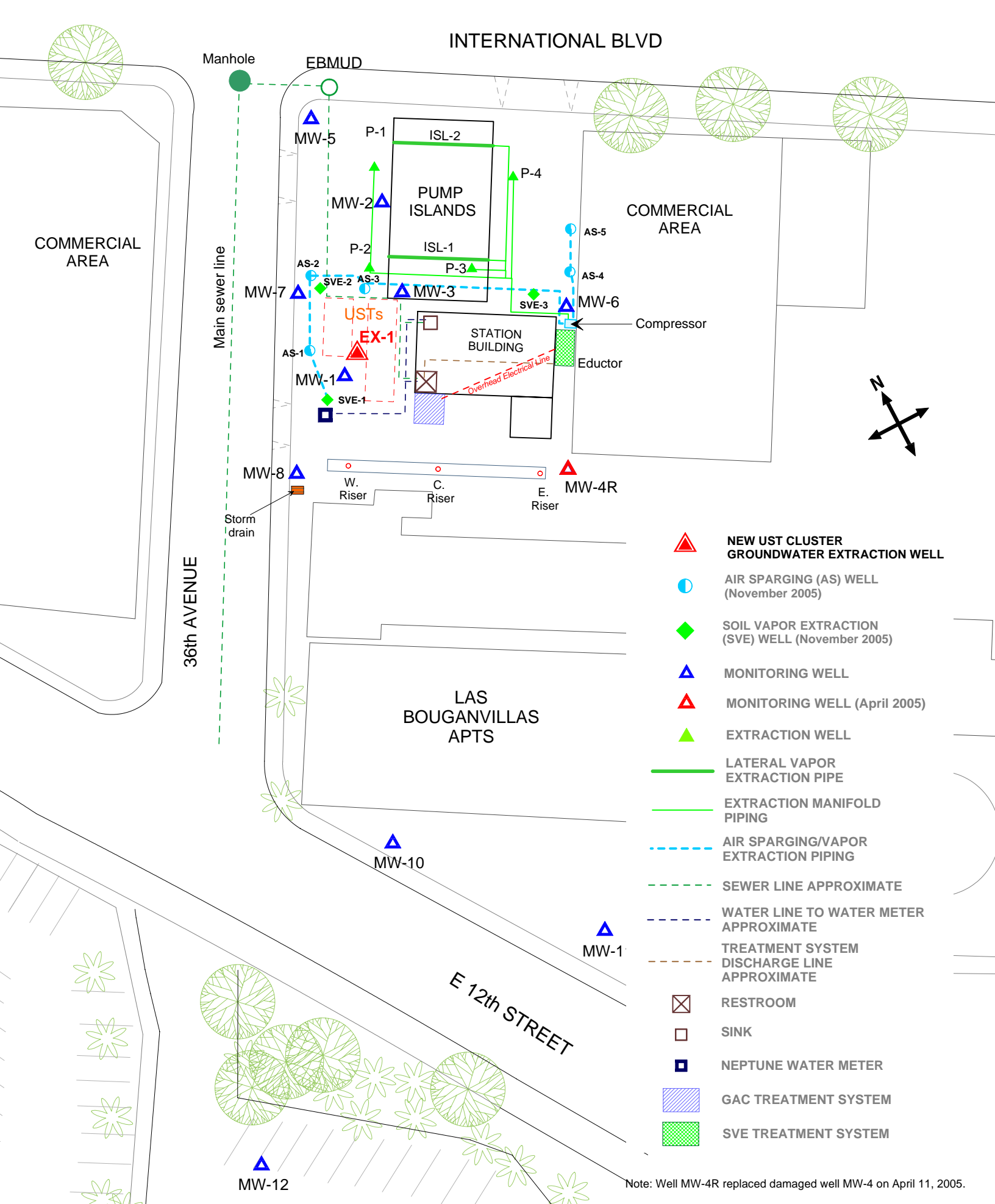


Figure 1: Site vicinity map.



