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2:23 pm, Oct 27, 2008

Alameda County  
Environmental Health

June 13, 2008

Ms. Donna Drogos  
Alameda County Environmental Health  
1131 Harbor Parkway, Suite 250  
Oakland, CA 94502-6577

Subject: **First Quarter 2008 Groundwater Monitoring Report**  
Stop 'N' Save  
20570 Stanton Avenue, Castro Valley, Alameda County, California  
Apex Project No. STS08.001  
RO0000179

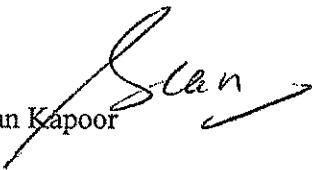
Ms. Drogos:

Enclosed please find a copy of the June 3, 2008, First Quarter 2008 Monitoring Report for the above referenced site, prepared by our consultant, Apex Envirotech, Inc.

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

Sincerely,

Sean Kapoor



are detailed in ESTC's *Interim Corrective Action*, dated August 17, 2000. Results of the sampling and disposal activities are detailed in ESTC's *Soil Sampling, Treatment and Disposal of Contaminated Stockpiled Soil*, dated August 21, 2000.

September 2000 – ESTC performed a preliminary soil and groundwater assessment of the subject property. Results are detailed in their *Preliminary Soil and Groundwater Assessment* report, dated October 13, 2000.

October 2000 – ESTC installed three groundwater monitoring wells at the subject site (STMW-1 through STMW-3).

September 2007 – Apex was contracted by SNS to bring the site into compliance with all regulatory agencies.

### **GENERAL SITE INFORMATION**

<b>Site name</b>	Stop 'N' Save
<b>Site address</b>	20570 Stanton Avenue, Castro Valley, California
<b>Current property owner</b>	Stop 'N' Save, Inc.
<b>Current site use</b>	Active gasoline station
<b>Current phase of project</b>	Groundwater monitoring
<b>Tanks at site</b>	3 USTs
<b>Number of wells</b>	3 groundwater monitoring wells

### **GROUNDWATER MONITORING SUMMARY**

<b>Gauging and sampling date</b>	March 27, 2008
<b>Wells gauged and sampled</b>	STMW-1, STMW-2, and STMW-3
<b>Wells gauged only</b>	None
<b>Groundwater flow direction</b>	East-northeast
<b>Groundwater gradient</b>	0.053 ft/ft
<b>Floating liquid hydrocarbon</b>	None
<b>Laboratory</b>	Analytical Sciences, Petaluma, California

## Analyses Performed

Analysis	Abbreviation	Designation	USEPA Method No.
Total Petroleum Hydrocarbons as Gasoline	TPHg	Gas Range Hydrocarbons	8015
Benzene	BTEX	Aromatic Volatile Organics	8260B
Toluene			
Ethylbenzene			
Xylenes (Total)			
Tertiary Butyl Alcohol	TBA	Five Fuel Oxygenates	
Methyl Tertiary Butyl Ether	MTBE		
Di-isopropyl Ether	DIPE		
Ethyl Tertiary Butyl Ether	ETBE		
Tertiary Amyl Methyl Ether	TAME		
1,2-Dichloroethane	1,2-DCA	Lead Scavengers	
Ethylene dibromide	EDB		

Analytical data for water samples are summarized in Table 3. Copies of the laboratory analytical report and chain-of-custody (COC) form are included in Appendix C.

## Modifications from Standard Monitoring Program

None.

## CONCLUSIONS

According to analytical lab data, TPHg, benzene, and MTBE concentrations are centered around STMW-1. The presence of TBA and the declining trends of contaminant concentrations suggest natural attenuation is occurring in the shallow-zone aquifer at the site.

Groundwater levels have increased an average of 0.69 ft since the last sampling event.

## RECOMMENDATIONS

Apex will continue quarterly groundwater monitoring. The next quarterly sampling event is scheduled for June 2008.

## ATTACHMENTS

Figure 1: Site Vicinity Map  
Figure 2: Site Plan Map  
Figure 3: Groundwater Contour Map: March 27, 2008  
Figure 4: TPHg in Groundwater Isoconcentration Map: March 27, 2008  
Figure 5: Benzene in Groundwater Isoconcentration Map: March 27, 2008  
Figure 6: MTBE in Groundwater Isoconcentration Map: March 27, 2008

Table 1: Well Construction Details  
Table 2: Groundwater Elevation Data  
Table 3: Groundwater Analytical Data

Appendix A: Apex Standard Operating Procedures  
Appendix B: Field Data Sheets  
Appendix C: Laboratory Analytical Reports and COC Form

## REPORT DISTRIBUTION

Apex submitted a copy of this Report to:

Regulatory Oversight: Ms. Donna Drogos  
Alameda County Health Care Services Agency  
1131 Harbor Parkway, Suite 250  
Oakland, California 94502-6577

Mr. Chuck Headless  
San Francisco Bay RWQCB-Geotracker only  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Responsible Party: Mr. Sean Kapoor



3446 N. Golden State Blvd., Suite C • Turlock, CA 95382  
Phone: 209.667.6874 • Fax: 209.667.9668

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June 3, 2008

Ms. Donna Drogos  
Alameda County Health Care Services Agency  
1131 Harbor Parkway, Suite 250  
Oakland, California 94502-6577

Subject: **First Quarter 2008 Groundwater Monitoring Report**  
Stop 'N' Save  
20570 Stanton Avenue, Castro Valley, Alameda County, California  
Apex Project No. STS08.001

Dear Ms. Drogos:

Apex Envirotech, Inc. (Apex) has been authorized by Stop 'N' Save (SNS) to provide this report documenting the first quarter groundwater monitoring event conducted March 27, 2008. Groundwater monitoring results are provided in the attached figures and tables. Apex standard operating procedures, field data, and analytical results are provided as appendices.

This report is based, in part, on information obtained by Apex from SNS and Enviro Soil Tech Consultants (ESTC), and is subject to modification as newly acquired information may warrant.

## **SITE DESCRIPTION**

The site is located at 20570 Stanton Avenue, Castro Valley, Alameda County, California (Figure 1). The site is situated in a commercial and residential area and is currently being used as a convenience store.

## **BACKGROUND**

February 24, 2000 – Two 10,000-gallon gasoline underground storage tanks (USTs) were removed by Johnson Tank Testing and Maintenance. Results are detailed in the ESTC report *Soil Sampling Beneath Removed USTs*, dated March 8, 2000.

May 18, 2000 – ESTC submitted their *Proposed Work Plan for Preliminary Site Assessment*.

July 25 and 26, 2000 – ESTC over-excavated and treated by bioremediation 150 cubic yards of contaminated soil in the vicinity of former UST areas. Results of the bioremediation activities

## REMARKS AND SIGNATURES

The information contained within this report reflects our professional opinions and was developed in accordance with currently available information, and accepted hydrogeologic and engineering practices.

The work described above was performed under the direct supervision of the professional geologists, registered with the State of California, whose signatures appear below.

We appreciate the opportunity to provide SNS geologic, engineering and environmental consulting services, and trust this report meets your needs. If you have any questions or comments, please call us at (209) 667-6874.