approximate scale in feet

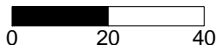


Figure 2: Site map showing the location of the new extraction well

# **APPENDIX A**

## **Well Installation Permit**

# 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: 01/17/2007 By jamesy**

**Permit Numbers: W2007-0065**  
**Permits Valid from 02/05/2007 to 02/05/2007**

**Application Id:** 1168646009397  
**Site Location:** 3609 International Blvd, Oakland, CA  
**Project Start Date:** 02/05/2007

**City of Project Site:**Oakland

**Completion Date:**02/05/2007

**Applicant:** SOMA Environmental Engineering Inc. -  
Elizabeth Hightower  
6620 Owens Sr. #A, Pleasanton, CA 94588

**Phone:** 925-734-6400

**Property Owner:** Abolghassen Razi  
50 Stewart Drive, Tiburon, CA 94920

**Phone:** 415-690-0098

**Client:** \*\* same as Property Owner \*\*

	<b>Total Due:</b>	\$200.00
<b>Receipt Number: WR2007-0023</b>	<b>Total Amount Paid:</b>	\$200.00
<b>Payer Name : SOMA Engineering</b>	Paid By: CHECK	<b>PAID IN FULL</b>

**Works Requesting Permits:**

Remediation Well Construction-Extraction - 1 Wells  
Driller: Gregg Drilling & Testing - Lic #: 485165 - Method: other

**Work Total: \$200.00**

**Specifications**

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-0065	01/17/2007	05/06/2007	EX-1	10.00 in.	4.00 in.	2.00 ft	20.00 ft

**Specific Work Permit Conditions**

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
2. Permittee, 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. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well 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.
4. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 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.
5. Minimum seal depth (Neat Cement Seal) is 2 feet below ground surface (BGS).

## **Alameda County Public Works Agency - Water Resources Well Permit**

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

# **APPENDIX B**

## **Boring Log (Well Construction Details)**



PROJECT: 2332

DATE DRILLED: 02/05/2007

SITE LOCATION: 3609 International Blvd.  
Oakland, CA

CASING ELEVATION: 40.51 feet

DRILLER: Gregg Drilling

DEPTH TO GW: 10 feet bgs

DRILLING METHOD: Hollow Stem Auger (HSA)

T.O.C. TO SCREEN: 5 feet

BORING DIAMETER: 10"

SCREEN LENGTH: 15 feet

LOGGED BY: E. Hightower

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

PID ppm	DEPTH	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION	SPLIT SPOON CORE	SAMPLED	GW LEVEL	BLOWCOUNTS	WELL DIAGRAM
	5		GW	Gravel (GW), 5YR 4/1 : Dark grey; loose; moist; medium grained; strong petroleum hydrocarbon (PHC) odor.					<p>Cement Grout 4" Schedule 40 PVC Casing/Screen 0.02 Slotted Screen Bentonite Membrane #3</p>
	20		CL	Sandy Clay (CL), 7.5YR4/2: Brown; medium stiff; moist; fine-grained sand; mottling throughout (2.5Y4/3); strong PHC odor.			9 40	4 4 4	
	25								

COMMENTS: TD @ 20 feet bgs



# **APPENDIX C**

## **Waste Manifest**

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator ID Number  
2. Page 1 of 1  
3. Emergency Response Phone: NRCES(610)740-1390  
4. Waste Tracking Num.: 27304

5. Generator's Name and Mailing Address: ABOLEHASSAN RAZI, 50 STEWART DRIVE, TIBURON CA 94920  
Generator's Phone: 415 437 1600  
Generator's Site Address (if different than mailing address): 3609 INTERNATIONAL BLVD, OAKLAND CA 94601

6. Transporter 1 Company Name: NRC ENVIRONMENTAL SERVICES INC  
U.S. EPA ID Number: CAR000030114

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

8. Designated Facility Name and Site Address: SIEMENS WATER TECHNOLOGY CORP, 5175 S. BOYLE AVENUE, VERNON CA 90058  
Facility's Phone: 310 277 1600  
U.S. EPA ID Number: CAD000030003

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Special Handling Instructions and Additional Information
		No.	Type			
1.	NON HAZARDOUS WASTE SOLID (SOIL CUTTINGS)	2	DM	600 <del>1000</del>		NONE
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information: UCAF APPLICANTS PERSONAL PROTECTIVE EQUIPMENT

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/Officer's Printed/Typed Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Month: 02 Day: 01 Year: 07

15. International Shipments:  Import to U.S.  Export from U.S. Port of entry/exit: \_\_\_\_\_ Date leaving U.S.: \_\_\_\_\_

16. Transporter Acknowledgment of Receipt of Materials  
Transporter 1 Printed/Typed Name: Daniel Company Signature: \_\_\_\_\_ Month: 02 Day: 01 Year: 07  
Transporter 2 Printed/Typed Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

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 hazardous materials covered by the manifest except as noted in Item 17a  
Printed/Typed Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

# **APPENDIX D**

## **Survey Report**

DATE: 8/17/05

Job No. 07-014

DATE OF SURVEY 3/8/07

INSTRUMENTS: Leica SR530 L530, Leica -  
TCRA 1102 - Total Station,  
Leica - NA 3003 - Level

### TABLE OF ELEVATIONS & COORDINATES

**3609 International Blvd., Oakland**  
SOMA ENVIRONMENTAL, PROJECT # 2331

WELL ID #	NORTHING (FT.) / LATITUDE (D.M.S.)	EASTING (FT.) / LONGITUDE (D.M.S.)	ELEVATION (FT.)	DESCRIPTION
EX-1	2109341.80	6064034.13	40.51	Casing
			40.93	Vault
EX-1 DECIMAL DEGREES	37.7752931	-122.2218880		

#### LOCAL CONTROL

MW-7	2109368.62	6064025.48	39.94	Casing
	37.7753663	-122.2219197	40.54	Vault
MW-8	2109321.68	6064000.47	39.38	Casing
	37.7752361	-122.2220033	39.72	Vault

**NOTE**

THE VALUES FOR EX-1 ARE DERIVED FROM LOCAL CONTROL BASED UPON CONTROL VALUES  
USED FROM THE PREVIOUS SITE SURVEY AS PROVIDED BY KIER AND WRIGHT DATED 08-27-2002

**BENCH MARK:** NGS Bench mark No.M 554

TO REACH THE STATION FROM THE INTERSECTION OF INTERSTATE HIGHWAY 880 AND HEGENBERGER RD IN SOUTH OAKLAND  
GO NORTHEAST ON HEGENBERGER ROAD FOR 0.5MI TO A SITE ROAD RIGHT BALDWIN ST. TURN RIGHT AND GO SOUTH ON BALDWIN ST.  
FOR 0.35MI TO A T-INTERSECTION, 85TH AVE. FOR 0.1MI TO A SIDE ROAD RIGHT, RAILROAD AVE. TURN RIGHT AND GO  
SOUTH ON RAILROAD AVE. FOR 0.1MI TO THE STATION ON THE LEFT, EAST, SIDE OF THE ROAD IN A LARGE CONCRETE HEADWALL FOR A  
CULVERT.

Coordinate values are based on the California Coordinate System, Zone III NAD 83 Datum.  
Elevation =14.20 FEET NAVD88 Datum



PLS Surveys, Inc.  
2220 Livingston Street, Suite 202  
Oakland, CA 94606  
510.261.0900

PRINTED: 3/19/2007  
9:24 AM

# **Appendix E**

## **Laboratory Report**



Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

A N A L Y T I C A L   R E P O R T

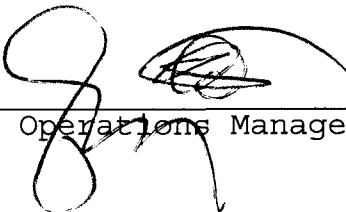
Prepared for:

SOMA Environmental Engineering Inc.  
6620 Owens Dr.  
Suite A  
Pleasanton, CA 94588

Date: 23-FEB-07  
Lab Job Number: 192544  
Project ID: 2332  
Location: 3609 International Blvd

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis.

Reviewed by:   
Project Manager

Reviewed by:   
Operations Manager

This package may be reproduced only in its entirety.

CASE NARRATIVE

Laboratory number: 192544  
Client: SOMA Environmental Engineering Inc.  
Project: 2332  
Location: 3609 International Blvd  
Request Date: 02/07/07  
Samples Received: 02/07/07

This hardcopy data package contains sample and QC results for one soil sample, requested for the above referenced project on 02/07/07. The sample was received intact.