Sincerely,

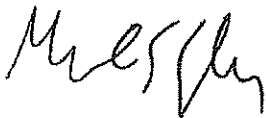
**APEX ENVIROTECH, INC.**



for Christy Black  
Project Manager



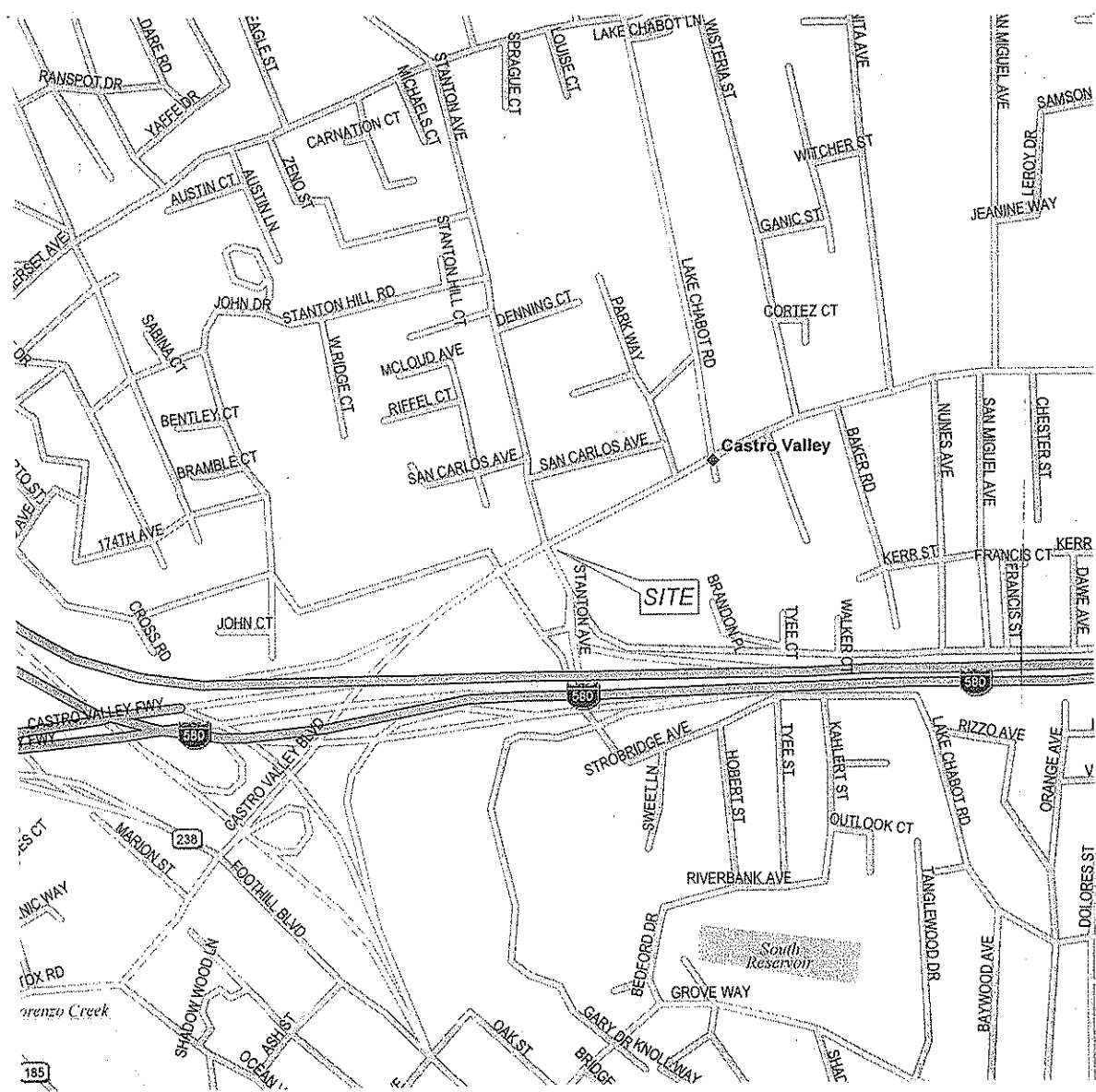
for Drew Van Allen  
Senior Project Manager



Michael S. Sgourakis, P.G.  
Senior Geologist  
PG No. 7194



## FIGURES



Approximate Scale  
1 inch = 1,000 feet



DRAWN BY: D. Alston  
DATE: 10/29/07

REVISIONS	

### SITE VICINITY MAP

Stop 'N' Save  
20570 Stanton Avenue  
Castro Valley, California

FIGURE

**1**

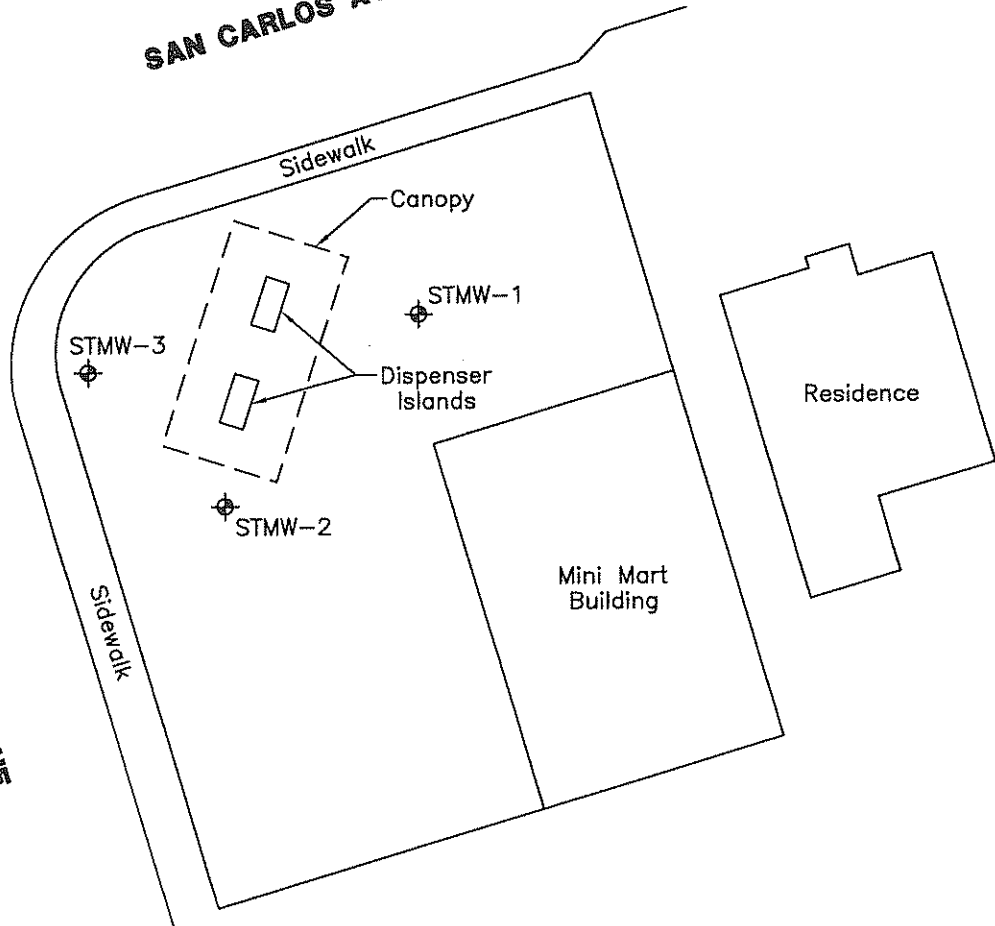
PROJECT NUMBER:

STS08.001



**SAN CARLOS AVENUE**

**STANTON AVENUE**



**LEGEND**

⊕ Monitoring Well Location



Approximate Scale  
1 inch = 30 feet



DRAWN BY: D. Alston

DATE: 10/26/07

REVISIONS

NO.	DESCRIPTION

**SITE PLAN MAP**

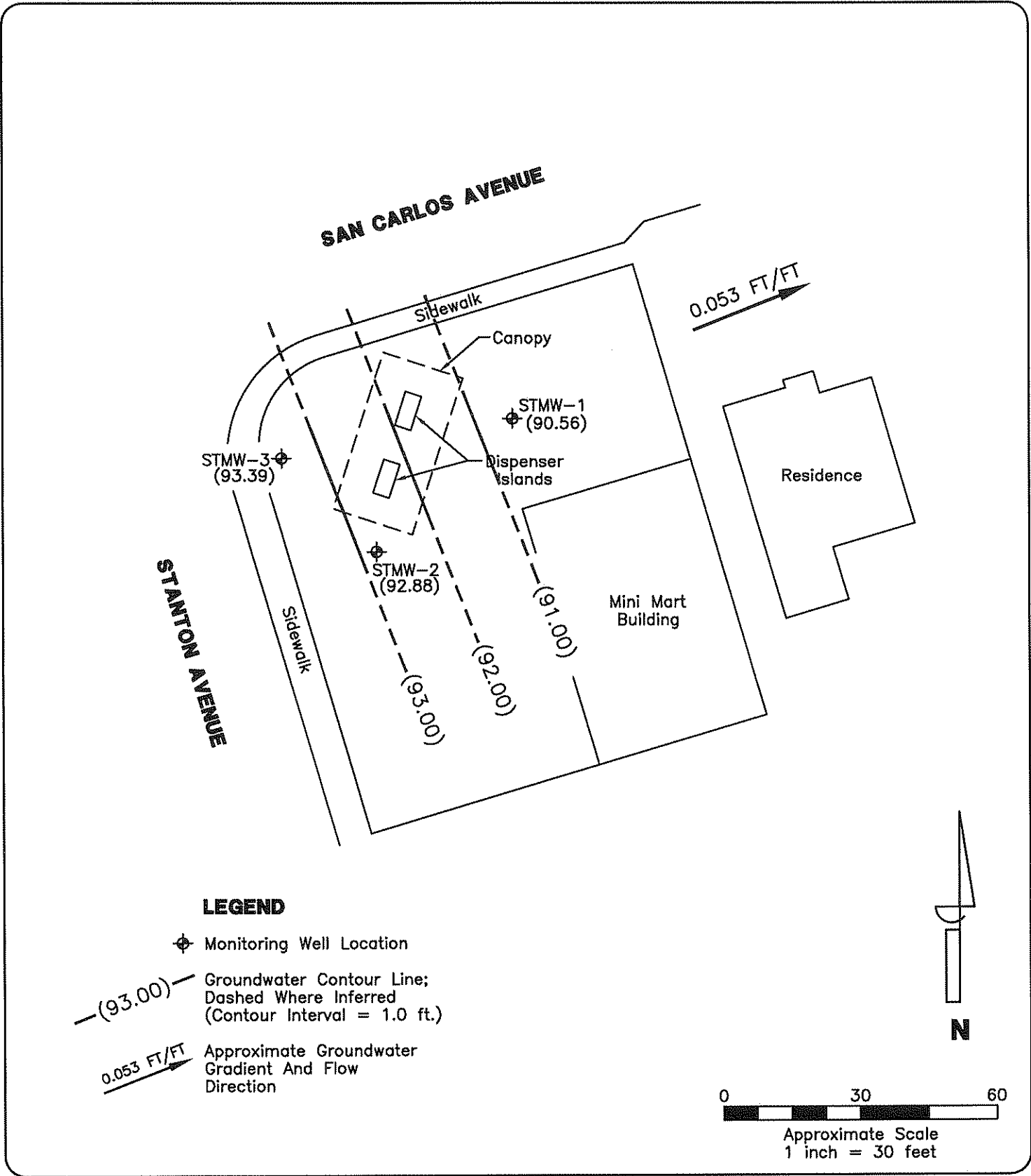
Stop 'N' Save  
20570 Stanton Avenue  
Castro Valley, California

FIGURE

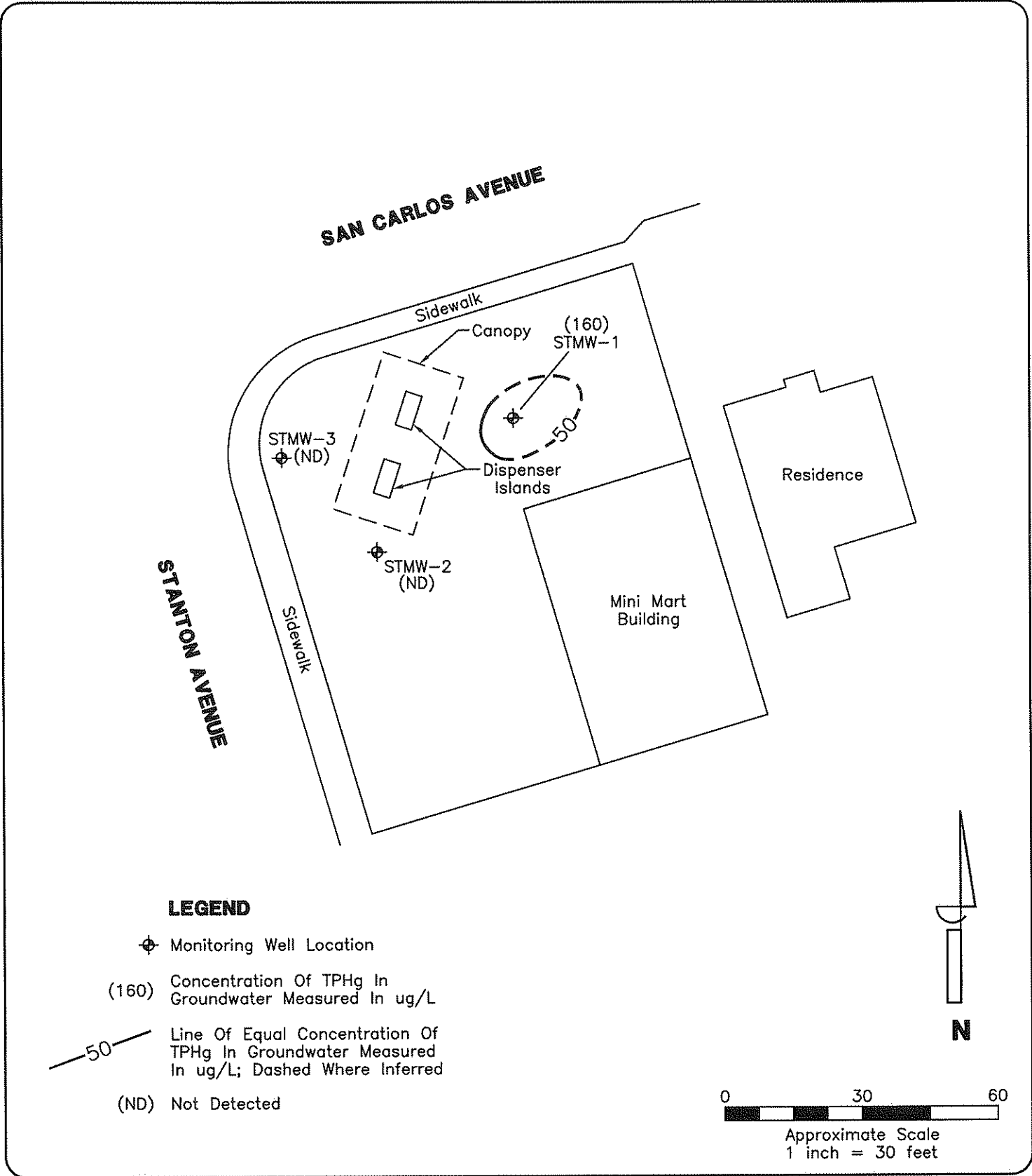
**2**

PROJECT NUMBER:

STS08.001



	DRAWN BY: D. Alston	<b>GROUNDWATER CONTOUR MAP: MARCH 27, 2008</b>	<b>FIGURE 3</b>
	DATE: 6/2/08		
	REVISIONS	Stop 'N' Save 20570 Stanton Avenue Castro Valley, California	PROJECT NUMBER:
			STS08.001



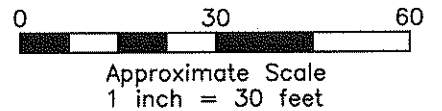
**LEGEND**

⊕ Monitoring Well Location

(160) Concentration Of TPHg In Groundwater Measured In ug/L

—50— Line Of Equal Concentration Of TPHg In Groundwater Measured In ug/L; Dashed Where Inferred

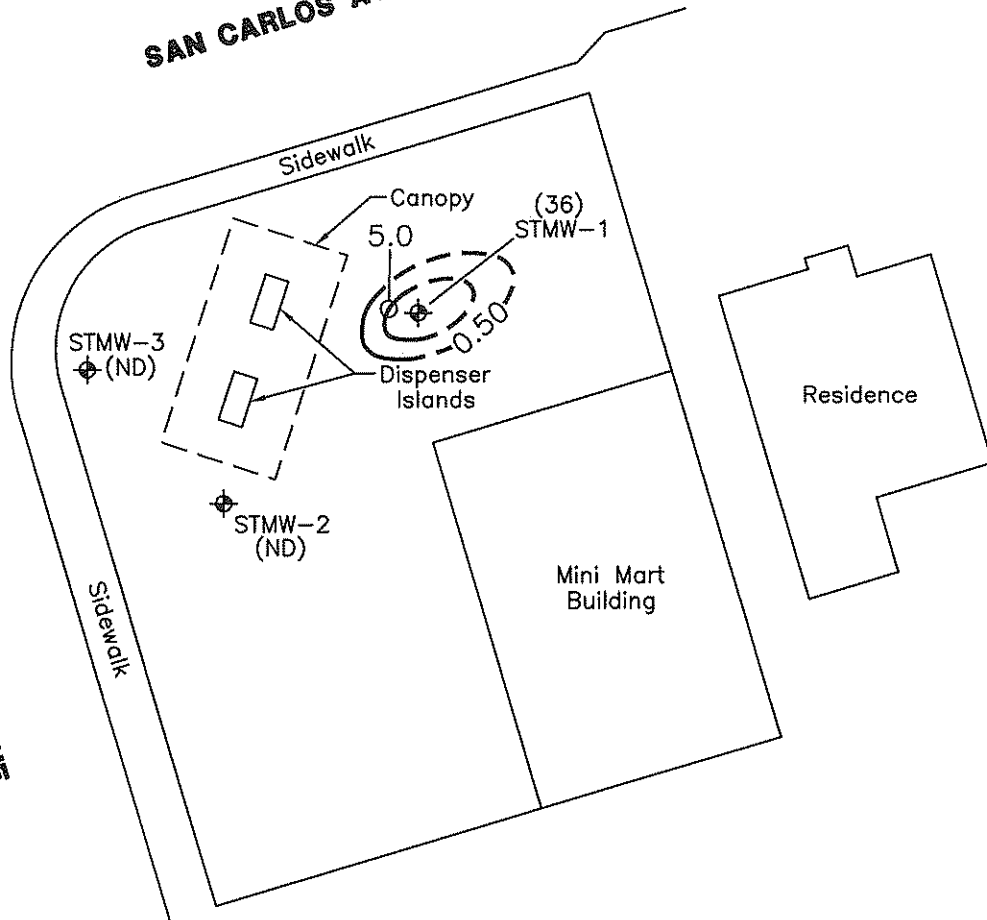
(ND) Not Detected



	DRAWN BY: D. Alston DATE: 6/2/08	<b>TPHg IN GROUNDWATER ISOCONCENTRATION MAP, MARCH 27, 2008</b>	FIGURE <b>4</b>
	REVISIONS		PROJECT NUMBER: STS08.001
	Stop 'N' Save 20570 Stanton Avenue Castro Valley, California		

**SAN CARLOS AVENUE**

**STANTON AVENUE**



**LEGEND**

⊕ Monitoring Well Location

(36) Concentration Of Benzene In Groundwater Measured In ug/L

—5.0— Line Of Equal Concentration Of Benzene In Groundwater Measured In ug/L; Dashed Where Inferred

(ND) Not Detected



Approximate Scale  
1 inch = 30 feet



DRAWN BY: D. Alston

DATE: 6/2/08

REVISIONS

**BENZENE IN GROUNDWATER ISOCONCENTRATION MAP, MARCH 27, 2008**

Stop 'N' Save  
20570 Stanton Avenue  
Castro Valley, California

FIGURE

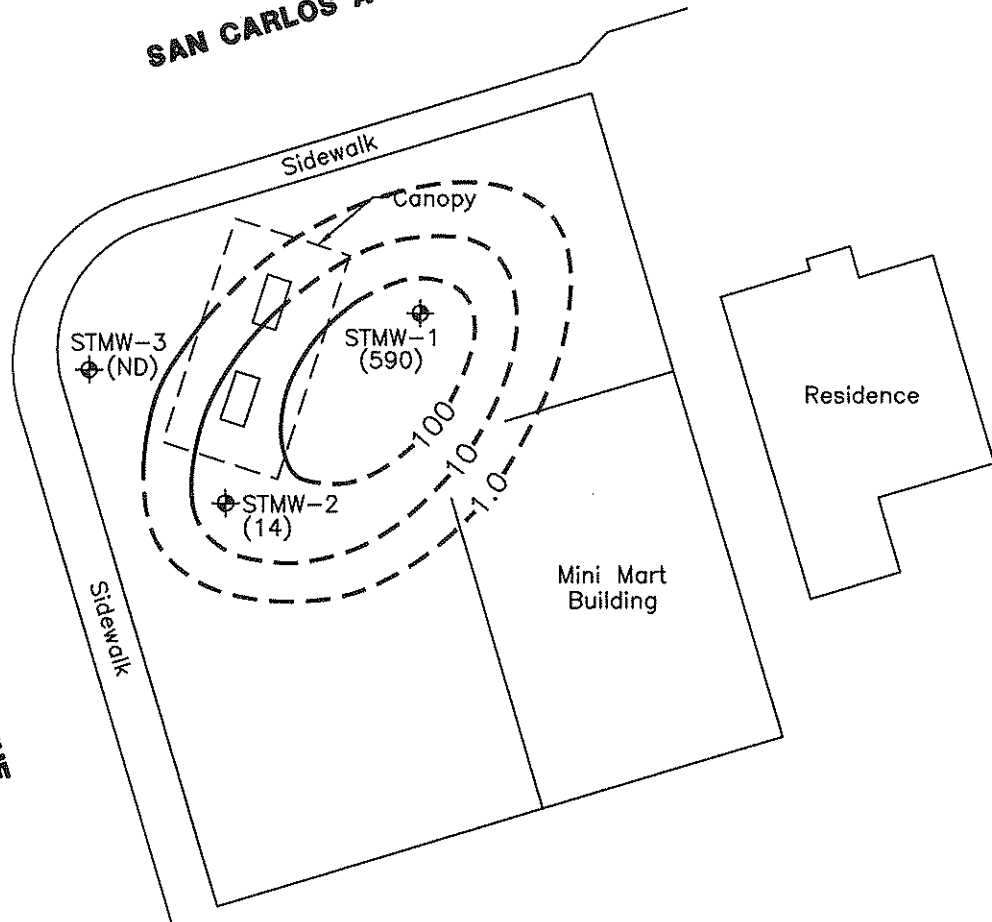
**5**

PROJECT NUMBER:

STS08.001

**SAN CARLOS AVENUE**

**STANTON AVENUE**



**LEGEND**

- ⊕ Monitoring Well Location
- (590) Concentration Of MTBE In Groundwater Measured In ug/L
- 100— Line Of Equal Concentration Of MTBE In Groundwater Measured In ug/L; Dashed Where Inferred
- (ND) Not Detected



Approximate Scale  
1 inch = 30 feet



DRAWN BY: D. Alston  
DATE: 6/2/08

REVISIONS	

**MTBE IN GROUNDWATER ISOCONCENTRATION MAP, MARCH 27, 2008**

Stop 'N' Save  
20570 Stanton Avenue  
Castro Valley, California

FIGURE

**6**

PROJECT NUMBER:

STS08.001

## **TABLES**

**TABLE 1**  
**WELL CONSTRUCTION DETAILS**  
**Stop 'N' Save**  
**20570 Stanton Avenue**  
**Castro Valley, California**

Well Number	Well Installation Date	Elevation TOC (feet)	Casing Material	Total Depth (feet)	Well Depth (feet)	Casing Diameter (inches)	Screened Interval (feet)	Filter Pack Interval (feet)
STMW-1	10/2000	97.93	PVC	23	23	2	9-23	8-23
STMW-2	10/2000	99.04	PVC	23	22	2	9-22	8-22
STMW-3	10/2000	99.60	PVC	23	22	2	9-22	8-22

Notes:  
 TOC = Top of Casing

**TABLE 2**  
**GROUNDWATER ELEVATION DATA**  
**Stop 'N' Save**  
**20570 Stanton Avenue**  
**Castro Valley, California**

Monitoring Well	Date	Reference Elevation*	Depth to Groundwater	Groundwater Elevation	Groundwater Flow Direction
STMW-1	10/4/00	97.93	8.34	89.59	---
	1/4/01		7.86	90.07	---
	3/16/04		5.70	92.23	---
	7/5/04		4.82	93.11	---
	12/28/04		6.82	91.11	---
	3/24/05		5.63	92.30	---
	7/20/05		5.75	92.18	---
	9/15/05		7.44	90.49	---
	12/12/05		5.32	92.61	---
	3/16/06		3.90	94.03	---
	6/22/06		7.12	90.81	---
	9/21/06		7.78	90.15	---
	12/18/06		9.12	88.81	---
	3/22/07		6.82	91.11	---
	6/29/07		9.86	88.07	E
	9/28/07		6.88	91.05	NE
	12/20/07		7.81	90.12	E
3/27/08	7.37	90.56	ENE		
STMW-2	10/4/00	99.04	8.22	90.82	---
	1/4/01		6.70	92.34	---
	3/16/04		6.08	92.96	---
	7/5/04		6.86	92.18	---
	12/28/04		6.22	92.82	---
	3/24/05		5.12	93.92	---
	7/20/05		5.66	93.38	---
	9/15/05		6.14	92.90	---
	12/12/05		6.68	92.36	---
	3/16/06		5.54	93.50	---
	6/22/06		6.02	93.02	---
	9/21/06		6.94	92.10	---
	12/18/06		6.46	92.58	---
	3/22/07		6.16	92.88	---
	6/29/07		9.06	89.98	E
	9/28/07		7.63	91.41	NE
	12/20/07		7.43	91.61	E
3/27/08	6.16	92.88	ENE		
STMW-3	10/4/00	99.60	8.42	91.18	---
	1/4/01		6.16	93.44	---
	3/16/04		7.18	92.42	---
	7/5/04		6.27	93.33	---
	12/28/04		5.64	93.96	---
	3/24/05		5.12	94.48	---
	7/20/05		5.50	94.10	---
	9/15/05		5.56	94.04	---
	12/12/05		6.26	93.34	---
	3/16/06		5.14	94.46	---
	6/22/06		5.92	93.68	---
	9/21/06		6.14	93.46	---
	12/18/06		5.50	94.10	---
	3/22/07		5.88	93.72	---
	6/29/07		8.82	90.78	E
	9/28/07		8.14	91.46	NE
	12/20/07		6.56	93.04	E
3/27/08	6.21	93.39	ENE		

NOTES

\* -Wells surveyed to mean sea level



TABLE 3  
GROUNDWATER ANALYTICAL DATA  
Stop 'N' Save  
20570 Stanton Avenue  
Castro Valley, California

Sample ID	Date	TPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl benzene (µg/L)	Total Xylenes (µg/L)	Five Oxygenates by EPA Method 8260					Lead Scavengers	
							DIPE (µg/L)	ETBE (µg/L)	MTBE (µg/L)	TAME (µg/L)	TBA (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)
STMW-1	10/4/00	60,000	<2,500	<2,500	<2,500	<2,500	---	---	69,000	---	<10,000	---	---
	1/4/01	71,000	<5,000	<5,000	<5,000	<5,000	---	---	89,000	---	<20,000	---	---
	3/16/04	260	52	64	7.9	27	---	---	39	---	<10	---	---
	7/5/04	2,100	17	240	2.6	12	---	---	520	---	<50	---	---
	12/28/04	310	89	90	11	43	---	---	32	---	<20	---	---
	3/24/05	630	43	140	16	110	---	---	20	---	<20	---	---
	7/20/05	330 <sup>b</sup>	12	22	<2.5	9.3	---	---	310	---	<50	---	---
	9/15/05	15,000	<100	<100	<100	<100	---	---	13,000	---	2,500	---	---
	12/12/05	130	4.4	7.5	<1.0	3	---	---	170	---	100	---	---
	3/16/06	<50	0.9	3.3	<0.5	<0.5	---	---	21	---	<10	---	---
	6/22/06	130	4.4	54	<1.0	7.1	---	---	70	---	<20	---	---
	9/21/06	880	110	32	18	110	---	---	1,600	---	2,300	---	---
	12/18/06	240	7.5	130	1.4	7.6	---	---	130	---	180	---	---
	3/22/07	190	17	13	2.9	14	---	---	360	---	170	---	---
	6/29/07	2,700	340	45	52	310	---	---	3,100	---	2,200	---	---
	9/28/07	1,000	85	2.5	11	72	<2.5	<2.5	1,000	<2.5	5,300	<2.5	<2.5
12/20/07	690	92	<5.0	<5.0	36	<5.0	<5.0	1,200	<5.0	15,000	<5.0	<5.0	
3/27/08	160	36	0.92	<0.50	5.1	<1.0	<1.0	590	<1.0	4,900	<1.0	<1.0	
STMW-2	10/4/00	69	<5.0	<5.0	<5.0	<5.0	---	---	66	---	<20	---	---
	1/4/01	110	<5.0	<5.0	<5.0	<5.0	---	---	120	---	<20	---	---
	3/16/04	1,100 <sup>a</sup>	<10	<10	<10	<20	---	---	1,700	---	<200	---	---
	7/5/04	1,800 <sup>b</sup>	<10	<10	<10	<20	---	---	1,800	---	<200	---	---
	12/28/04	1,000 <sup>b</sup>	<13	<13	<13	<13	---	---	1,400	---	<250	---	---
	3/24/05	760	<5.0	<5.0	<5.0	<5.0	---	---	930	---	180	---	---
	7/20/05	64	<1.0	<1.0	<1.0	<1.0	---	---	43	---	920	---	---
	9/15/05	53	<1.0	<1.0	<1.0	<1.0	---	---	88	---	130	---	---
	12/12/05	<50	2.2	<0.5	0.6	<0.5	---	---	23	---	22	---	---
	3/16/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	34	---	150	---	---
	6/22/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	12	---	200	---	---
	9/21/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	16	---	41	---	---
	12/18/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	15	---	71	---	---
	3/22/07	<50	<0.5	<0.5	<0.5	<0.5	---	---	15	---	71	---	---
	6/29/07	<50	<0.5	<0.5	<0.5	<0.5	---	---	14	---	<10	---	---
	9/28/07	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	14	<0.5	<5.0	<0.5	<0.5
12/20/07	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	6.2	<0.5	54	<0.5	<0.5	
3/27/08	<50	<0.50	<0.50	<0.50	<1.50	<1.0	<1.0	14	<1.0	<12	<1.0	<1.0	
STMW-3	10/4/00	<50	<5.0	<5.0	<5.0	<5.0	---	---	<5.0	---	<20	---	---
	1/4/01	<50	<5.0	<5.0	<5.0	<5.0	---	---	<5.0	---	<20	---	---
	3/16/04	<50	<0.5	<0.5	<.5	<1.0	---	---	2.8	---	<10	---	---
	7/5/04	<25	<0.5	<0.5	<0.5	<1.0	---	---	2.5	---	<10	---	---
	12/28/04	<25	<0.5	<0.5	<0.5	<0.5	---	---	2.0	---	<10	---	---
	3/24/05	<25	<0.5	<0.5	<0.5	<0.5	---	---	1.4	---	<10	---	---
	7/20/05	<50	<0.5	<0.5	<0.5	<0.5	---	---	1.5	---	<10	---	---
	9/15/05	<50	<0.5	<0.5	<0.5	<0.5	---	---	1.2	---	<10	---	---
	12/12/05	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<0.5	---	---
	3/16/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<10	---	---
	6/22/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<10	---	---
	9/21/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<10	---	---
	12/18/06	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<10	---	---
	3/22/07	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<10	---	---
	6/29/07	<50	<0.5	<0.5	<0.5	<0.5	---	---	<1.0	---	<10	---	---
	9/28/07	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5
12/20/07	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	
3/27/08	<50	<0.50	<0.50	<0.50	<1.50	<1.0	<1.0	<1.0	<1.0	<12	<1.0	<1.0	

NOTES:

- TPH - Total Petroleum Hydrocarbons
- MTBE - Methyl Tertiary Butyl Ether
- TBA - Tertiary Butyl Alcohol
- DIPE - Di-Isopropyl Ether
- EDB - Ethylene Dibromide
- ETBE - Ethyl Tertiary Butyl Ether
- TAME - Tertiary Amyl Methyl Ether
- 1,2-DCA - 1,2-Dichloroethane
- a - No other indication of gasoline besides MTBE
- µg/L - Micrograms per Liter
- b - TPH as gasoline reported value due to high concentration of MTBE present in the TPHg quantitation range

**APPENDIX A**

**APEX STANDARD OPERATING PROCEDURES**

**APEX ENVIROTECH, INC.**  
**STANDARD OPERATING PROCEDURES**  
Quarterly Monitoring Reports

**SOP – 4**  
**SAMPLE IDENTIFICATION AND CHAIN-OF-CUSTODY PROCEDURES**

Sample identification and chain-of-custody procedures ensure sample integrity as well as document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis is labeled to identify the job number, date, time of sample collection, a sample number unique to the sample, any in-field measurements made, other pertinent field observations also recorded on the field excavation or boring logs.

Chain-of-custody forms are used to record possession of the sample from time of collection to arrival at the laboratory. During shipment, the person with custody of the samples will relinquish them to the next person by signing the chain-of-custody form(s) and noting the date and time. The sample control officer at the laboratory will verify sample integrity, correct preservation, confirm collection in the proper container(s), and ensure adequate volume for analysis.

If these conditions are met, the samples will be assigned unique laboratory log numbers for identification throughout analysis and reporting. The log numbers will be recorded on the chain-of-custody forms and in the legally-required log book maintained in the laboratory. The sample description, date received, client's name, and any other relevant information will also be recorded.

**SOP – 5**  
**LABORATORY ANALYTICAL QUALITY ASSURANCE AND CONTROL**

In addition to routine instrument calibration, replicates, spikes, blanks, spiked blanks, and certified reference materials are routinely analyzed at method-specific frequencies to monitor precision and bias. Additional components of the laboratory Quality Assurance/Quality Control program include:

1. Participation in state and federal laboratory accreditation/certification programs;
2. Participation in both U.S. EPA Performance Evaluation studies (WS and WP studies) and inter-laboratory performance evaluation programs;
3. Standard operating procedures describing routine and periodic instrument maintenance;
4. "out-of-Control"/Corrective Action documentation procedures; and,
5. Multi-level review of raw data and client reports.

**SOP – 7**  
**GROUNDWATER PURGING AND SAMPLING**

Prior to water sampling, each well is purged by evacuating a minimum of three wetted well-casing volumes of groundwater. When required, purging will continue until either the discharge water temperature, conductivity, or pH stabilize, a maximum of ten wetted-casing volumes of groundwater have been recovered, or the well is bailed dry.

When practical, the groundwater sample should be collected when the water level in the well recovers to at least 80 percent of its static level.

The sampling equipment consists of either a "Teflon" bailer, PVC bailer, or stainless steel bladder pump with a "Teflon" bladder. If the sampling system is dedicated to the well, then the bailer is usually "Teflon," but the bladder pump is PVC with a polypropylene bladder. In general and depending on the intended laboratory analysis, 40-milliliter glass, volatile organic analysis (VOA) vials, with "Teflon" septa, are used as sample containers.

**SOP – 12**  
**MEASURING LIQUID LEVELS USING WATER LEVEL METER OR INTERFACE PROBE**

Field equipment used for liquid-level gauging typically includes the measuring instrument (water-level meter or interface probe and product bailer(s)). The field kit also includes cleaning supplies (buckets, solution, spray bottles, and deionized water) to be used in cleaning the equipment between wells.

Prior to measurements, the instrument tip is lowered into the well until it touches bottom. Using the previously established top-of-casing or top-of-box (i.e., wellhead vault) point, the probe cord (or halyard) is marked and a measuring tape (graduated in hundredths of a foot) is used to determine the distance between the probe end and the marking on the cord. This measurement is then recorded on the liquid-level data sheet as the "Measured Total Depth" of the well.

When necessary in using the interface probe to measure liquid levels, the probe is first electrically grounded to either the metal stove pipe or another metal object nearby. When no ground is available, reproducible measurements can be obtained by clipping the ground lead to the handle of the interface probe case.

The probe tip is then lowered into the well and submerged in the groundwater. An oscillating (beeping) tone indicates the probe is in water. The probe is slowly raised until either the oscillating tone ceases or becomes a steady tone. In either case, this is the depth-to-water (DTW) indication of the DTW measurement is made accordingly. The steady tone indicates floating liquid hydrocarbons (FLH). In this case, the depth-to-product (DTP) indication and the DTP measurement is made accordingly.

The process of lowering and raising the probe must be repeated several times to ensure accurate measurements. The DTW and DTP measurements are recorded on the liquid-level data sheet. When FLH are indicated by the probe's response, a product bailer is lowered partially through the FLH water interface to confirm the FLH thickness, particularly in cases where the FLH layer is quite thin. This measurement is recorded on the data sheet as "FLH thickness."

In order to avoid cross-contamination of wells during the liquid-level measurement process, wells are measured in the order of "clean" to "dirty" (where such information is available). In addition, all measurement equipment is cleaned with solution and thoroughly rinsed with deionized water before use, between measurements in respective wells, and at the completion of the day's use.

**APPENDIX B**

**FIELD DATA SHEETS**





# Monitoring Data

Project: STOP & SAVE # 108

Project Number: STSDS-001

Date: 3-27-08

Recorded By: WMB

WELL	TIME	TEMP (deg F)	pH	COND. (uS/cm)	DISSOLVED OXYGEN	TOTAL VOLUME REMOVED	COMMENTS/OBSERVATIONS
STMW-3	1319	16.9	6.9	182		2.4	
↓	1321	18.0	6.7	109		4.9	
↓	1324	18.8	6.6	>2000		7.3	SAMPLED @ 1400
STMW-2	1332	18.8	6.7	282		2.4	
↓	1334	19.2	6.6	302		4.9	
↓	1337	19.5	6.6	130		7.3	SAMPLED @ 1410
STMW-1	1345	18.2	6.3	163		2.2	
↓	1347	18.4	6.3	161		4.4	
↓	1349	18.5	6.3	101		6.5	SAMPLED @ 1420

**APPENDIX C**

**LABORATORY ANALYTICAL REPORT AND  
CHAIN-OF-CUSTODY FORM**



## Analytical Sciences

April 04, 2008

Jennifer Worsley  
APEX Envirotech Inc.  
11244 Pyrites Way  
Gold River, CA 95670

Dear Jennifer,

Enclosed you will find Analytical Sciences' final report 8032819 for your Stop-N-Save #108 project. An invoice for this work is enclosed.

Should you or your client have any questions regarding this report please contact me at your convenience. We appreciate you selecting Analytical Sciences for this work and look forward to serving your analytical chemistry needs on projects in the future.

Sincerely,

Analytical Sciences

Mark A. Valentini, Ph.D.

Laboratory Director





**Analytical Sciences**

Report Date: April 04, 2008

## Laboratory Report

Jennifer Worsley  
APEX Envirotech Inc.  
11244 Pyrites Way  
Gold River, CA 95670

Project Name:       **Stop-N-Save #108**                               **STS08.001**  
Lab Project:        **8032819**

This 8 page report of analytical data has been reviewed and approved for release.

**Mark A. Valentini, Ph.D.**  
Laboratory Director



### TPH Gasoline in Water

Lab#	Sample ID	Compound Name	Result ( $\mu\text{g/L}$ )	RDL ( $\mu\text{g/L}$ )
8032819-01	STMW-1	Gasoline (C6-C12)	160	50

Date Sampled:	03/27/08	Date Analyzed:	04/02/08	QC Batch: B003940
Date Received:	03/28/08	Method:	EPA 8015	

### TPH Gasoline in Water

Lab#	Sample ID	Compound Name	Result ( $\mu\text{g/L}$ )	RDL ( $\mu\text{g/L}$ )
8032819-02	STMW-2	Gasoline (C6-C12)	ND	50

Date Sampled:	03/27/08	Date Analyzed:	04/02/08	QC Batch: B003940
Date Received:	03/28/08	Method:	EPA 8015	

### TPH Gasoline in Water

Lab#	Sample ID	Compound Name	Result ( $\mu\text{g/L}$ )	RDL ( $\mu\text{g/L}$ )
8032819-03	STMW-3	Gasoline (C6-C12)	ND	50

Date Sampled:	03/27/08	Date Analyzed:	04/02/08	QC Batch: B003940
Date Received:	03/28/08	Method:	EPA 8015	



### Volatile Hydrocarbons by GC/MS in Water

Lab#	Sample ID	Compound Name	Result (µg/L)	RDL (µg/L)	
8032819-01	STMW-1	Benzene	36	0.50	
		Toluene	0.92	0.50	
		Ethylbenzene	ND	0.50	
		m,p-Xylene	4.0	1.0	
		o-Xylene	1.1	0.50	
		1,2-Dichloroethane (EDC)	ND	1.0	
		1,2-Dibromoethane (EDB)	ND	1.0	
		Tertiary Butyl Alcohol (TBA)	4900	240	
		Methyl tert-Butyl Ether (MTBE)	590	20	
		Di-isopropyl Ether (DIPE)	ND	1.0	
		Ethyl tert-Butyl Ether (ETBE)	ND	1.0	
		Tert-Amyl Methyl Ether (TAME)	ND	1.0	
	Surrogates	Result (µg/L)	% Recovery	Acceptance Range (%)	
		Dibromofluoromethane	20.8	104	70-130
		Toluene-d8	19.8	99	70-130
		4-Bromofluorobenzene	20.0	100	70-130
Date Sampled:	03/27/08	Date Analyzed:	04/03/08	QC Batch: B003963	
Date Received:	03/28/08	Method:	EPA 8260B		



### Volatile Hydrocarbons by GC/MS in Water

Lab#	Sample ID	Compound Name	Result (µg/L)	RDL (µg/L)
8032819-02	STMW-2	Benzene	ND	0.50
		Toluene	ND	0.50
		Ethylbenzene	ND	0.50
		m,p-Xylene	ND	1.0
		o-Xylene	ND	0.50
		1,2-Dichloroethane (EDC)	ND	1.0
		1,2-Dibromoethane (EDB)	ND	1.0
		Tertiary Butyl Alcohol (TBA)	ND	12
		Methyl tert-Butyl Ether (MTBE)	14	1.0
		Di-isopropyl Ether (DIPE)	ND	1.0
		Ethyl tert-Butyl Ether (ETBE)	ND	1.0
		Tert-Amyl Methyl Ether (TAME)	ND	1.0
Surrogates	Result (µg/L)	% Recovery	Acceptance Range (%)	
Dibromofluoromethane	22.2	111	70-130	
Toluene-d8	19.0	95	70-130	
4-Bromofluorobenzene	19.8	99	70-130	
Date Sampled:	03/27/08	Date Analyzed:	04/04/08	QC Batch: B003963
Date Received:	03/28/08	Method:	EPA 8260B	



### Volatile Hydrocarbons by GC/MS in Water

Lab#	Sample ID	Compound Name	Result (µg/L)	RDL (µg/L)
8032819-03	STMW-3	Benzene	ND	0.50
		Toluene	ND	0.50
		Ethylbenzene	ND	0.50
		m,p-Xylene	ND	1.0
		o-Xylene	ND	0.50
		1,2-Dichloroethane (EDC)	ND	1.0
		1,2-Dibromoethane (EDB)	ND	1.0
		Tertiary Butyl Alcohol (TBA)	ND	12
		Methyl tert-Butyl Ether (MTBE)	ND	1.0
		Di-isopropyl Ether (DIPE)	ND	1.0
		Ethyl tert-Butyl Ether (ETBE)	ND	1.0
		Tert-Amyl Methyl Ether (TAME)	ND	1.0
	<u>Surrogates</u>	<u>Result (µg/L)</u>	<u>% Recovery</u>	<u>Acceptance Range (%)</u>
	Dibromofluoromethane	22.6	113	70-130
	Toluene-d8	19.1	96	70-130
	4-Bromofluorobenzene	18.8	94	70-130
Date Sampled:	03/27/08	Date Analyzed:	04/04/08	QC Batch: B003963
Date Received:	03/28/08	Method:	EPA 8260B	



## Quality Assurance Report

### TPH Gasoline in Water

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B003940 - EPA 5030 GC</b>										
<b>Blank (B003940-BLK1)</b>					Prepared: 03/13/08 Analyzed: 03/17/08					
Gasoline (C6-C12)	ND	50	µg/L							
<b>Matrix Spike (B003940-MS1)</b>					Source: 8031303-01 Prepared: 03/13/08 Analyzed: 03/14/08					
Benzene	9.04	0.50	µg/L	10.0	ND	90	70-130			
Toluene	10.1	0.50	µg/L	10.0	ND	101	70-130			
Ethylbenzene	11.0	0.50	µg/L	10.0	ND	110	70-130			
Xylenes	33.7	1.5	µg/L	30.0	ND	112	70-130			
<b>Matrix Spike Dup (B003940-MSD1)</b>					Source: 8031303-01 Prepared: 03/13/08 Analyzed: 03/17/08					
Benzene	9.06	0.50	µg/L	10.0	ND	91	70-130	0.3	20	
Toluene	9.41	0.50	µg/L	10.0	ND	94	70-130	7	20	
Ethylbenzene	9.55	0.50	µg/L	10.0	ND	95	70-130	14	20	
Xylenes	28.8	1.5	µg/L	30.0	ND	96	70-130	15	20	



## Volatile Hydrocarbons by GC/MS in Water

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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### Batch B003963 - EPA 5030 GC/MS

#### Blank (B003963-BLK1)

Prepared & Analyzed: 03/18/08

Benzene	ND	0.50	µg/L						
Toluene	ND	0.50	µg/L						
Ethylbenzene	ND	0.50	µg/L						
m,p-Xylene	ND	1.0	µg/L						
o-Xylene	ND	0.50	µg/L						
1,2-Dichloroethane (EDC)	ND	1.0	µg/L						
1,2-Dibromoethane (EDB)	ND	1.0	µg/L						
Tertiary Butyl Alcohol (TBA)	ND	12	µg/L						
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L						
Di-isopropyl Ether (DIPE)	ND	1.0	µg/L						
Ethyl tert-Butyl Ether (ETBE)	ND	1.0	µg/L						
Tert-Amyl Methyl Ether (TAME)	ND	1.0	µg/L						

<i>Surrogate: Dibromofluoromethane</i>	17.3		µg/L	20.0		86	70-130		
<i>Surrogate: Toluene-d8</i>	21.9		µg/L	20.0		110	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	20.1		µg/L	20.0		100	70-130		

#### Matrix Spike (B003963-MS1)

Source: 8031412-01

Prepared & Analyzed: 03/18/08

1,1-Dichloroethene (1,1-DCE)	25.3	1.0	µg/L	25.0	ND	101	70-130		
Benzene	26.6	0.50	µg/L	25.0	ND	106	70-130		
Trichloroethene (TCE)	24.8	1.0	µg/L	25.0	ND	99	70-130		
Toluene	26.8	0.50	µg/L	25.0	ND	107	70-130		
Chlorobenzene	24.8	1.0	µg/L	25.0	ND	99	70-130		

<i>Surrogate: Dibromofluoromethane</i>	17.2		µg/L	20.0		86	70-130		
<i>Surrogate: Toluene-d8</i>	21.7		µg/L	20.0		109	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	19.2		µg/L	20.0		96	70-130		

#### Matrix Spike Dup (B003963-MSD1)

Source: 8031412-01

Prepared & Analyzed: 03/18/08

1,1-Dichloroethene (1,1-DCE)	27.1	1.0	µg/L	25.0	ND	109	70-130	7	20
Benzene	26.7	0.50	µg/L	25.0	ND	107	70-130	0.6	20
Trichloroethene (TCE)	25.0	1.0	µg/L	25.0	ND	100	70-130	1	20
Toluene	28.4	0.50	µg/L	25.0	ND	114	70-130	6	20
Chlorobenzene	24.2	1.0	µg/L	25.0	ND	97	70-130	2	20

<i>Surrogate: Dibromofluoromethane</i>	20.6		µg/L	20.0		103	70-130		
<i>Surrogate: Toluene-d8</i>	22.9		µg/L	20.0		114	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	19.7		µg/L	20.0		99	70-130		



## Notes and Definitions

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RDL	Reporting Detection Limit
ND	Analyte NOT DETECTED at or above the reporting detection limit (RDL)
RPD	Relative Percent Difference
NR	Not Reported





**Analytical Sciences**  
 P.O. Box 750336, Petaluma, CA 94975-0336  
 110 Liberty Street, Petaluma, CA 94952  
 (707) 769-3128  
 Fax (707) 769-8093

# CHAIN OF CUSTODY

Lab Project Number: 8032819  
 Client's Project Name: Stop-N-Save #108  
 Client's Project Number: STS08.001

CLIENT INFORMATION	
Company Name:	Apex Envirotech, Inc.
Address:	11244 Pyrites Wy. Gold River, CA 95670
Contact:	Jennifer Worsley
Phone #:	916-851-0174
Fax #:	916-851-0177
e-mail:	jennifer@apexenvirotech.com

GeoTracker EDF:	X Yes	No
Global ID:	T0600183405	

TURNAROUND TIME (check one)	
Same Day	<input type="checkbox"/>
48 Hours	<input type="checkbox"/> 24 Hours <input type="checkbox"/>
5 Days	<input checked="" type="checkbox"/> Normal <input type="checkbox"/>

Page 1 of 1

ANALYSIS															
Item	Client Sample ID	ALT ID	Date Sampled	Time	Matrix	# Cont.	Presv. Y/N	TPHg 8015 C6-C1	BTEX 8260	5 oxygenates 8260	lead scavengers			Comments	Lab Sample #
1	STMW-1	STMW-1	3-27-08	1420	water	3	Y	X	X	X	X			8032819 0.50 ppb DL for	-01
2	STMW-2	STMW-2	↓	1410	water	3	Y	X	X	X	X			BTEX. Xylenes	-02
3	STMW-3	STMW-3	↓	1400	water	3	Y	X	X	X	X			can be 1.0ppb	-03
4															
5															
6															
7															
8															
9															
10															

SIGNATURES					
Relinquished By:	Signature	Sampled By:	Date	Time	Received By:
	<u>V. J. PARKER</u>	<u>VINE BLACKWOOD</u>	<u>3-27-08</u>	<u>1730</u>	<u>[Signature]</u>
					<u>3/28/08 1115</u>
					Time