**TPH-Purgeables and/or BTXE by GC (EPA 8015B):**

No analytical problems were encountered.

**Volatile Organics by GC/MS (EPA 8260B):**

Low recoveries were observed for ethylbenzene, m,p-xylenes, and o-xylene in the MS/MSD for batch 122112; the parent sample was not a project sample, the LCS was within limits, and the associated RPDs were within limits. No other analytical problems were encountered.





### Total Volatile Hydrocarbons

Lab #: 192544	Location: 3609 International Blvd
Client: SOMA Environmental Engineering Inc.	Prep: EPA 5030B
Project#: 2332	Analysis: EPA 8015B
Field ID: EX-1	Batch#: 121917
Matrix: Soil	Sampled: 02/05/07
Units: mg/Kg	Received: 02/07/07
Basis: as received	Analyzed: 02/07/07

Type: SAMPLE Diln Fac: 25.00  
 Lab ID: 192544-001

Analyte	Result	RL
Gasoline C7-C12	810	25

Surrogate	%REC	Limits
Trifluorotoluene (FID)	103	62-137
Bromofluorobenzene (FID)	108	60-148

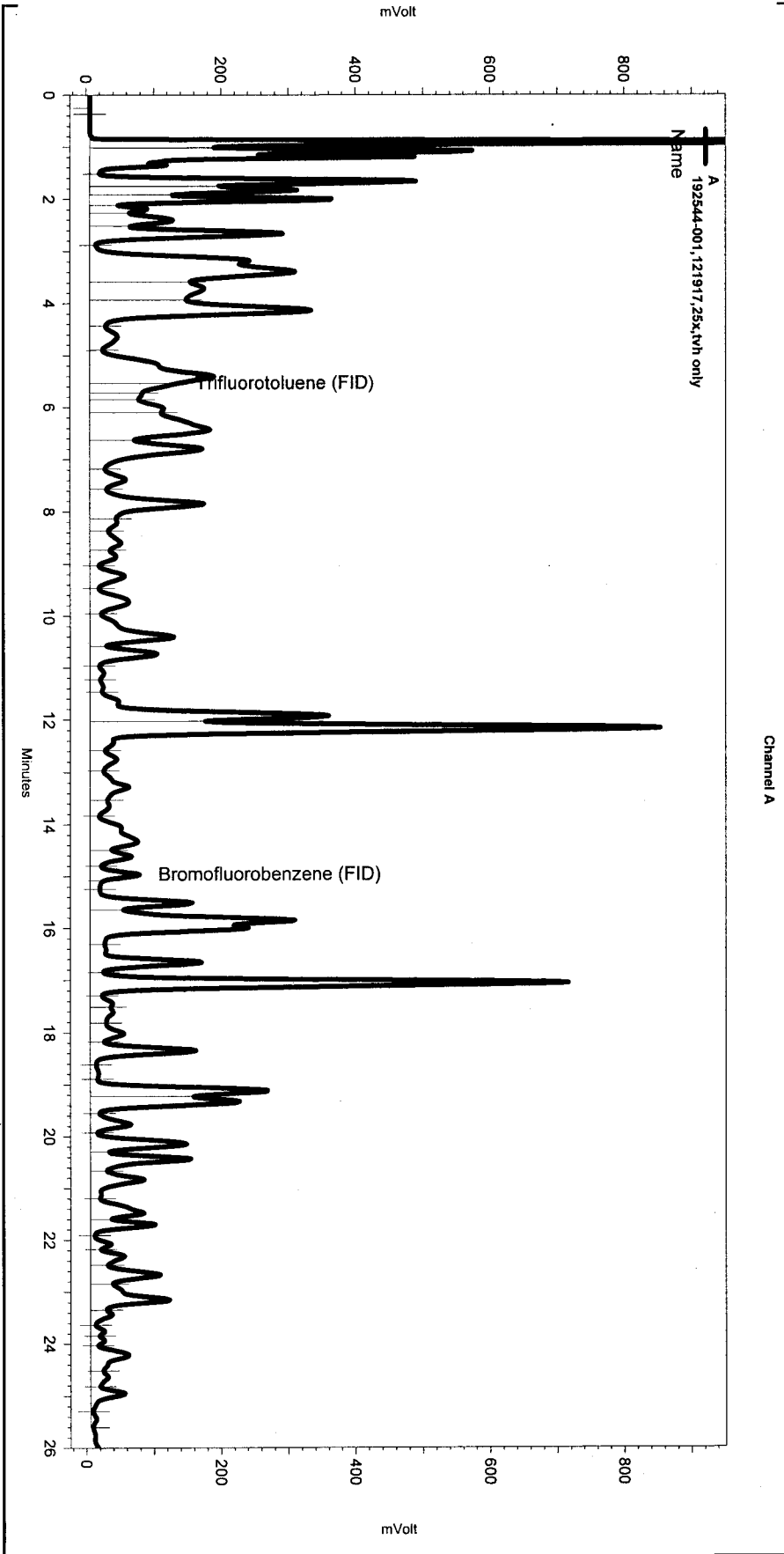
Type: BLANK Diln Fac: 1.000  
 Lab ID: QC374458

Analyte	Result	RL
Gasoline C7-C12	ND	0.20

Surrogate	%REC	Limits
Trifluorotoluene (FID)	83	62-137
Bromofluorobenzene (FID)	88	60-148

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC05\Sequence\038.seq  
 Sample Name: 192544-001,121917,25x,tvh only  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\038\_006  
 Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\TVHBTX029.met

Software Version 3.1.7  
 Run Date: 2/7/2007 5:39:20 PM  
 Analysis Date: 2/8/2007 1:38:46 PM  
 Sample Amount: 1 Multiplier: 1  
 Vial & pH or Core ID: A



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No items selected for this section

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No items selected for this section

Integration Events

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Yes	Threshold	0	0	50

Manual Integration Fixes

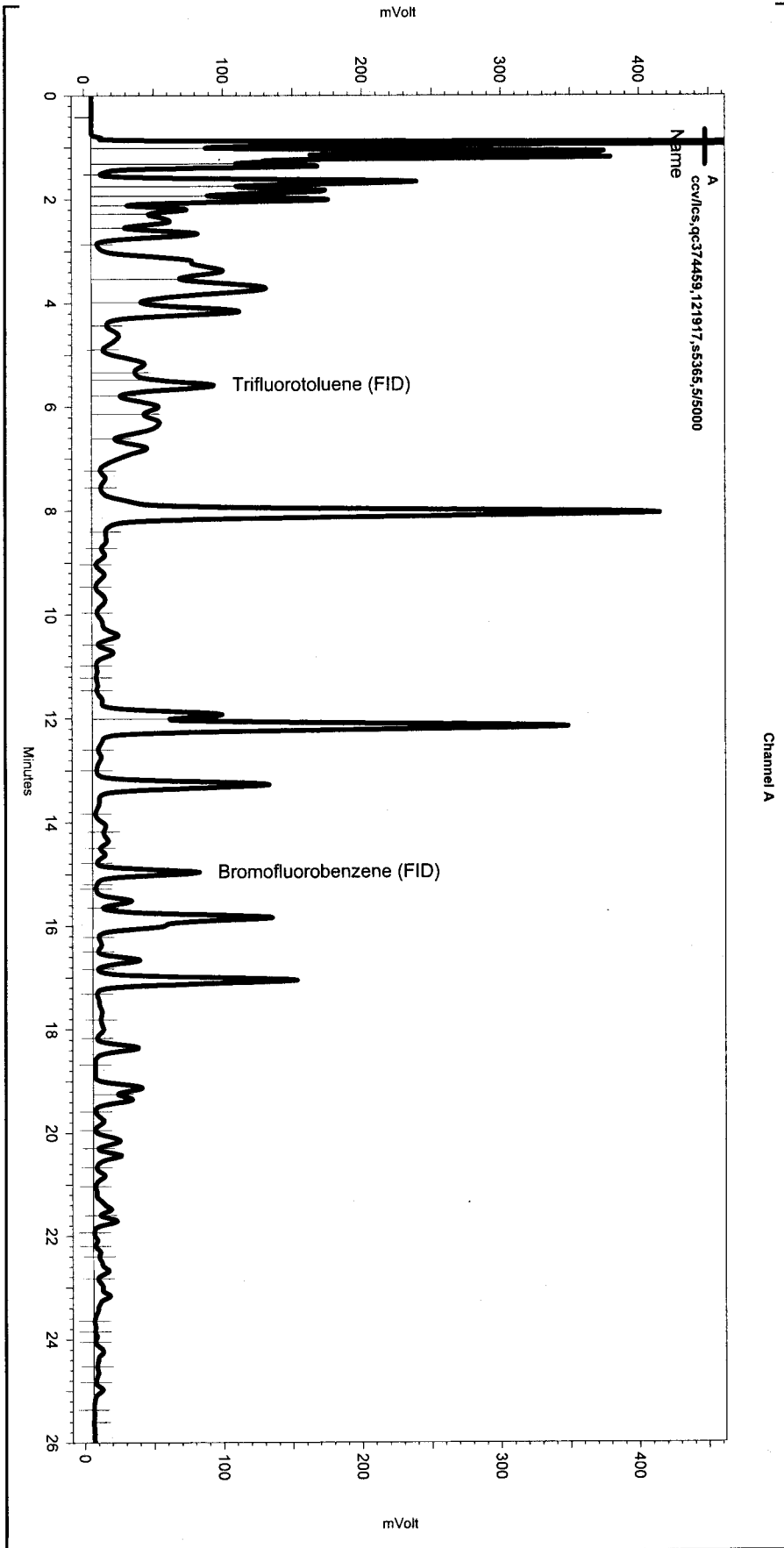
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Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Split Peak	5.529	0	0
Yes	Split Peak	5.71	0	0
Yes	Split Peak	15.083	0	0

Ex-1

Sequence File: \\Lims\gdrive\ezchrom\Projects\GC05\Sequence\038.seq  
 Sample Name: ccv/lcs,qc374459,121917,s5365,5/5000  
 Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\038\_002  
 Instrument: GC05 (Offline) Vial: N/A Operator: Tvh 2. Analyst (lims2k3\tvh2)  
 Method Name: \\Lims\gdrive\ezchrom\Projects\GC05\Method\lvhbx029.met

Software Version 3.1.7  
 Run Date: 2/7/2007 3:01:51 PM  
 Analysis Date: 2/8/2007 1:38:29 PM  
 Sample Amount: 1 Multiplier: 1  
 Vial & pH or Core ID: {Data Description}



---< General Method Parameters >---

No items selected for this section

---< A >---

No items selected for this section

Integration Events

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
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Yes	Threshold	0	0	50

Manual Integration Fixes

Data File: \\Lims\gdrive\ezchrom\Projects\GC05\Data\038\_002

Enabled	Event Type	Start (Minutes)	Stop (Minutes)	Value
Yes	Split Peak	5.48	0	0
Yes	Split Peak	15.196	0	0

Channel A

*Gasoline standard*

## Batch QC Report

**Total Volatile Hydrocarbons**

Lab #:	192544	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2332	Analysis:	EPA 8015B
Type:	LCS	Basis:	as received
Lab ID:	QC374459	Diln Fac:	1.000
Matrix:	Soil	Batch#:	121917
Units:	mg/Kg	Analyzed:	02/07/07

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	10.00	9.634	96	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	97	62-137
Bromofluorobenzene (FID)	101	60-148



## Batch QC Report

## Total Volatile Hydrocarbons

Lab #:	192544	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2332	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	192536-007	Batch#:	121917
Matrix:	Soil	Sampled:	02/05/07
Units:	mg/Kg	Received:	02/07/07
Basis:	as received	Analyzed:	02/07/07

Type: MS Lab ID: QC374461

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.01373	1.835	1.556	84	38-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	94	62-137
Bromofluorobenzene (FID)	94	60-148

Type: MSD Lab ID: QC374462

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1.776	1.573	88	38-120	4	26

Surrogate	%REC	Limits
Trifluorotoluene (FID)	102	62-137
Bromofluorobenzene (FID)	107	60-148

RPD= Relative Percent Difference

**Purgeable Aromatics by GC/MS**

Lab #:	192544	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2332	Analysis:	EPA 8260B
Field ID:	EX-1	Diln Fac:	125.0
Lab ID:	192544-001	Batch#:	122112
Matrix:	Soil	Sampled:	02/05/07
Units:	ug/Kg	Received:	02/07/07
Basis:	as received	Analyzed:	02/14/07

Analyte	Result	RL
MTBE	ND	630
Benzene	1,100	630
Toluene	ND	630
Ethylbenzene	5,600	630
m,p-Xylenes	17,000	630
o-Xylene	880	630

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	104	76-130
Toluene-d8	99	80-120
Bromofluorobenzene	98	80-126
Trifluorotoluene (MeOH)	103	53-133

ND= Not Detected  
RL= Reporting Limit

## Batch QC Report

**Purgeable Aromatics by GC/MS**

Lab #:	192544	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2332	Analysis:	EPA 8260B
Type:	BLANK	Basis:	as received
Lab ID:	QC375187	Diln Fac:	1.000
Matrix:	Soil	Batch#:	122112
Units:	ug/Kg	Analyzed:	02/14/07

Analyte	Result	RL
MTBE	ND	5.0
Benzene	ND	5.0
Toluene	ND	5.0
Ethylbenzene	ND	5.0
m,p-Xylenes	ND	5.0
o-Xylene	ND	5.0

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	109	76-130
Toluene-d8	97	80-120
Bromofluorobenzene	96	80-126

ND= Not Detected  
 RL= Reporting Limit

## Batch QC Report

**Purgeable Aromatics by GC/MS**

Lab #:	192544	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2332	Analysis:	EPA 8260B
Type:	LCS	Basis:	as received
Lab ID:	QC375186	Diln Fac:	1.000
Matrix:	Soil	Batch#:	122112
Units:	ug/Kg	Analyzed:	02/14/07

Analyte	Spiked	Result	%REC	Limits
MTBE	25.00	21.50	86	69-120
Benzene	25.00	25.10	100	80-120
Toluene	25.00	25.11	100	80-120
Ethylbenzene	25.00	26.23	105	80-120
m,p-Xylenes	50.00	52.79	106	80-120
o-Xylene	25.00	25.77	103	80-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	103	76-130
Toluene-d8	99	80-120
Bromofluorobenzene	97	80-126



## Batch QC Report

**Purgeable Aromatics by GC/MS**

Lab #:	192544	Location:	3609 International Blvd
Client:	SOMA Environmental Engineering Inc.	Prep:	EPA 5030B
Project#:	2332	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Diln Fac:	0.9804
MSS Lab ID:	192642-001	Batch#:	122112
Matrix:	Soil	Sampled:	02/08/07
Units:	ug/Kg	Received:	02/09/07
Basis:	as received	Analyzed:	02/14/07

Type: MS Lab ID: QC375267

Analyte	MSS Result	Spiked	Result	%REC	Limits
MTBE	<0.1879	49.02	41.79	85	56-120
Benzene	<0.1351	49.02	37.64	77	67-120
Toluene	<0.5418	49.02	33.80	69	62-120
Ethylbenzene	<0.5715	49.02	29.06	59 *	60-120
m,p-Xylenes	<1.282	98.04	53.05	54 *	58-120
o-Xylene	<0.5054	49.02	27.23	56 *	58-120

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	76-130
Toluene-d8	98	80-120
Bromofluorobenzene	109	80-126

Type: MSD Lab ID: QC375268

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
MTBE	49.02	40.60	83	56-120	3	23
Benzene	49.02	37.89	77	67-120	1	20
Toluene	49.02	33.10	68	62-120	2	20
Ethylbenzene	49.02	27.53	56 *	60-120	5	21
m,p-Xylenes	98.04	50.55	52 *	58-120	5	22
o-Xylene	49.02	24.87	51 *	58-120	9	22

Surrogate	%REC	Limits
1,2-Dichloroethane-d4	99	76-130
Toluene-d8	99	80-120
Bromofluorobenzene	103	80-126

\*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference