

20167

DAVID D. BOHANNON ORGANIZATION

Community Developer · 60 HILLSDALE MALL · SAN MATEO, CALIFORNIA 94403-3497

October 22, 1999

FAX 415 573-5457

TELEPHONE 415 345-8222

Ms. Juliet Shin
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

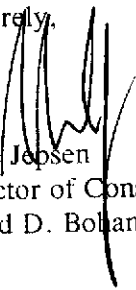
**RE: David D. Bohannon Organization
Third Quarter 1999 Groundwater Monitoring Results
and Plume Definition Investigation Report, and
Work Plan For Additional Groundwater Monitoring Well Installation
575 Paseo Grande, San Lorenzo, California**

Dear Ms. Shin:

Enclosed for your review is the Third Quarter 1999 Groundwater Monitoring Results and Plume Definition Investigation Report prepared for the above-referenced facility. The report summarizes the groundwater monitoring and sampling activities and the results of a groundwater plume definition study conducted by SECOR International Incorporated (SECOR) through September 30, 1999. Also attached is the Work Plan For Additional Groundwater Monitoring Well Installation for the Site. David D. Bohannon Organization has reviewed and agrees with the Third Quarter 1999 Groundwater Monitoring Results and Plume Definition Investigation Report and the Work Plan For Additional Groundwater Monitoring Well Installation, prepared by SECOR.

David D. Bohannon Organization will implement the enclosed work plan upon receiving approval from the Alameda County Health Care Services Agency (ACHCSA). The next scheduled quarterly groundwater monitoring and sampling is scheduled for early December 1999. If you have any questions, please feel free to contact me at (650) 345-8222.

Sincerely,



Mike Jepsen
Director of Construction
David D. Bohannon Organization

Enclosure

99 OCT 29 PM 4: 20

ENVIRONMENTAL PROTECTION

LETTER.WPD

October 22, 1999

SECOR Job No. 70074-001-02

October 22, 1999

Mr. Mike Jepsen
David D. Bohannon Organization
60 Hillsdale Mall
San Mateo, California 94403-3497

**RE: Third Quarter 1999 Groundwater Monitoring Results and
Plume Definition Investigation Report
575 Paseo Grande
San Lorenzo, California**

Dear Mr. Jepsen:

SECOR International Incorporated (SECOR) is pleased to present the results of third quarter 1999 groundwater monitoring and sampling activities conducted at 575 Paseo Grande (the Site) in San Lorenzo, California (Figures 1 and 2). This report presents the results of the September 13, 1999, sampling event which was conducted pursuant to an Alameda County Health Care Services Agency's (ACHCSA) letter dated December 30, 1998 and as discussed in a meeting between ACHCSA and Bohannon representatives held on December 22, 1998. The previous groundwater monitoring and sampling event was conducted in June 1999. In addition, the results of an on-going Groundwater Plume Definition study are also presented including the findings of a utility trench survey, a passive soil gas survey and recommendations for further work.

The third quarter 1999 scope of work included sampling groundwater monitor wells MW-1, MW-2, and MW-3 for gasoline range total petroleum hydrocarbons (TPHg); benzene, toluene, ethylbenzene, and total xylenes (BTEX). The groundwater plume definition program continued during this quarter with the performance of a utility trench location survey and a passive soil-vapor survey. The data collected will be used to locate at least one additional groundwater monitor well as described in the following sections.

BACKGROUND

Over the last 25 years, the Site has been used as an asphalt paved parking area located in a commercial area zoned as C1. The Site was a gasoline station prior to 1969. Little information is known about the site history related to its use as a gasoline service station. In anticipation of property redevelopment, initial investigation activities were conducted in March 1995 to determine if out-of-service gasoline service station underground equipment remained on-site. The work was conducted by Twining Laboratories, Inc. (TLI), as documented in their letter report dated April 15, 1995. The work conducted included a magnetometer survey followed by an exploratory excavation. In summary, the work conducted identified underground gasoline service station equipment which included what appeared to be the former tank pit, approximately 110 feet of fuel delivery system piping, and a grease sump and/or hydraulic lift pit in an area which may have been the former service garage (Figure 2). Field evidence and one soil sample indicated the potential for soil contamination along the piping runs, around the grease sump, and around the inferred location of the former tank pit. Characterization of the magnitude and extent of potential soil contamination was not conducted during initial investigation activities.

SECOR Job No. 007.03814.005
//boh3q99.doc

Mr. Mike Jepson
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In June 1995, SECOR conducted additional activities at the Site which included removal of the former underground storage tank (UST) system piping and the former grease sump, and characterization soil sampling along pipelines and around the former grease sump and former tank pit areas. This work was summarized in SECOR's letter report dated June 29, 1995. The characterization data from this investigation indicated that there were two areas of concern (AOCs) at the Site. These areas were the former grease sump area and the former gasoline distribution system area. SECOR subsequently conducted excavation activities in the vicinity of the two AOCs. The soil excavated from the former sump area was transported off-site for disposal. The soil generated from the UST excavation was treated by means of aeration and transported off-site for disposal. Three groundwater monitor wells (MW-1, MW-2, and MW-3) were installed during the investigation activities to evaluate the degree to which the groundwater had been impacted. The results of the soil characterization and groundwater monitoring activities are reported in SECOR's Report of Interim Remedial Actions dated June 4, 1996, and Fourth Quarter 1996 Monitoring and Sampling Report dated November 26, 1996.

SCOPE OF WORK

Quarterly groundwater sampling activities were conducted at the Site pursuant to the request of the ACHCSA. The three on-site monitor wells (MW-1, MW-2, and MW-3) were gauged for depth-to-water and sampled on September 13, 1999. Each of the three wells were purged using a low flow purging method consisting of a 2-inch diameter, variable speed peristaltic pump set to pump at less than 0.5 liters per minute. During purging, temperature, conductivity, pH, and dissolved oxygen were continuously measured using an in-line flow-through cell. Dedicated tubing is used in the wells so that the possibility of cross contamination is eliminated. Copies of the field data sheets are presented in Attachment 1. The groundwater samples were submitted to Sequoia Analytical Laboratory, a California state-certified laboratory, and analyzed for TPHg by U.S. Environmental Protection Agency (EPA) Methods 8015 (modified); and for BTEX by EPA Method 8020.

GROUNDWATER ELEVATION RESULTS

Groundwater elevation data collected to date is summarized in Table 1. The average depth-to-water at the Site on September 13, 1999 was 7.30 feet below grade with an average water table elevation of 19.36 feet above mean sea level. The groundwater surface elevation fell approximately 1.1 feet since the prior event. A potentiometric surface map showing the interpreted groundwater surface elevation on September 13, 1999 is presented as Figure 3. The average hydraulic gradient across the Site for this event was approximately 0.004 feet per foot and was toward the southwest (Figure 3). These results are generally consistent with flow direction results obtained during the prior monitoring events. As mentioned in previous quarterly reports, the flow direction beneath the Site is likely to be tidally influenced by the San Francisco Bay. Regardless of tidal influences, the groundwater flow direction beneath the Site is predominantly towards the west to southwest.

GROUNDWATER ANALYTICAL RESULTS

Groundwater analytical results from samples collected to date are summarized in Table 2 and sampling field data sheets are attached. No analytes were detected in the sample collected from MW-1 during this event. It is noteworthy that no analytes were detected in MW-1 during the June 1999 event, but that previous sampling of MW-1 had consistently detected low concentrations of TPHg and BTEX compounds.

MW-2 contained 1300 micrograms per liter (ug/L) of TPHg, 120 ug/L benzene and 15 ug/L total xylenes. Each of these detections is lower than reported for the June 1999 sampling event.

The groundwater sample collected from MW-3 contained TPHg at 5400 ug/L, and benzene at 1000 ug/L. Toluene, ethylbenzene and xylenes were not detected in the MW-3 groundwater sample. The MW-3 concentrations of TPHg and benzene are higher for this event than the June 1999 event, but remain significantly lower than previous events. A copy of the laboratory report and chain-of-custody is attached.

GROUNDWATER PLUME DEFINITION STUDY

Utility trench Survey Results

A utility trench survey was performed on May 28, 1999, in an attempt to locate potential preferential pathways for soil vapor and/or groundwater. The search consisted of contacting Underground Service Alert to schedule and onsite meeting and contracting a private utility locating contractor to locate utilities onsite. The utility trenches found are shown on Figure 4. The results of the survey revealed the presence of PG&E trench along the southeast edge of the site parallel to Paseo Grande. The depth of the trench could not be determined. Additional trenches containing water and gas lines are located across the street from the site on Paseo Larga Vista. One PG&E utility vault was located approximately 200 feet south of the site on Paseo Grande. A photo-ionization detector (PID) was used to screen the vault for volatile organic vapors. Upon opening the vault, PID readings indicated 89 parts per million (ppm).

Passive Soil Gas Survey Results

A passive soil vapor survey was conducted at the site between July 13 and July 27, 1999. The survey results are included in the Gore-Sorber Screening Survey Final Report which is attached. The survey consisted of the placement of 13 Gore-SorberSM Screening modules in 12 shallow bore holes along the edge of the roadway on Larga Vista, Paseo Grande and Via Del Sol. All of the sample locations were placed down- or cross-gradient from the site. One location contained a duplicate module. Prior to placing the modules a work plan was submitted to Alameda County for approval and an encroachment permit was obtained from Alameda County.

The modules are a proprietary design by W.L. Gore & Associates Inc. which are intended to detect specific vapor analytes in soil and dissolved groundwater plumes. The module consists of three 40 millimeter long by

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3 millimeter diameter sorber units encased in a Gore-Tex sleeve. The sorber unit consists of a granular adsorbent material appropriate for the intended analytes. For this investigation, we requested that total petroleum hydrocarbons in the range of gasoline (TPHg), and benzene, toluene, ethyl-benzene, and xylenes be analyzed.

The modules were installed following the W.L. Gore recommended field protocol. The modules were set in a 3/4 to 1 inch diameter boring at a depth of 3 feet which were drilled using a hand held rotary hammer drill. Modules were inserted into the completed boreholes using a stainless steel insertion rod. The top of each retrieval cord was then fastened to a cork, which was tamped flush with the ground surface to assist in the retrieval of the module, and to seal the boring. The modules were left in the ground for 2 weeks from the time of installation. The Gore-SorberSM locations are shown in Figure 4.

Retrieval consisted of removing the cork, grasping the retrieval cord and manually pulling the module from each location. The modules were then returned to their designated shipping containers and shipped via overnight delivery to the W.L. Gore laboratory. In addition to the exposed modules, trip blanks and temperature control blanks accompanied the modules to the laboratory. Chain of custody procedures were followed at all times. Once the modules had been removed from the borings, the borings were backfilled with neat cement grout and resurfaced to match the existing surface cover.

Laboratory analysis was performed by W.L. Gores' laboratory in Elkton, Maryland. The analytical methods used include thermal desorption followed gas chromatography and mass spectroscopy. Details of the analytical methods used are provided in the W.L. Gore report. The analytical results are reported in qualitative units for each specific analyte.

The results of the W.L. Gore laboratory analytical data were used to prepare four soil vapor concentration contour maps included in the report. The data indicate several areas with elevated concentrations exist to the west and southwest of the site. The contour maps show two apparent bands of elevated soil vapor concentrations, however, the exact trend of these bands is likely to be different from that shown on the maps due the strong influenced of the sample grid on the shape of the contours. Regardless, the data suggest that gasoline range petroleum hydrocarbons including BTEX are present in the subsurface beneath the residential area to the west of the site. The data also suggests that the source of the impacts may be from an offsite source as shown by the relative low concentrations of gasoline range petroleum hydrocarbons (GRPH) and benzene detected in the modules located directly down-gradient from the site.

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PROPOSED ADDITIONAL INVESTIGATION

Based on the findings of the Gore-Sorber screening survey and the request by the ACHCSA, SECOR recommends installing three off-site groundwater monitoring wells. The objective of the additional wells is to gather information regarding the lateral extent of the impacts associated with the site in order to assess potential cleanup objectives to close the site. The proposed locations are shown in Figure 5. A Work Plan for the additional investigation is attached.

The next quarterly monitoring and sampling event is scheduled for December 1999. At the request of the ACHCSA, groundwater samples will be analyzed for dissolved lead as well as TPHg and BTEX. In addition, the Work Plan for Additional Groundwater Monitor Well Installation will be implemented, following ACHCSA approval, during the next quarter. The newly installed wells will be sampled during the regularly scheduled quarterly event. The results of the Work Plan implementation will be incorporated into a quarterly report. If you have any questions or require more information, please call us at (925) 686-9780.

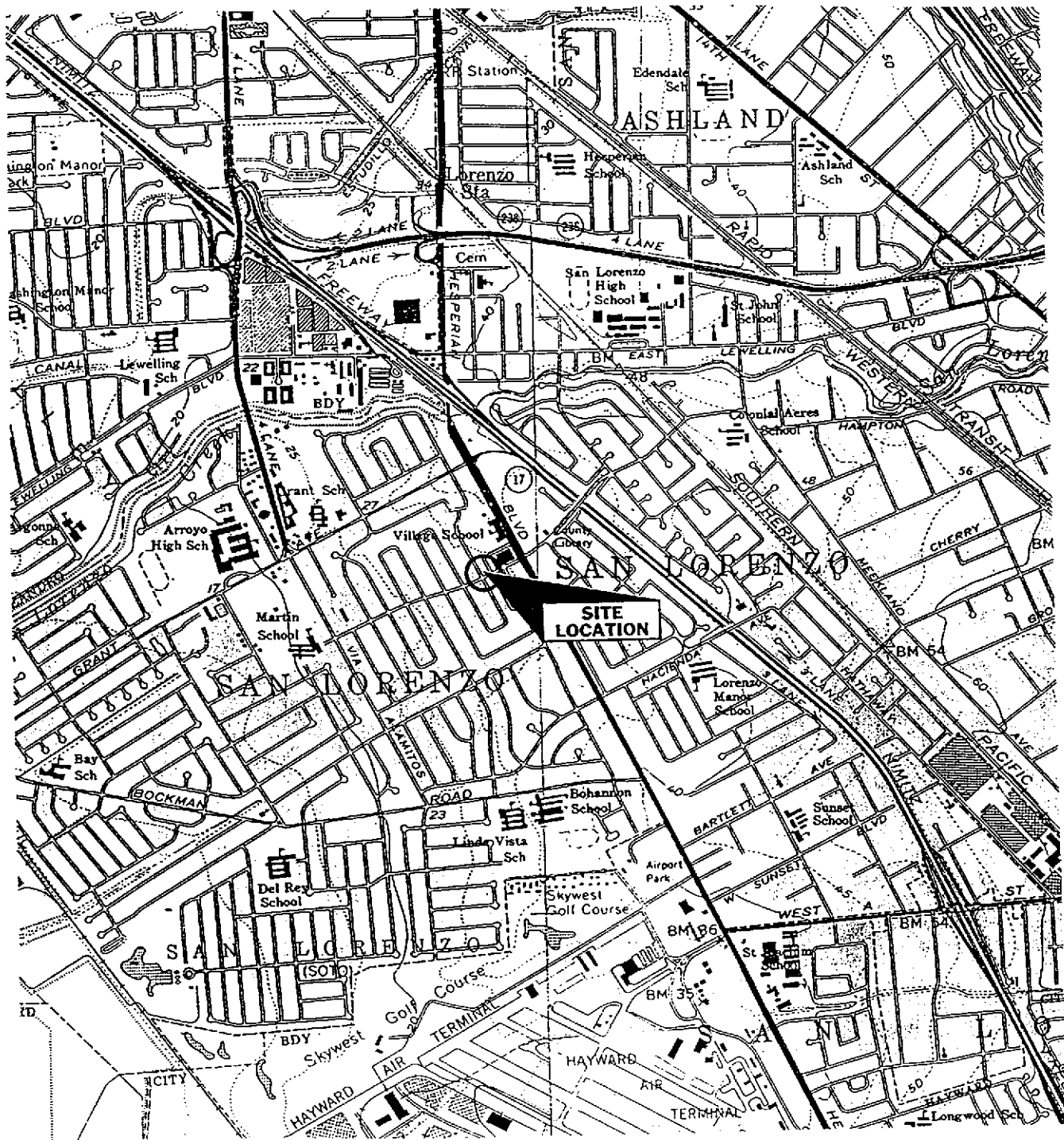
Sincerely,
SECOR International Incorporated

Robert Robitaille
Project Geologist

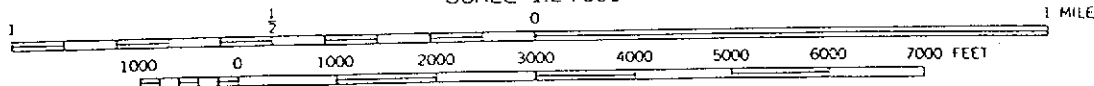
Thomas W. Crosby, C.Hg. # 257
Principal Hydrogeologist

Attachments: Figure 1 - Site Location Map
Figure 2 - Site Plan
Figure 3 - Potentiometric Surface Map - September 13, 1999
Figure 4 - Proposed Groundwater Monitoring Well Location Map
Table 1 - Groundwater Elevation Data
Table 2 - Groundwater Analytical Results - TPHg and BTEX
Field Data Sheets
Laboratory Analytical Reports - Groundwater
GORE-SORBER[®] Screening Survey Final Report
Work Plan for Additional Groundwater Monitor Well Installation

SAN LEANDRO AND HAYWARD QUADRANGLE
 California
 7.5 Minute Series (Topographic)

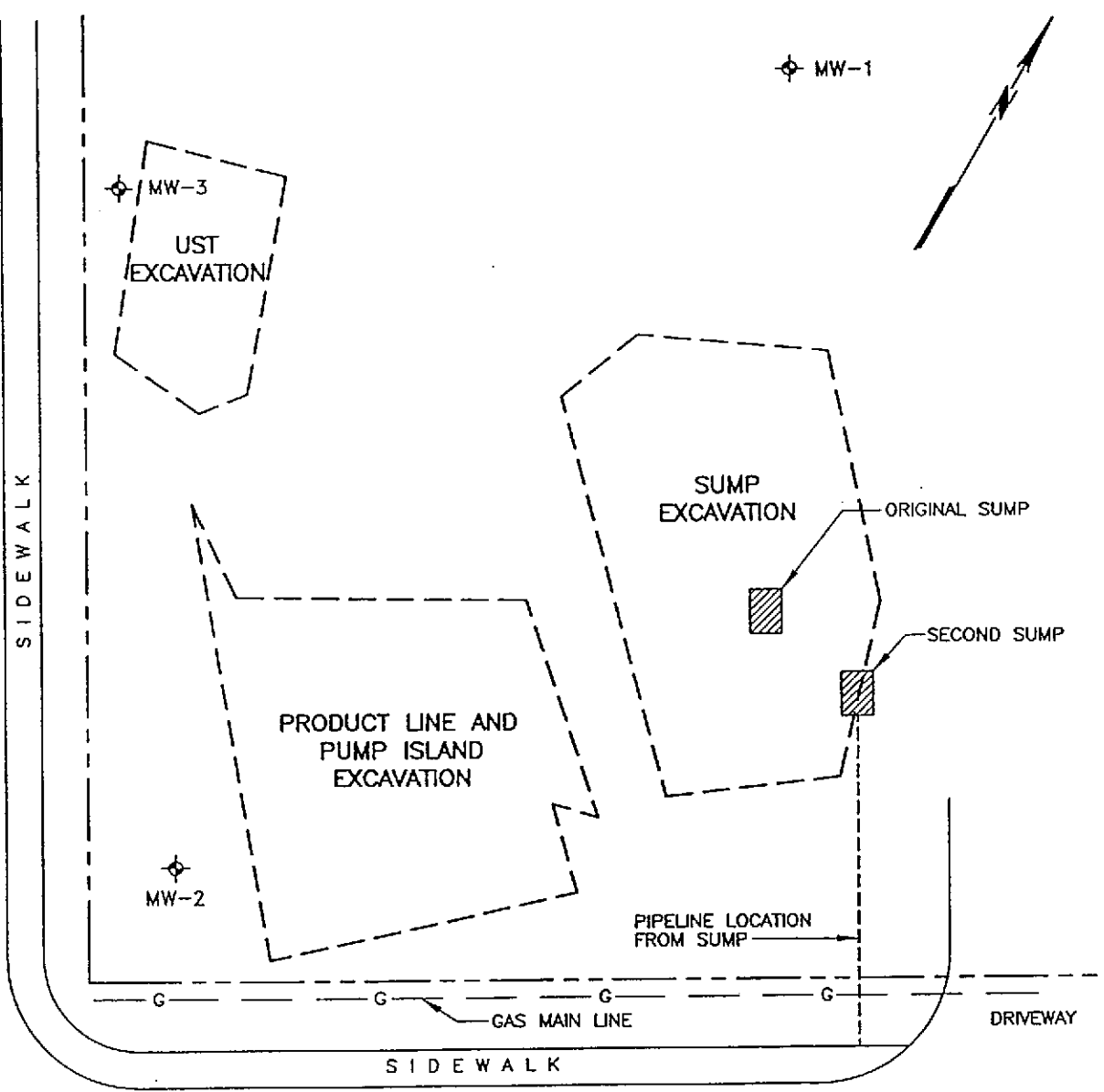


SCALE 1:24 000



DRAFTED BY: JLH	CHECKED BY: SM	PROJECT NO. 70074-001	FIGURE 1	SECOR 1390 Willow Pass Road Suite 360 Concord, CA 94520
DWG. DATE: 06-16-95	REV. DATE:			
FILE NAME: slorenz.f01				

PASEO LARGAVISTA



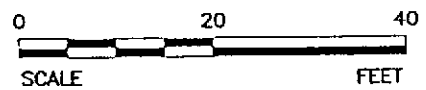
PASEO GRANDE

LEGEND:

⊕ MW-1 GROUNDWATER MONITORING WELL

--- LIMITS OF FORMER EXCAVATION

--- APPROXIMATE PROPERTY BOUNDARY



SOURCE: NOLTE AND ASSOCIATES, INC., DATED 1996.

189704_280928 X:1\JOBS\186\BOHANNON\SNLORENZ\SITEPLAN

SECOR
INTERNATIONAL
INCORPORATED

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FIGURE 2
DAVID D. BOHANNON ORGANIZATION
575 PASEO GRANDE
SAN LORENZO, CALIFORNIA

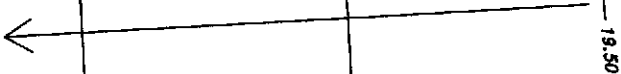
SITE PLAN

PASEO LARGAVISTA

SIDEWALK

MW-3
(19.27)

MW-1
(19.55)



19.50

19.40

MW-2
(19.27)

19.30

G G G G

GAS MAIN LINE

DRIVEWAY

SIDEWALK

PASEO GRANDE

LEGEND:

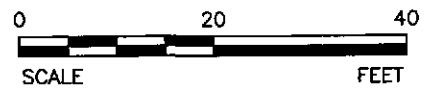
⊕ MW-1 GROUNDWATER MONITORING WELL

— GROUNDWATER ELEVATION CONTOUR (SEPTEMBER 13, 1999)
(FEET ABOVE MEAN SEA LEVEL)

(20.12) GROUNDWATER ELEVATION (SEPTEMBER 13, 1999)
(FEET ABOVE MEAN SEA LEVEL)

← APPROXIMATE GROUNDWATER FLOW DIRECTION

- - - APPROXIMATE PROPERTY BOUNDARY



SOURCE: NOLTE AND ASSOCIATES, INC., DATED 1996.

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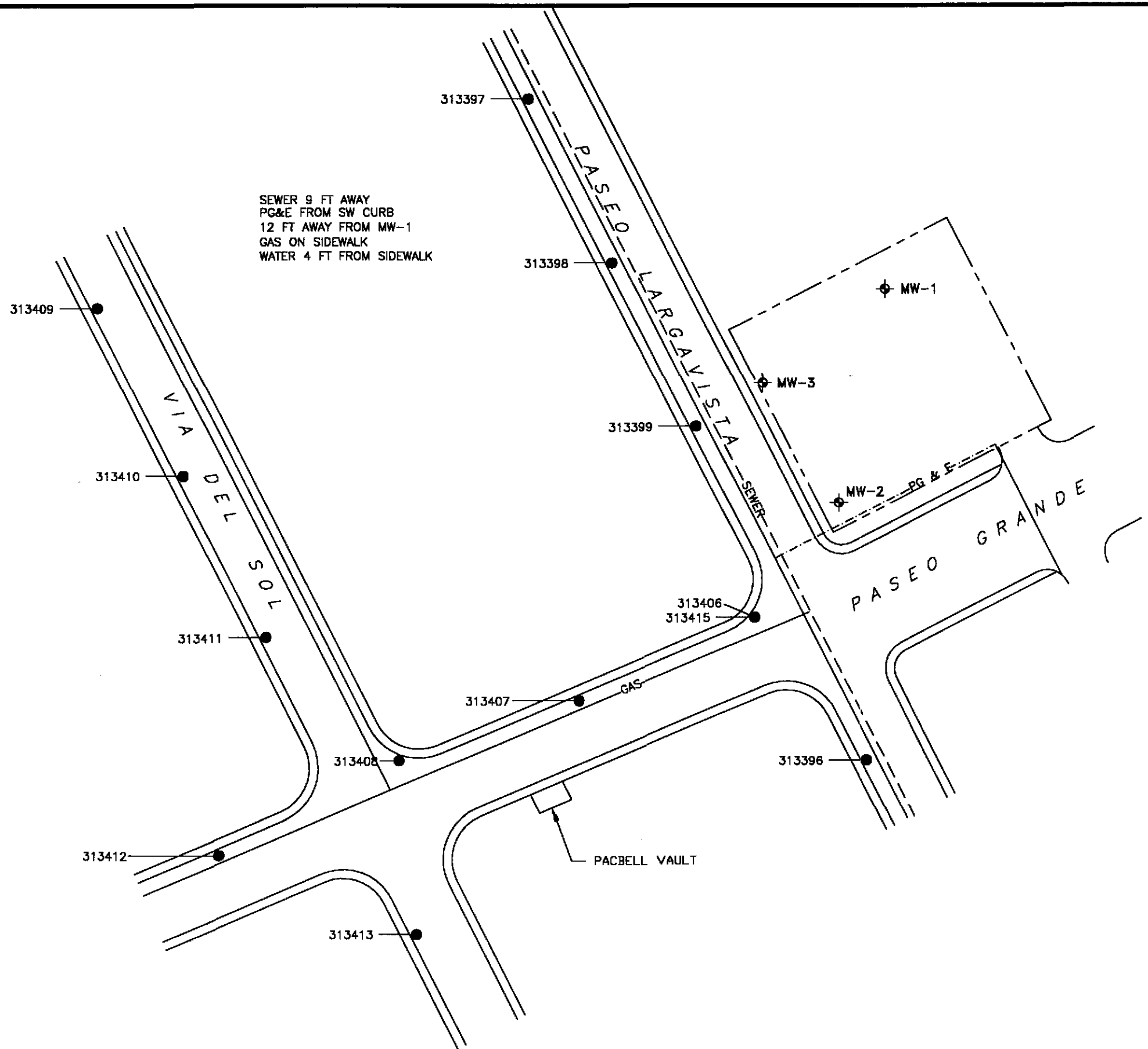
SECOR
International
Incorporated

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JOB NO.	007.03814.001

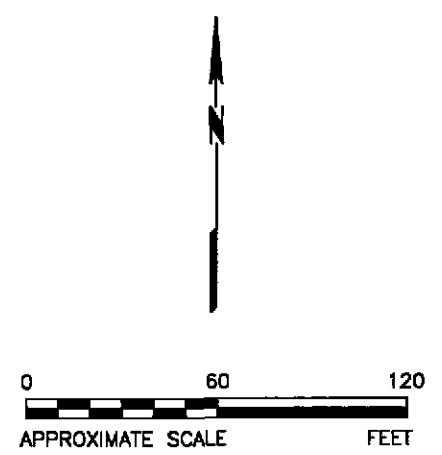
FIGURE 3
DAVID D. BOHANNON ORGANIZATION
575 PASEO GRANDE
SAN LORENZO, CALIFORNIA
POTENTIOMETRIC SURFACE MAP
SEPTEMBER 13, 1999

LEGEND:

- GORE-SORBER LOCATION
- ⊕ MW-1 EXISTING WELL LOCATION
- - - - - APPROXIMATE PROPERTY BOUNDARY



SEWER 9 FT AWAY
PG&E FROM SW CURB
12 FT AWAY FROM MW-1
GAS ON SIDEWALK
WATER 4 FT FROM SIDEWALK



REFERENCE: THIS FIGURE IS TAKEN FROM NOLTE AND ASSOCIATES, INC. AND IS INTENDED FOR ILLUSTRATION ONLY.

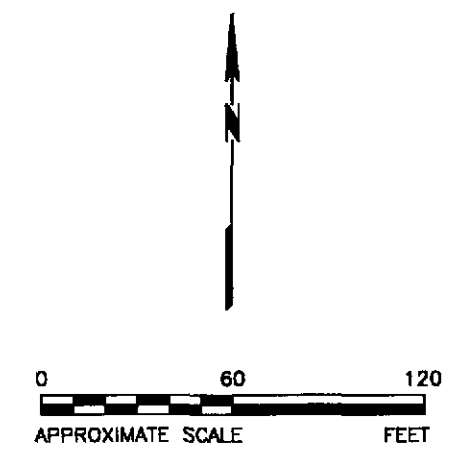
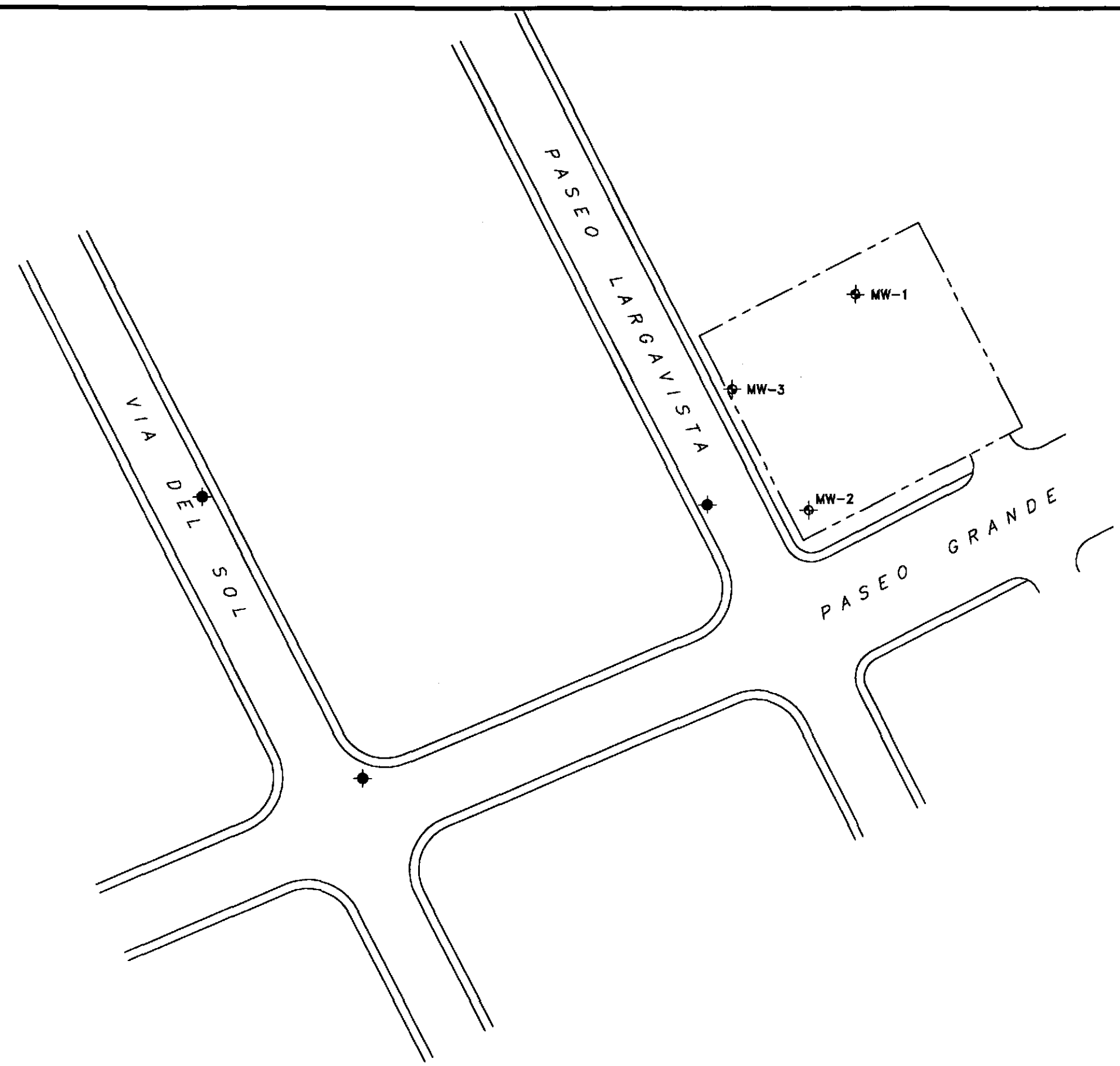
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APPR	NH/GH
DATE	20AUG99
JOB NO.	007.03814.001

FIGURE 4
DAVID D. BOHANNON ORGANIZATION
575 PASEO GRANDE
SAN LORENZO, CALIFORNIA
**UTILITY TRENCH & GORE-SORBER
LOCATION MAP**

LEGEND:

- ◆ PROPOSED GROUNDWATER MONITORING WELL LOCATION
- ⊕ MW-1 EXISTING WELL LOCATION
- APPROXIMATE PROPERTY BOUNDARY



REFERENCE: THIS FIGURE IS TAKEN FROM NOLTE AND ASSOCIATES, INC. AND IS INTENDED FOR ILLUSTRATION ONLY.

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DATE	20AUG99
JOB NO.	007.03814.001

FIGURE 5
DAVID D. BOHANNON ORGANIZATION
575 PASEO GRANDE
SAN LORENZO, CALIFORNIA
**PROPOSED GROUNDWATER MONITORING
WELL LOCATION MAP**

Table 1
Groundwater Elevation Data
575 Paseo Grande
San Lorenzo, California

Date	MW-1			MW-2			MW-3			FLOW DIRECTION
	TOC (ft msl)	DTW (ft bTOC)	ELEV (ft msl)	TOC (ft msl)	DTW (ft bTOC)	ELEV (ft msl)	TOC (ft msl)	DTW (ft bTOC)	ELEV (ft msl)	
17-May-96	27.11	5.65	21.46	26.73	5.56	21.17	26.15	4.39	21.76	southeast
8-Oct-96		7.47	19.64		7.15	19.58		6.82	19.33	west
1-Apr-97		6.27	20.84		6.61	20.12		5.53	20.62	south
12-Jun-97		6.90	20.21		6.76	19.97		6.18	19.97	southwest
10-Sep-97		7.48	19.63		7.19	19.54		6.81	19.34	west
8-Jun-99		6.44	20.67		6.45	20.28		5.74	20.41	southwest
13-Sep-99		7.56	19.55		7.46	19.27		6.88	19.27	southwest

Notes:

- TOC = Top of well casing
- DTW = Depth to Water
- ELEV = Water table elevation above MSL
- ft msl = Feet above mean sea level
- ft bTOC = Feet below top of casing

Table 2
Groundwater Analytical Results
575 Paseo Grande
San Lorenzo, California

	TPHg (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	MTBE (ug/L)	Chromium (ug/L)	Lead (ug/L)
MW-1								
17-May-96	1100	ND (<0.5)	8.7	7.4	17	NA	ND (<10)	ND (<50)
8-Oct-96	120	ND (<0.5)	ND (<0.5)	2.7	ND (<0.5)	NA	NA	NA
1-Apr-97	550	ND (<0.5)	ND (<0.5)	7.6	6.6	NA	NA	NA
12-Jun-97	160	ND (<0.5)	ND (<0.5)	2.9	1.7	NA	NA	NA
10-Sep-97	640	2.2 ^P	3.8 ^P	7.4 ^P	16 ^P	NA	NA	NA
8-Jun-99	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<10)	ND (<10)	ND (<20)
13-Sep-99	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	NA
MW-2								
17-May-96	23000	900	330	650	1500	NA	ND (<10)	ND (<50)
8-Oct-96	8400	530	ND (<50)	400	360	NA	NA	NA
1-Apr-97	7600	470	64	210	250	NA	NA	NA
12-Jun-97	8200	440	52	190	190	NA	NA	NA
10-Sep-97	8500	390	51 ^P	220	240	NA	NA	NA
8-Jun-99	2100	240	8	33	40	ND (<10)	ND (<10)	33
13-Sep-99	1300	120	ND (<5.0)	ND (<5.0)	15	NA	NA	NA
MW-3								
17-May-96	6700	140	45	210	180	NA	ND (<10)	ND (<50)
8-Oct-96	1800	2700	240	910	970	NA	NA	NA
1-Apr-97	27000	520	50	520	450	NA	NA	NA
12-Jun-97	29000	2700	160	940	500	NA	NA	NA
10-Sep-97	290000	1800	3200	2800 ^P	6900 ^P	NA	NA	NA
8-Jun-99	1700	320	6.4	15	ND (<0.5)	ND (<10)	ND (<10)	24
13-Sep-99	5400	1000	ND (<20)	ND (<20)	ND (<20)	NA	NA	NA

Notes:

TPHg = Total petroleum hydrocarbons quantified as gasoline

ug/L = Micrograms per liter

ND = Below laboratory detection limits (detection limit indicated in parentheses)

^P The laboratory noted that there was a greater than 25% difference in results between the two GC columns.

NA = Not analyzed

DATE: 9-13-99 PROJECT: Bohannon PROJECT # 007.03814.002

EVENT: _____ SAMPLER: C. Melancon

WELL OR LOCATION	TIME	MEASUREMENT					COMMENTS
		TOC	DTW	DTP	PT	ELEV	
MW-1			7.56				
MW-2			7.46				
MW-3			6.88				

CODES: TOC - TOP OF CASING (FEET, RELATIVE TO MEAN SEA LEVEL)
DTW - DEPTH TO WATER (FEET)
DTP - DEPTH TO PRODUCT (FEET)
PT - PRODUCT THICKNESS (FEET)
ELEV - GROUNDWATER ELEVATION (FEET, RELATIVE TO MEAN SEA LEVEL)

SECOR International Incorporated
WATER SAMPLE FIELD DATA SHEET

Project #: 007.03814.002 Purged By: CM Well I.D.: MW-1
 Client Name: Bohannon Sampled By: CM Sample I.D.: MW-1
 Location: 575 Paseo Grande, San Lorenzo QA Samples:

Date Purged 9-13-99 Start (2400hr) End (2400hr)
 Date Sampled 9-13-99 Sample Time (2400hr) 14:45
 Sample Type: Groundwater Other

Casing Diameter 2" 3" 4" 5" 6" 8" Other

Depth to Bottom (feet) = Purge (gal) =
 Depth to Water (feet) = 7.56 Purge Rate (gal or liter/min)

FIELD MEASUREMENTS

Date	Time (2400hr)	Volume (gal)	Temp. (degrees C)	Conductivity (μ mhos/cm)	pH (units)	Color (visual)	Turbidity (NTU)	D.O. (mg/l)	Depth (ft)
9-13	14:27	0.2	23.29	1367	7.04	cloudy	mod.	2.30	7.69
	14:30	0.4	23.43	1342	6.97	"	"	1.79	
	14:32	0.5	23.49	1332	6.95	"	"	1.91	
	14:35	0.7	23.75	1333	6.99	clear	low	1.61	
	14:38	0.9	23.71	1334	7.00	"	"	1.47	
	14:40	1.0	23.76	1333	6.98	"	"	1.43	
	14:42	1.1	23.77	1334	6.97	"	"	1.44	7.71

SAMPLE INFORMATION

Sample Depth to Water: Sample Turbidity: low
 Analyses: TPH_g/BTEX/MTBE
 Odor: none Sample Vessel/Preservative: 4 HCL VOAGS

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
<input type="checkbox"/> Bladder Pump	<input type="checkbox"/> Bailer (Teflon)	<input type="checkbox"/> Bladder Pump	<input type="checkbox"/> Bailer (Teflon)
<input type="checkbox"/> Centrifugal Pump	<input type="checkbox"/> Bailer (PVC)	<input type="checkbox"/> Centrifugal Pump	<input type="checkbox"/> Bailer (PVC or disposable)
<input type="checkbox"/> Submersible Pump	<input type="checkbox"/> Bailer (Stainless Steel)	<input type="checkbox"/> Submersible Pump	<input type="checkbox"/> Bailer (Stainless Steel)
<input checked="" type="checkbox"/> Peristaltic Pump	<input checked="" type="checkbox"/> Dedicated <u>tube</u>	<input checked="" type="checkbox"/> Peristaltic Pump	<input checked="" type="checkbox"/> Dedicated <u>tube</u>
Other: <u> </u>		Other: <u> </u>	

Pump Depth: Well Integrity: good Lock #:

Remarks:
 NOTE: Sample after three consecutive readings are within:
 pH - ± 0.1 , turbidity and DO = $\pm 10\%$, conductivity = $\pm 3\%$.

Signature: [Signature] Page of

**SECOR International Incorporated
WATER SAMPLE FIELD DATA SHEET**

Project #: 007.03814.002 Purged By: CM Well I.D.: MW-2
 Client Name: Bohannon Sampled By: CM Sample I.D.: MW-2
 Location: 575 Paseo Grande, San Lorenzo QA Samples:

Date Purged 9-13-99 Start (2400hr) End (2400hr)
 Date Sampled 9-13-99 Sample Time (2400hr) 15:20
 Sample Type: Groundwater Other

Casing Diameter 2" 3" 4" 5" 6" 8" Other

Depth to Bottom (feet) = Purge (gal) =
 Depth to Water (feet) = 7.46 Purge Rate (gal or liter/min)

FIELD MEASUREMENTS

Date	Time (2400hr)	Volume (gal)	Temp. (degrees C)	Conductivity (μ mhos/cm)	pH (units)	Color (visual)	Turbidity (NTU)	D.O. (mg/l)	Depth (ft)
<u>9-13</u>	<u>15:05</u>	<u>0.1</u>	<u>23.97</u>	<u>1590</u>	<u>6.73</u>	<u>Clear</u>	<u>low</u>	<u>1.68</u>	<u>7.49</u>
	<u>15:07</u>	<u>0.2</u>	<u>23.79</u>	<u>1581</u>	<u>6.72</u>	<u>"</u>	<u>"</u>	<u>1.45</u>	<u> </u>
	<u>15:10</u>	<u>0.3</u>	<u>23.81</u>	<u>1571</u>	<u>6.71</u>	<u>"</u>	<u>"</u>	<u>1.33</u>	<u> </u>
	<u>15:12</u>	<u>0.4</u>	<u>23.82</u>	<u>1565</u>	<u>6.71</u>	<u>"</u>	<u>"</u>	<u>1.23</u>	<u> </u>
	<u>15:15</u>	<u>0.5</u>	<u>23.83</u>	<u>1561</u>	<u>6.71</u>	<u>"</u>	<u>"</u>	<u>1.24</u>	<u> </u>
<u>✓</u>	<u>15:17</u>	<u>0.6</u>	<u>23.83</u>	<u>1562</u>	<u>6.71</u>	<u>"</u>	<u>"</u>	<u>1.25</u>	<u>7.53</u>

SAMPLE INFORMATION

Sample Depth to Water: Sample Turbidity: low

Odor: mod H₂S odor Analyses: TPH_g/BTEX/MTBE
 Sample Vessel/Preservative: 4 ALL VOQS

PURGING EQUIPMENT

Bladder Pump Bailer (Teflon)
 Centrifugal Pump Bailer (PVC)
 Submersible Pump Bailer (Stainless Steel)
 Peristaltic Pump Dedicated tube
 Other:
 Pump Depth:

SAMPLING EQUIPMENT

Bladder Pump Bailer (Teflon)
 Centrifugal Pump Bailer (PVC or disposable)
 Submersible Pump Bailer (Stainless Steel)
 Peristaltic Pump Dedicated tube
 Other:

Well Integrity: good Lock #:

Remarks:

NOTE: Sample after three consecutive readings are within:
 pH - ± 0.1 , turbidity and DO = $\pm 10\%$, conductivity = $\pm 3\%$.

Signature:  Page of

**SECOR International Incorporated
WATER SAMPLE FIELD DATA SHEET**

Project #: 007.03814.002 Purged By: CM Well I.D.: MW-3
 Client Name: Bohannon Sampled By: CM Sample I.D.: MW-3
 Location: 575 Paseo Grande, San Lorenzo QA Samples: —

Date Purged 9-13-99 Start (2400hr) 15:43 End (2400hr) 15:58
 Date Sampled 9-13-99 Sample Time (2400hr) 16:00
 Sample Type: Groundwater Other

Casing Diameter 2" 3" _____ 4" _____ 5" _____ 6" _____ 8" _____ Other _____

Depth to Bottom (feet) = _____ Purge (gal) = _____
 Depth to Water (feet) = 6.88 Purge Rate (gal or liter/min) _____

FIELD MEASUREMENTS

Date	Time (2400hr)	Volume (gal)	Temp. (degrees C)	Conductivity (μ mhos/cm)	pH (units)	Color (visual)	Turbidity (NTU)	D.O. (mg/l)	Depth (ft)
9-13	15:45	0.1	23.36	1271	6.85	C/par	low	1.56	6.91
	15:47	0.2	23.45	1317	6.87	"	"	1.41	
	15:50	0.3	23.54	1320	6.82	"	"	0.91	
	15:52	0.4	23.61	1392	6.81	"	"	0.95	
	15:55	0.5	23.70	1391	6.82	"	"	0.96	
V	15:58	0.6	23.72	1394	6.81	"	"	0.96	6.93

SAMPLE INFORMATION

Sample Depth to Water: _____ Sample Turbidity: low

Odor: mod. Analyses: TPH_g/BTEX/MTBE
 Sample Vessel/Preservative: 4 ALL VOQS

PURGING EQUIPMENT

Bladder Pump Bailer (Teflon)
 Centrifugal Pump Bailer (PVC)
 Submersible Pump Bailer (Stainless Steel)
 Peristaltic Pump Dedicated tube
 Other: _____
 Pump Depth: _____

SAMPLING EQUIPMENT

Bladder Pump Bailer (Teflon)
 Centrifugal Pump Bailer (PVC or disposable)
 Submersible Pump Bailer (Stainless Steel)
 Peristaltic Pump Dedicated tube
 Other: _____

Well Integrity: good Lock #: _____

Remarks: _____

NOTE: Sample after three consecutive readings are within:
 pH - ± 0.1 , turbidity and DO = $\pm 10\%$, conductivity = $\pm 3\%$

Signature: [Signature] Page _____ of _____

SECOR Chain-of Custody Record

Field Office: Concord
 Address: 1390 Willow Pass Rd, Ste. 360
Concord, CA 94520

Additional documents are attached, and are a part of this Record.
 Job Name: Bobannon
 Location: 575 Laspo Grande
San Lorenzo, CA

Project # 007.03814.002 Task # _____
 Project Manager Bob Kobutaite
 Laboratory Sequoia
 Turnaround Time Standard

Analysis Request

Sampler's Name Charles Meluncon
 Sampler's Signature [Signature]

Sample ID	Date	Time	Matrix	HCID	TPHg/BTEX/WTPH-G 8015 (modified)	TPHd/WTPH-D 8015 (modified)	TPH 418.1/WTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	Comments/ Instructions	Number of Containers
MW-1	9-13-99	14:45	Water		X												4
MW-2	↓	15:20	↓		X												4
MW-3	↓	16:00	↓		X												4

Special Instructions/Comments:

Relinquished by: [Signature]
 Sign _____
 Print Charles Meluncon
 Company SECOR
 Time 9:55 Date 9-15-99

Relinquished by: _____
 Sign _____
 Print _____
 Company _____
 Time _____ Date _____

Received by: _____
 Sign _____
 Print _____
 Company _____
 Time _____ Date _____

Received by: _____
 Sign RONALD JENSEN
 Print R. JENSEN
 Company SEQUOIA-WC
 Time 09:55 Date 9/15/99

Sample Receipt

Total no. of containers: _____
 Chain of custody seals: _____
 Rec'd. in good condition/cold: _____
 Conforms to record: _____

Client: _____
 Client Contact: _____
 Client Phone: _____

LABORATORY ANALYTICAL REPORTS



Sequoia Analytical

680 Chesapeake Drive
404 N. Wiget Lane
819 Striker Avenue, Suite 8
1455 McDowell Blvd. North, Ste. D
1551 Industrial Road

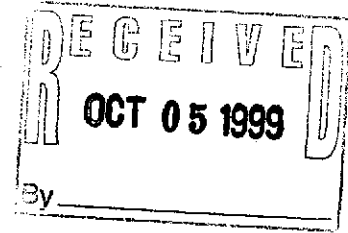
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FAX (650) 232-9612

28 September, 1999

Bob Robitaille
Secor - Concord
1390 Willow Pass Rd., Ste 360
Concord, CA 94520



RE: Bohannon - San Lorenzo

Enclosed are the results of analyses for samples received by the laboratory on 15-Sep-99 09:55. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Dimple Sharma
Project Manager





Sequoia Analytical

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FAX (650) 232-9612

Secor - Concord
1390 Willow Pass Rd., Ste 360
Concord CA, 94520

Project: Bohannon - San Lorenzo
Project Number: Bohannon - San Lorenzo
Project Manager: Bob Robitaille

Reported:
28-Sep-99 14:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	W909284-01	Water	13-Sep-99 14:45	15-Sep-99 09:55
MW-2	W909284-02	Water	13-Sep-99 15:20	15-Sep-99 09:55
MW-3	W909284-03	Water	13-Sep-99 16:00	15-Sep-99 09:55

Sequoia Analytical - Walnut Creek

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dimple Sharma, Project Manager





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Secor - Concord
1390 Willow Pass Rd., Ste 360
Concord CA, 94520

Project: Bohannon - San Lorenzo
Project Number: Bohannon - San Lorenzo
Project Manager: Bob Robitaille


Reported:
28-Sep-99 14:50

Total Purgeable Hydrocarbons (C6-C12) and BTEX by DHS LUFT Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (W909284-01) Water Sampled: 13-Sep-99 14:45 Received: 15-Sep-99 09:55									
Purgeable Hydrocarbons	ND	50	ug/l	1	9I15014	15-Sep-99	15-Sep-99	DHS LUFT	
Benzene	ND	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		103 %	70-130		"	"	"	"	
MW-2 (W909284-02) Water Sampled: 13-Sep-99 15:20 Received: 15-Sep-99 09:55 P-01									
Purgeable Hydrocarbons	1300	500	ug/l	10	9I15023	16-Sep-99	16-Sep-99	DHS LUFT	
Benzene	120	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
Xylenes (total)	15	5.0	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		103 %	70-130		"	"	"	"	
MW-3 (W909284-03) Water Sampled: 13-Sep-99 16:00 Received: 15-Sep-99 09:55 P-01									
Purgeable Hydrocarbons	5400	2000	ug/l	40	9I15023	16-Sep-99	16-Sep-99	DHS LUFT	
Benzene	1000	20	"	"	"	"	"	"	
Toluene	ND	20	"	"	"	"	"	"	
Ethylbenzene	ND	20	"	"	"	"	"	"	
Xylenes (total)	ND	20	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		103 %	70-130		"	"	"	"	

Sequoia Analytical - Walnut Creek

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Dimple Sharma, Project Manager





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FAX (650) 232-9612

Secor - Concord
1390 Willow Pass Rd., Ste 360
Concord CA, 94520

Project: Bohannon - San Lorenzo
Project Number: Bohannon - San Lorenzo
Project Manager: Bob Robitaille

Reported:
28-Sep-99 14:50

Total Purgeable Hydrocarbons (C6-C12) and BTEX by DHS LUFT - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 9I15014: Prepared 15-Sep-99 Using EPA 5030B [P/T]

Blank (9I15014-BLK1)

Purgeable Hydrocarbons	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Surrogate: <i>a,a,a</i> -Trifluorotoluene	28.5		"	30.0		95.0	70-130			

LCS (9I15014-BS1)

Benzene	20.9	0.50	ug/l	20.0		104	70-130			
Toluene	17.3	0.50	"	20.0		86.5	70-130			
Ethylbenzene	18.3	0.50	"	20.0		91.5	70-130			
Xylenes (total)	63.4	0.50	"	60.0		106	70-130			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	25.3		"	30.0		84.3	70-130			

Matrix Spike (9I15014-MS1)

Source: W909224-01

Benzene	20.8	0.50	ug/l	20.0	ND	104	70-130			
Toluene	17.3	0.50	"	20.0	ND	86.5	70-130			
Ethylbenzene	18.1	0.50	"	20.0	ND	90.5	70-130			
Xylenes (total)	62.9	0.50	"	60.0	ND	105	70-130			
Surrogate: <i>a,a,a</i> -Trifluorotoluene	24.9		"	30.0		83.0	70-130			


Matrix Spike Dup (9I15014-MSD1)

Source: W909224-01

Benzene	21.9	0.50	ug/l	20.0	ND	109	70-130	5.15	20	
Toluene	18.1	0.50	"	20.0	ND	90.5	70-130	4.52	20	
Ethylbenzene	18.9	0.50	"	20.0	ND	94.5	70-130	4.32	20	
Xylenes (total)	64.8	0.50	"	60.0	ND	108	70-130	2.98	20	
Surrogate: <i>a,a,a</i> -Trifluorotoluene	25.5		"	30.0		85.0	70-130			

Sequoia Analytical - Walnut Creek

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Dimple Sharma, Project Manager





Sequoia Analytical

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Secor - Concord
1390 Willow Pass Rd., Ste 360
Concord CA, 94520

Project: Bohannon - San Lorenzo
Project Number: Bohannon - San Lorenzo
Project Manager: Bob Robitaille

Reported:
28-Sep-99 14:50

Total Purgeable Hydrocarbons (C6-C12) and BTEX by DHS LUFT - Quality Control Sequoia Analytical - Walnut Creek

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 9I15023: Prepared 16-Sep-99 Using EPA 5030B [P/T]

Blank (9I15023-BLK1)

Purgeable Hydrocarbons	ND	50	ug/l							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							

Surrogate: a,a,a-Trifluorotoluene 27.0 " 30.0 90.0 70-130

LCS (9I15023-BS1)

Benzene	20.1	0.50	ug/l	20.0		101	70-130			
Toluene	18.2	0.50	"	20.0		91.0	70-130			
Ethylbenzene	19.8	0.50	"	20.0		99.0	70-130			
Xylenes (total)	63.0	0.50	"	60.0		105	70-130			

Surrogate: a,a,a-Trifluorotoluene 27.9 " 30.0 93.0 70-130

Matrix Spike (9I15023-MS1)

Source: W909243-04

Benzene	19.3	0.50	ug/l	20.0	ND	96.5	70-130			
Toluene	17.6	0.50	"	20.0	ND	88.0	70-130			
Ethylbenzene	18.5	0.50	"	20.0	ND	92.5	70-130			
Xylenes (total)	60.6	0.50	"	60.0	ND	101	70-130			

Surrogate: a,a,a-Trifluorotoluene 27.4 " 30.0 91.3 70-130

Matrix Spike Dup (9I15023-MSD1)

Source: W909243-04

Benzene	19.7	0.50	ug/l	20.0	ND	98.5	70-130	2.05	20	
Toluene	17.9	0.50	"	20.0	ND	89.5	70-130	1.69	20	
Ethylbenzene	19.4	0.50	"	20.0	ND	97.0	70-130	4.75	20	
Xylenes (total)	62.1	0.50	"	60.0	ND	103	70-130	2.44	20	

Surrogate: a,a,a-Trifluorotoluene 27.5 " 30.0 91.7 70-130

Sequoia Analytical - Walnut Creek

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Dimple Sharma, Project Manager





Sequoia Analytical

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FAX (650) 232-9612

Secor - Concord
1390 Willow Pass Rd., Ste 360
Concord CA, 94520

Project: Bohannon - San Lorenzo
Project Number: Bohannon - San Lorenzo
Project Manager: Bob Robitaille

Reported:
28-Sep-99 14:50

Notes and Definitions

P-01 Chromatogram Pattern: Gasoline C6-C12
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

Sequoia Analytical - Walnut Creek

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Dimple Sharma, Project Manager

Page 5 of 5



SECOR Chain-of Custody Record

W909284

Field Office: Concord
 Address: 1390 Willow Pass Rd, Ste. 360
Concord, CA 94520

 Additional documents are attached, and are a part of this Record.

Job Name: Bohannon
 Location: 575 Paseo Grande
San Lorenzo, CA

Project # 007.03814.002 Task # _____
 Project Manager Bob Kobataille
 Laboratory Sequoia
 Turnaround Time Standard

Analysis Request

Sampler's Name Charles Meluncon
 Sampler's Signature Charles Meluncon

Sample ID	Date	Time	Matrix	HCID	TPH _g /BTEX/WTPH-G 8015 (modified)/8020	TPH _g /WTPH-D 8015 (modified)	TPH 418.1/WTPH 418.1	Aromatic Volatiles 602/8020	Volatile Organics 624/8240 (GC/MS)	Halogenated Volatiles 601/8010	Semi-volatile Organics 625/8270 (GC/MS)	Pesticides/PCBs 608/8080	Total Lead 7421	Priority Pollutant Metals (13)	TCLP Metals	Comments/ Instructions	Number of Containers
MW-1	01A-D9-1399	14:45	Water		X												4
MW-2	02 ↓	↓	↓		X												4
MW-3	03 ↓	↓	↓		X												4

Special Instructions/Comments:

Relinquished by: _____
 Sign Charles Meluncon
 Print Charles Meluncon
 Company SECOR
 Time 9:55 Date 9-15-99

Relinquished by: _____
 Sign _____
 Print _____
 Company _____
 Time _____ Date _____

Received by: _____
 Sign _____
 Print _____
 Company _____
 Time _____ Date _____

Received by: _____
 Sign R. JENSEN
 Print R. JENSEN
 Company SEQUOIA-WC
 Time 09:55 Date 9/15/99

Sample Receipt

Total no. of containers: _____
 Chain of custody seals: _____
 Rec'd. in good condition/cold: _____
 Conforms to record: _____

Client: _____
 Client Contact: _____
 Client Phone: _____

GORE-SORBER SCREENING SURVEY FINAL REPORT



W. L. GORE & ASSOCIATES, INC.

100 CHESAPEAKE BLVD., P.O. BOX 10 • ELKTON, MARYLAND 21922-0010 • PHONE: 410/392-7600
FAX: 410/506-4780

GORE-SORBER® EXPLORATION SURVEY
GORE-SORBER® SCREENING SURVEY

1 of 6

GORE-SORBER® Screening Survey Final Report

**Bohannan Site
San Lorenzo, CA**

September 2, 1999

Gore Production Order No. 10154673

Prepared For:
SECOR Environmental Engineering
1390 Willow Pass Road, Suite 360
Concord, CA 94520-5250

W.L. Gore & Associates, Inc.

Written/Submitted by:
Jay W. Hodny, Ph.D., Project Manager

Reviewed/Approved by:
Ray F. Fenstermacher, P.G., Project Manager

Analytical Data Reviewed by:
Jim E. Whetzel, II, Chemist

I:\MAPPING\PROJECTS\10154673\990902R.DOC

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**GORE-SORBER® Screening Survey
Final Report**

REPORT DATE: September 2, 1999

AUTHOR: JWH

SITE INFORMATION

Site Reference: Bohannan Site, San Lorenzo, CA

Customer Purchase Order Number: 007-0233

Gore Production Order Number: 10154673

Gore Site Code: BCO

FIELD PROCEDURES

Modules shipped: 14

Installation Date(s): 07/13/1999

Modules Installed: 12

Field work performed by: SECOR Environmental Engineering

Retrieval date(s): 07/27/1999

Modules Retrieved: 12

Modules Lost in Field: 0

Exposure Time: 14 [days]

Trip Blanks Returned: 1

Unused Modules Returned: 1

Date/Time Received by Gore: 07/30/1999 @ 01:30 PM **By:** TC

Chain of Custody Form attached:

Chain of Custody discrepancies: None

Comments:

Module #313414 was identified as a trip blank.

Module #313415 was returned unused.

**GORE-SORBER® Screening Survey
Final Report**

ANALYTICAL PROCEDURES

W.L. Gore & Associates' Screening Module Laboratory operates under the guidelines of its Quality Assurance Manual, Operating Procedures and Methods. The quality assurance program is consistent with Good Laboratory Practices (GLP) and ISO Guide 25, "General Requirements for the Competence of Calibration and Testing Laboratories", third edition, 1990.

~~Instrumentation consists of state-of-the-art~~ gas chromatographs equipped with mass selective detectors, coupled with automated thermal desorption units. Sample preparation simply involves cutting the tip off the bottom of the sample module and transferring one or more exposed sorbent containers (sorbent, each containing 40mg of a suitable granular adsorbent) to a thermal desorption tube for analysis. Sorbent remain clean and protected from dirt, soil, and ground water by the insertion/retrieval cord, and require no further sample preparation.

Analytical Method Quality Assurance:

The analytical method employed is a modified EPA method 8260A/8270B. Before each run sequence, two instrument blanks, a sorbent containing 5µg BFB (Bromofluorobenzene), and a method blank are analyzed. The BFB mass spectra must meet the criteria set forth in the method before samples can be analyzed. A method blank and a sorbent containing BFB is also analyzed after every 30 samples and/or trip blanks. Standards containing the selected target compounds at three calibration levels of 5, 20, and 50µg are analyzed at the beginning of each run. The criterion for each target compound is less than 35% RSD (relative standard deviation). If this criterion is not met for any target compound, the analyst has the option of generating second- or third-order standard curves, as appropriate. A second-source reference standard, at a level of 10µg per target compound, is analyzed after every ten samples and/or trip blanks, and at the end of the run sequence. Positive identification of target compounds is determined by 1) the presence of the target ion and at least two secondary ions; 2) retention time versus reference standard; and, 3) the analyst's judgment.

NOTE: All data have been archived. Any replicate sorbent not used in the initial analysis will be discarded fifteen (15) days from the date of analysis.

Laboratory analysis: thermal desorption, gas chromatography, mass selective detection

Quality Assurance Level: 2 (ANA-4/A1)

Instrument ID: # 3

Chemist: JW

Data Subdirectory: 10154673

Compounds/mixtures requested: Gore Fuel Hydrocarbons (A2)

Deviations from Standard Method: None

Comments: Soil vapor analytes and abbreviations are tabulated in the Data Table Key (page 6).

**GORE-SORBER® Screening Survey
Final Report**

DATA TABULATION

CONTOUR MAPS ENCLOSED: Four B-sized color contour maps

LIST OF MAPS ENCLOSED:

- Benzene, Toluene, Ethyl benzene, and total Xylenes (BTEX)
- Undecane, Tridecane, and Pentadecane (C11, C13, & C15)
- Total Petroleum Hydrocarbons (TPH)
- Benzene

NOTE: All data values presented in Appendix A represent masses of compound(s) desorbed from the GORE-SORBER Screening Modules received and analyzed by W.L. Gore, as identified in the Chain of Custody (Appendix A). The measurement traceability and instrument performance are reproducible and accurate for the measurement process documented. Semi-quantitation of the compound mass is based on either a single-level (QA Level 1) or three-level (QA Level 2) standard calibration.

General Comments:

- This survey reports soil gas mass levels present in the vapor phase. Vapors are subject to a variety of attenuation factors during migration away from the source concentration to the module. Thus, mass levels reported from the module will often be less than concentrations reported in soil and groundwater matrix data. In most instances, the soil gas masses reported on the modules compare favorably with concentrations reported in the soil or groundwater (e.g., where soil gas levels are reported at greater levels relative to other sampled locations on the site, matrix data should reveal the same pattern, and vice versa). However, due to a variety of factors, a perfect comparison between matrix data and soil gas levels can rarely be achieved.
- Soil gas signals reported by this method cannot be identified to soil adsorbed, groundwater, and/or free-product contamination. The soil gas signal reported from each module can evolve from all of these sources. Differentiation between soil and groundwater contamination can only be achieved with prior knowledge of the site history (i.e., the site is known to have groundwater contamination only).
- Currently, soil gas surveys are not designed to replace soil or groundwater matrix sampling. Following a soil gas survey, matrix sampling is recommended in select areas to establish the nature of the contamination (i.e., soil, groundwater, or both), and the relationship to the soil gas levels.

**GORE-SORBER® Screening Survey
Final Report**

- QA/QC trip blank modules were provided to document contamination occurring that was not part of the soil gas signal of interest (i.e., impact during module shipment, installation and retrieval, and storage). The trip blanks are identically manufactured and packaged soil gas modules to those modules placed in the subsurface. However, the trip blanks remain unopened during all phases of the soil gas survey. Levels reported on the trip blanks may indicate potential impact to modules other than the contaminant source of interest.
- Unresolved peak envelopes (UPEs) are represented as a series of compound peaks clustered together around a central GC elution time in the total ion chromatogram. Typically, UPEs are indicative of complex fluid mixtures that are present in the subsurface. UPEs observed early in the chromatogram are considered to indicate the presence of more volatile fluids, while UPEs observed later in the chromatogram may indicate the presence of less volatile fluids. Multiple UPEs may indicate the presence of multiple complex fluids. Attenuation of the VOC/SVOC soil gas components may suggest the presence of a less volatile fluid, when in fact, a more volatile fluid existed but the volatile components have weathered away.

Project Specific Comments:

- The minimum (gray) contour level, for each mapped analyte or group of analytes, was set at the maximum blank level observed or the method detection limit, whichever was greater. The maximum contour level was set at the maximum value observed.
- Stacked total ion chromatograms (TICs) are included in Appendix A. The six digit serial number of each module is incorporated into the TIC identification (e.g.: 123456S.D represents module #123456).
- Nominal QA blank levels were reported for GRPH. In our experience, GRPH present in the blanks at these levels can be considered "background." Thus, target analyte levels, reported for the field-installed modules, that exceed trip and method blank levels, and the method detection limits, have a high probability of originating from on-site sources.
- The soil gas data were reported in low to moderately-low levels.
- The soil gas plumes were difficult to discern due to the linear transect sample grid layout. "Hot spots" were apparent at several sample locations.
- The soil gas plumes appear to extend into areas of the site that were not sampled for soil gas. If the objective of the soil gas survey was to delineate the nature and extent of the contamination, then additional soil gas sampling is recommended in those areas. Subsequent soil gas sampling events can be combined onto one set of maps providing increased resolution of the subsurface impact.

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**GORE-SORBER® Screening Survey
Final Report**

**KEY TO DATA TABLE
Bohannon Site, San Lorenzo, CA**

UNITS

µg	micrograms (per sorber), reported for compounds
MDL	method detection limit
bdl	below detection limit
nd	non-detect

ANALYTES

GRPH	gasoline-range petroleum hydrocarbons
DRPH	diesel-range petroleum hydrocarbons
BTEX	benzene, toluene, ethylbenzene and total xylenes combined
BENZ	benzene
TOL	toluene
EtBENZ	ethylbenzene
mpXYL	m-, p-xylene
oXYL	o-xylene
C11, C13, & C15	undecane, tridecane, and pentadecane combined (Diesel Range Alkanes)
UNDEC	undecane
TRIDEC	tridecane
PENTADEC	pentadecane
TMBs	1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene combined
135TMB	1,3,5-trimethylbenzene
124TMB	1,2,4-trimethylbenzene
NAPH&2-MN	naphthalene and 2-methyl naphthalene combined
NAPH	naphthalene
2MeNAPH	2-methyl naphthalene
MTBE	methyl t-butyl ether
OCT	octane

BLANKS

TBn	unexposed modules (trip blanks), documents ambient impact during field activities
method blank	QA/QC module, documents ambient impact during analysis

APPENDIX A:

1. CHAIN OF CUSTODY
2. DATA TABLE
3. STACKED TOTAL ION CHROMATOGRAMS
4. COLOR CONTOUR MAPS

GORE-SORBER® Screening Survey Chain of Custody

For W.L. Gore & Associates use only
Production Order # 10154673



W. L. Gore & Associates, Inc., Environmental Products Group
100 Chesapeake Boulevard • Elkton, Maryland 21921 • Tel: (410) 392-7600 • Fax (410) 506-4780

Instructions: Customer must complete ALL shaded cells

Customer Name: <u>SECOR ENVIRONMENTAL ENGINEERING</u>			Site Name: <u>BOHANNAN SITE</u>		
Address: <u>1390 WILLOW PASS ROAD, STE. 360</u> <u>CONCORD, CA 94520-5250</u>			Site Address: <u>SAN LORENZO, CA</u> <u>7</u>		
Phone: <u>(925) 686-9780</u>			Project Manager: <u>MR. ROBERT P. ROBITAILLE</u>		
FAX: <u>(925) 686-3099</u>			Customer Project No.: <u>70074-001-03 (05)</u>		
			Customer P.O. #: <u>007-0233</u> Quote #: <u>202105</u>		
Serial # of Modules Shipped			# of Modules for Installation <u>13</u> # of Trip Blanks <u>1</u>		
# 313396 - # 313399	#	- #	Total Modules Shipped: <u>14</u> Pieces		
# 313406 - # 313415	#	- #	Total Modules Received: <u>14</u> Pieces		
# - #	#	- #	Total Modules Installed: <u>13</u> Pieces		
# - #	#	- #	Serial # of Trip Blanks (Client Decides) # <u>313414</u>		
# - #	#	- #	#	#	#
GORE ANALYTICAL OPTION: <div style="text-align: center; font-size: 1.5em; border: 1px solid black; padding: 5px;">[A 2]</div>			#	#	#
			#	#	#
Installation Performed By: Name (please print): <u>Charles Melancon</u>			Installation Method(s) (circle those that apply): Slide Hammer Hammer Drill Auger		
Company/Affiliation: <u>SECOR</u>			Other: _____		
Installation Start Date and Time: <u>7-13-99</u> <u>7 13 1 99</u> <u>10:00</u> <u>AM</u> <u>PM</u>					
Installation Complete Date and Time: <u>7-13-99</u> <u>7 13 1 99</u> <u>13:40</u> <u>AM</u> <u>PM</u>					
Retrieval Performed By: Name (please print): <u>Charles Melancon</u>			Total Modules Retrieved: <u>13</u> Pieces		
Company/Affiliation: <u>SECOR</u>			Total Modules Lost in Field: <u>0</u> Pieces		
			Total Unused Modules Returned: <u>1 (Trip Blank)</u> Pieces		
Retrieval Start Date and Time: <u>7-27-99</u> <u>7 27 1 99</u> <u>10:00</u> <u>AM</u> <u>PM</u>					
Retrieval Complete Date and Time: <u>7-27-99</u> <u>7 27 1 99</u> <u>13:40</u> <u>AM</u> <u>PM</u>					
Relinquished By: <u>T. C. [Signature]</u>	Date: <u>6/30/99</u>	Time: <u>12:01</u>	Received By: <u>C. Melancon</u>	Date: _____	Time: _____
Affiliation: <u>W.L. Gore & Associates, Inc.</u>			Affiliation: <u>SECOR</u>		
Relinquished By: <u>C. Melancon</u>	Date: <u>7-29-99</u>	Time: <u>15:30</u>	Received By: _____	Date: _____	Time: _____
Affiliation: <u>SECOR</u>			Affiliation: _____		
Relinquished By: _____	Date: _____	Time: _____	Received By: <u>[Signature]</u>	Date: <u>7/30/99</u>	Time: <u>1:30</u>
Affiliation: _____			Affiliation: <u>W.L. Gore & Associates, Inc.</u>		

**GORE-SORBER® Screening Survey
Installation and Retrieval Log**

SITE NAME & LOCATION

Bohannon
San Lorenzo, California

Page 1 of 1

LINE #	MODULE #	INSTALLATION DATE/TIME	RETRIEVAL DATE/TIME	EVIDENCE OF LIQUID HYDROCARBONS (LPH) or HYDROCARBON ODOR (Check as appropriate)			MODULE IN WATER (check one)		COMMENTS
				LPH	ODOR	NONE	YES	NO	
1.	313396	7/13/99 10:00	7/27/99 10:00			X		X	
2.	313397	7/13/99 10:20	7/27/99 10:20			X		X	
3.	313398	7/13/99 10:40	7/27/99 10:40			X		X	
4.	313399	7/13/99 11:00	7/27/99 11:00			X		X	
5.	313406	7/13/99 11:20	7/27/99 11:20			X		X	
6.	313407	7/13/99 11:40	7/27/99 11:40			X		X	
7.	313408	7/13/99 12:00	7/27/99 12:00			X		X	
8.	313409	7/13/99 12:20	7/27/99 12:20			X		X	
9.	313410	7/13/99 12:40	7/27/99 12:40			X		X	
10.	313411	7/13/99 13:00	7/27/99 13:00			X		X	
11.	313412	7/13/99 13:20	7/27/99 13:20			X		X	
12.	313413	7/13/99 13:40	7/27/99 13:40			X		X	
13.	313414	7/13/99	7/27/99			X		X	
14.	313415	7/13/99	7/27/99			X		X	
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42.									

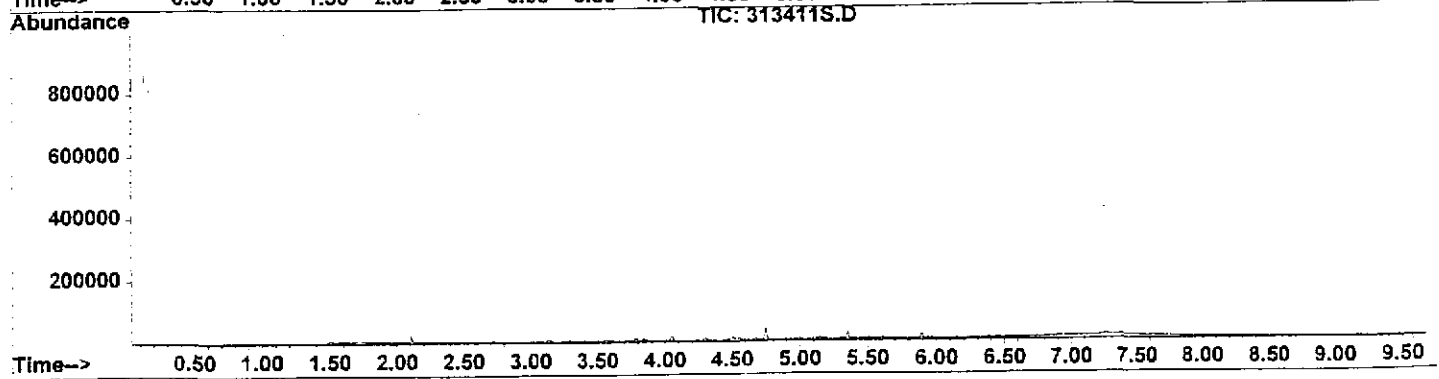
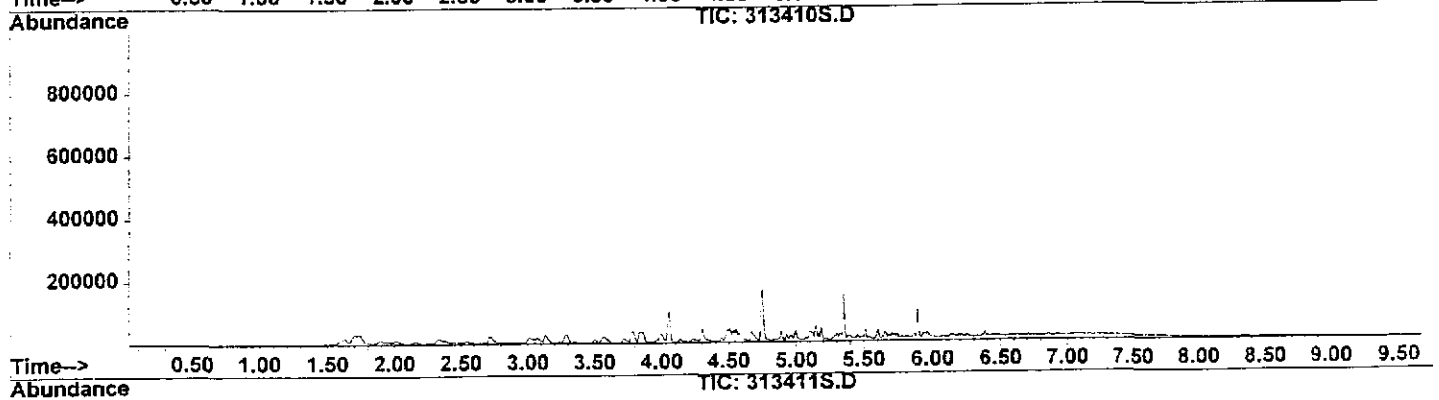
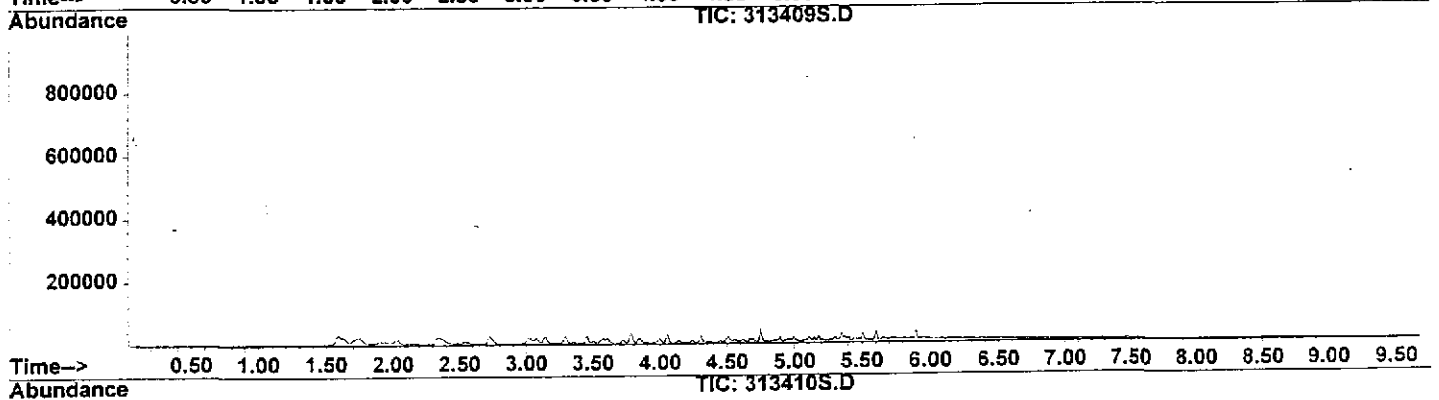
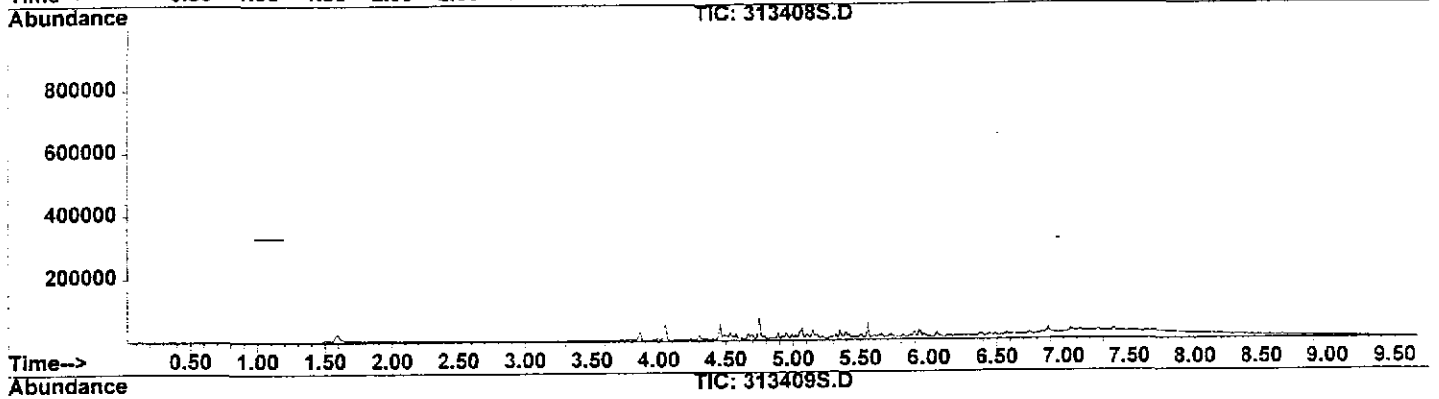
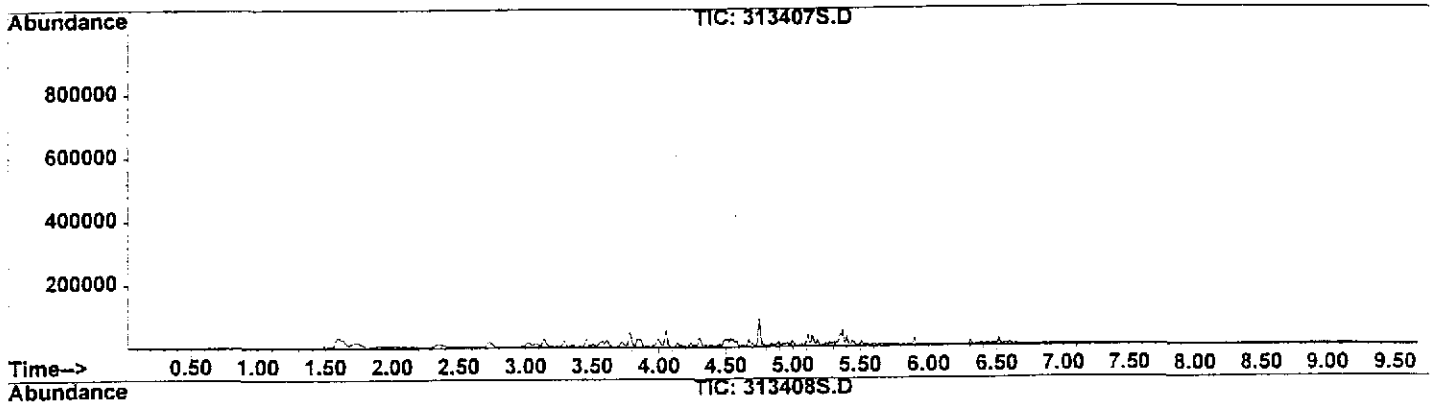
GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
SECOR ENVIRONMENTAL ENGINEERING, CONCORD, CA
GORE TARGET FUEL HYDROCARBONS (A2)
BOHANNON SITE, SAN LORENZO, CA
SITE BCO - PRODUCTION ORDER #10154673

DATE ANALYZED	SAMPLE NAME	GRPH, ug	DRPH, ug	BTEX, ug	BENZ, ug	TOL, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	C11, C13, &C15, ug	UNDEC, ug
	MDL=			0.02	0.06	0.03	0.02	0.04	0.04	0.05	0.06
08/03/99	313396	3.86	2.29	0.26	nd	nd	nd	0.17	0.09	0.15	0.15
08/03/99	313397	10.49	9.22	0.93	0.15	0.09	0.05	0.32	0.32	0.62	0.39
08/03/99	313398	12.22	3.93	0.88	0.26	0.08	0.06	0.23	0.25	0.27	0.27
08/03/99	313399	8.25	8.51	0.33	0.07	nd	nd	0.08	0.18	0.62	0.48
08/03/99	313406	3.30	2.47	0.68	nd	nd	0.04	0.27	0.37	0.09	0.09
08/03/99	313407	13.20	4.08	0.41	0.06	nd	0.03	0.20	0.12	0.30	0.30
08/03/99	313408	4.19	10.65	0.71	bdl	nd	0.04	0.27	0.40	0.22	0.13
08/03/99	313409	13.91	5.08	0.39	0.20	0.07	nd	0.07	0.05	0.19	0.19
08/03/99	313410	19.40	9.29	0.45	0.06	nd	nd	0.28	0.11	0.82	0.69
08/03/99	313411	3.82	3.59	0.05	bdl	nd	nd	0.05	bdl	0.15	0.15
08/03/99	313412	7.64	2.40	0.14	nd	nd	nd	0.08	0.06	0.12	0.12
08/03/99	313413	11.24	3.33	0.33	0.15	0.06	nd	0.08	0.04	0.07	0.07
08/03/99	313415	9.18	5.98	2.75	0.12	0.06	0.17	1.12	1.28	0.36	0.29
08/03/99	313414	0.08	nd	nd	nd	nd	nd	nd	nd	nd	nd
08/03/99	method blank	0.19	nd	nd	nd	nd	nd	nd	nd	nd	nd
	NAME	GRPH, ug	DRPH, ug	BTEX, ug	BENZ, ug	TOL, ug	EtBENZ, ug	mpXYL, ug	oXYL, ug	C11, C13, &C15, ug	UNDEC, ug
	Maximum	19.40	10.65	2.75	0.26	0.09	0.17	1.12	1.28	0.84	0.69
	Standard Dev.	4.81	2.97	0.68	0.08	0.04	0.05	0.28	0.33	0.23	0.18
	Mean	9.28	5.45	0.65	0.09	0.03	0.03	0.25	0.25	0.34	0.26

GORE SORBER SCREENING SURVEY ANALYTICAL RESULTS
 SECOR ENVIRONMENTAL ENGINEERING, CONCORD, CA
 GORE TARGET FUEL HYDROCARBONS (A2)
 BOHANNON SITE, SAN LORENZO, CA
 SITE BCO - PRODUCTION ORDER #10154673

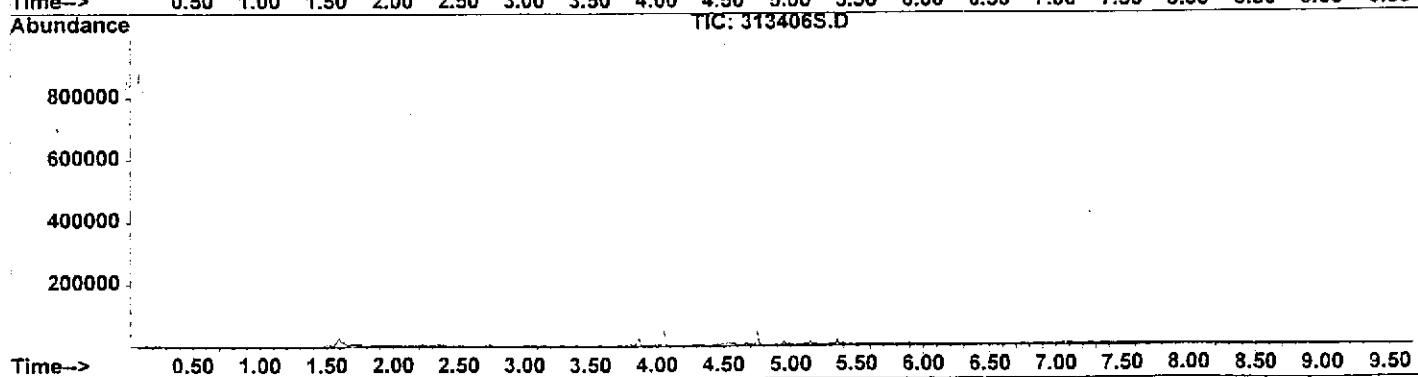
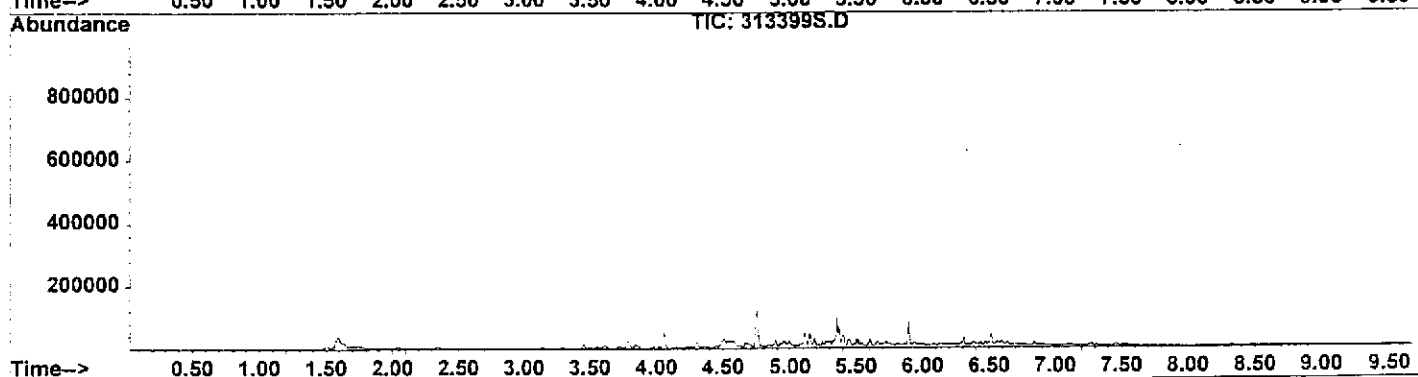
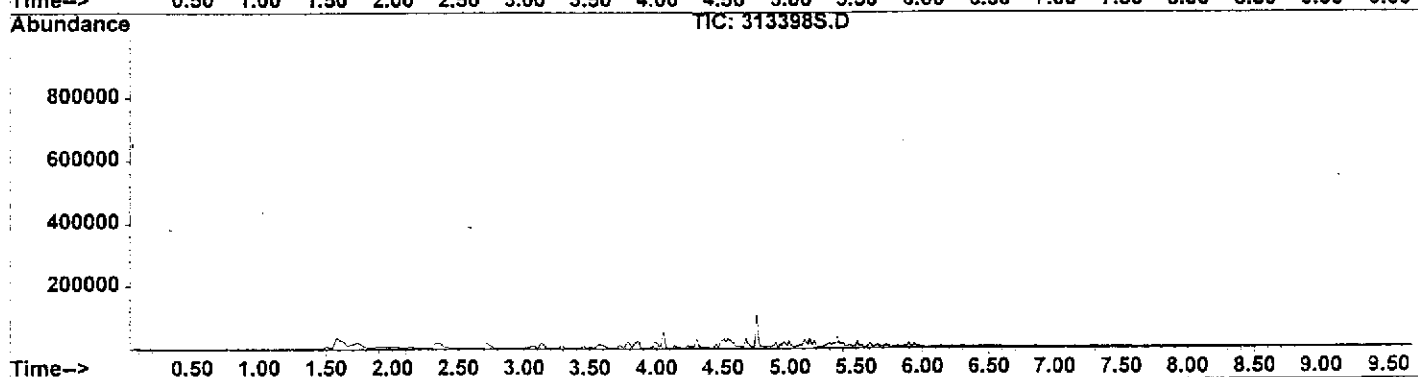
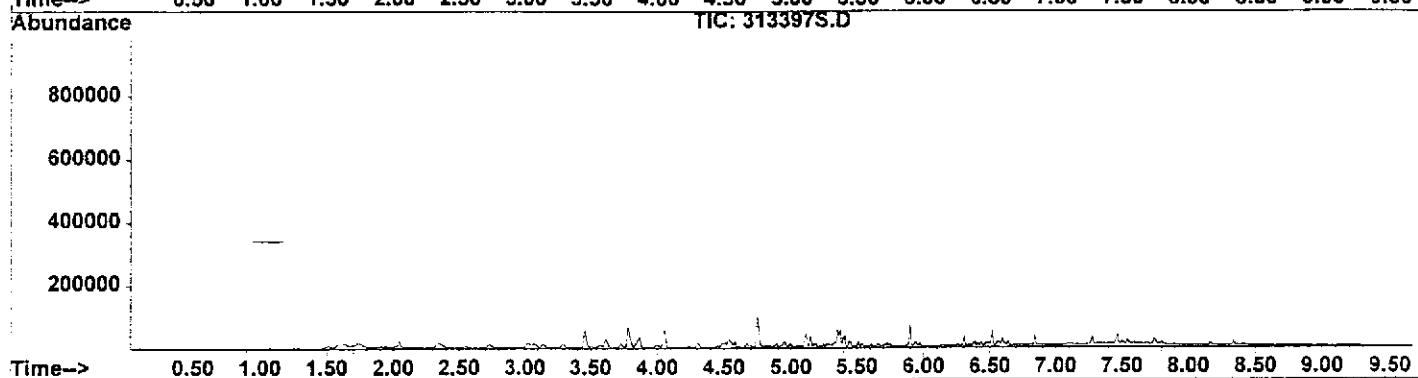
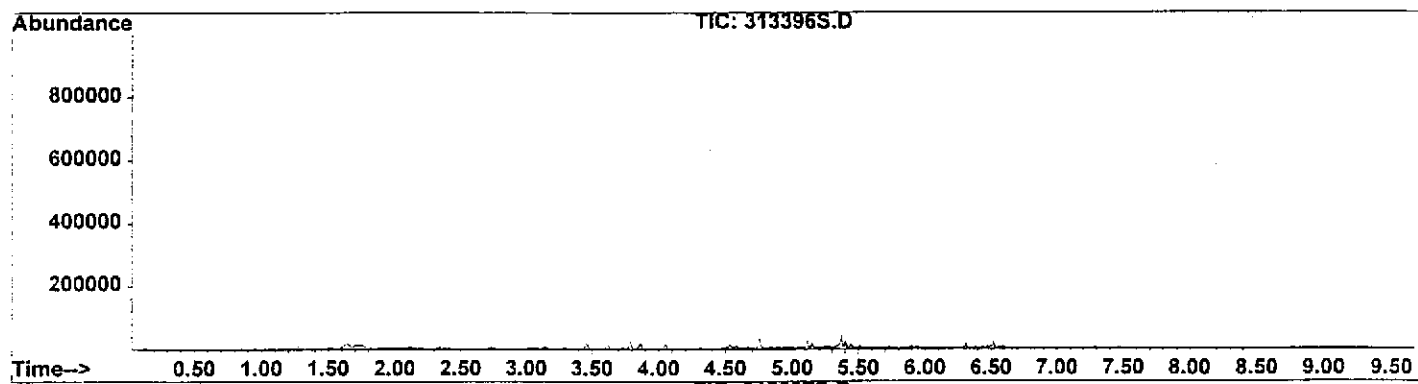
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MDL=	0.06	0.05	0.03	0.04	0.03	0.06	0.06	0.06	0.16	0.29
313396	bdl	bdl	0.18	0.13	0.05	nd	bdl	bdl	nd	bdl
313397	0.11	0.12	0.32	0.24	0.08	nd	bdl	bdl	nd	0.30
313398	bdl	bdl	0.32	0.24	0.08	nd	bdl	bdl	nd	bdl
313399	0.09	0.05	0.35	0.23	0.12	nd	bdl	bdl	nd	nd
313406	bdl	bdl	0.21	0.15	0.06	nd	nd	bdl	nd	bdl
313407	bdl	bdl	0.24	0.16	0.08	nd	nd	nd	nd	0.29
313408	0.09	bdl	0.28	0.20	0.08	nd	bdl	bdl	nd	nd
313409	bdl	bdl	nd	bdl	bdl	nd	nd	nd	nd	0.46
313410	0.13	bdl	0.34	0.22	0.12	nd	bdl	bdl	nd	0.75
313411	bdl	bdl	0.05	0.05	bdl	nd	nd	nd	nd	nd
313412	bdl	bdl	0.11	0.07	0.04	nd	nd	bdl	nd	0.32
313413	bdl	bdl	0.05	0.05	bdl	nd	nd	bdl	nd	0.46
313415	0.07	bdl	0.77	0.55	0.22	nd	bdl	bdl	nd	bdl
313414	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
method blank	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
NAME	TRIDEDEC, ug	PENTADEC, ug	TMBs, ug	124TMB, ug	135TMB, ug	NAPH&2-MN, ug	NAPH, ug	2MeNAPH, ug	MTBE, ug	OCT, ug
Maximum	0.13	0.12	0.77	0.55	0.22	0.08	0.05	0.04	0.00	0.75
Standard Dev.	0.04	0.03	0.19	0.14	0.06	0.03	0.02	0.01	0.00	0.23
Mean	0.05	0.03	0.25	0.18	0.08	0.03	0.02	0.01	0.00	0.23

TIC - SITE BCO - PRODUCTION ORDER #10154673
In sequence order

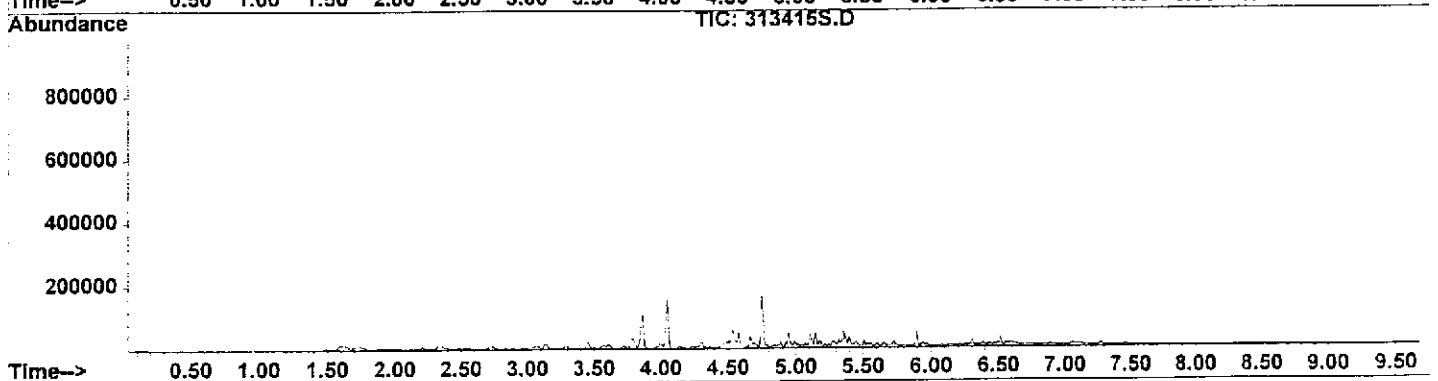
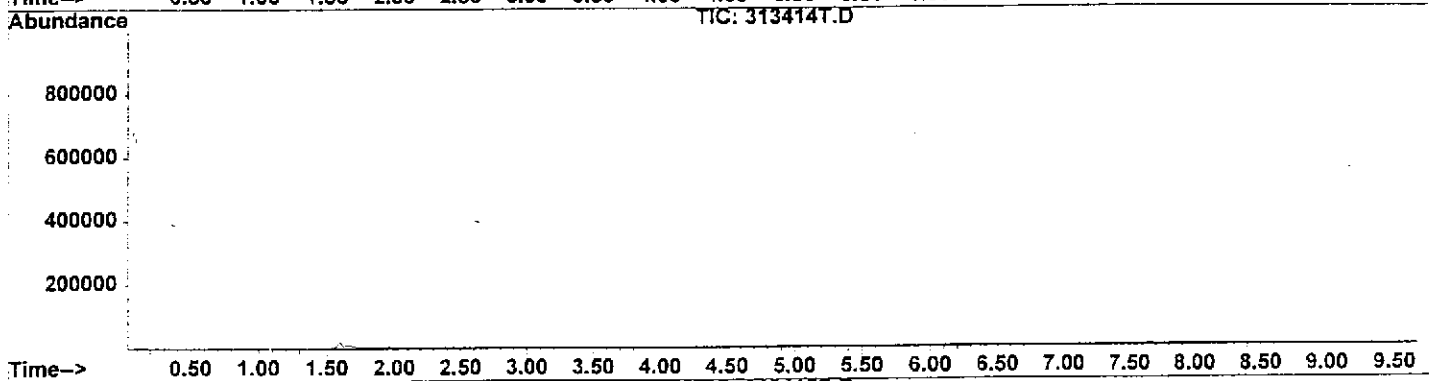
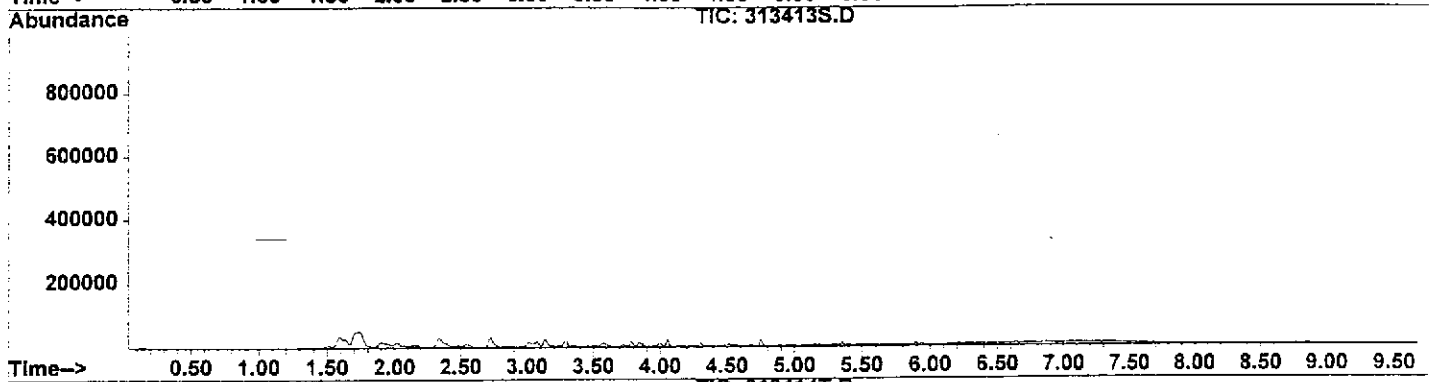
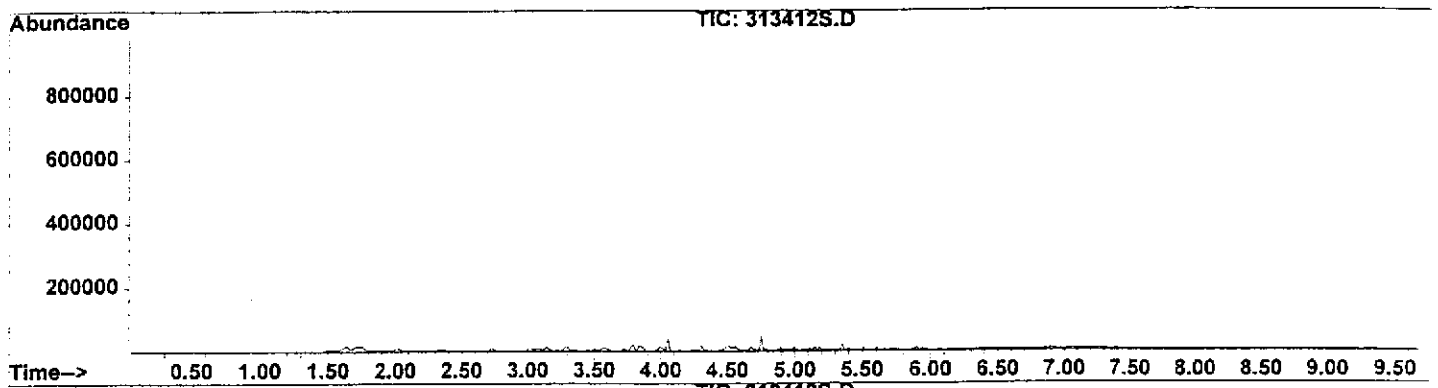


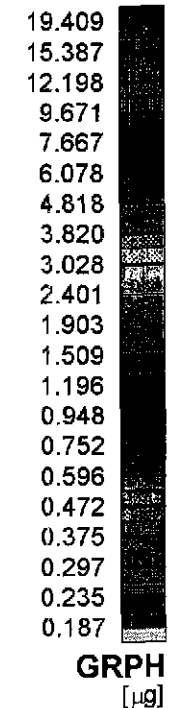
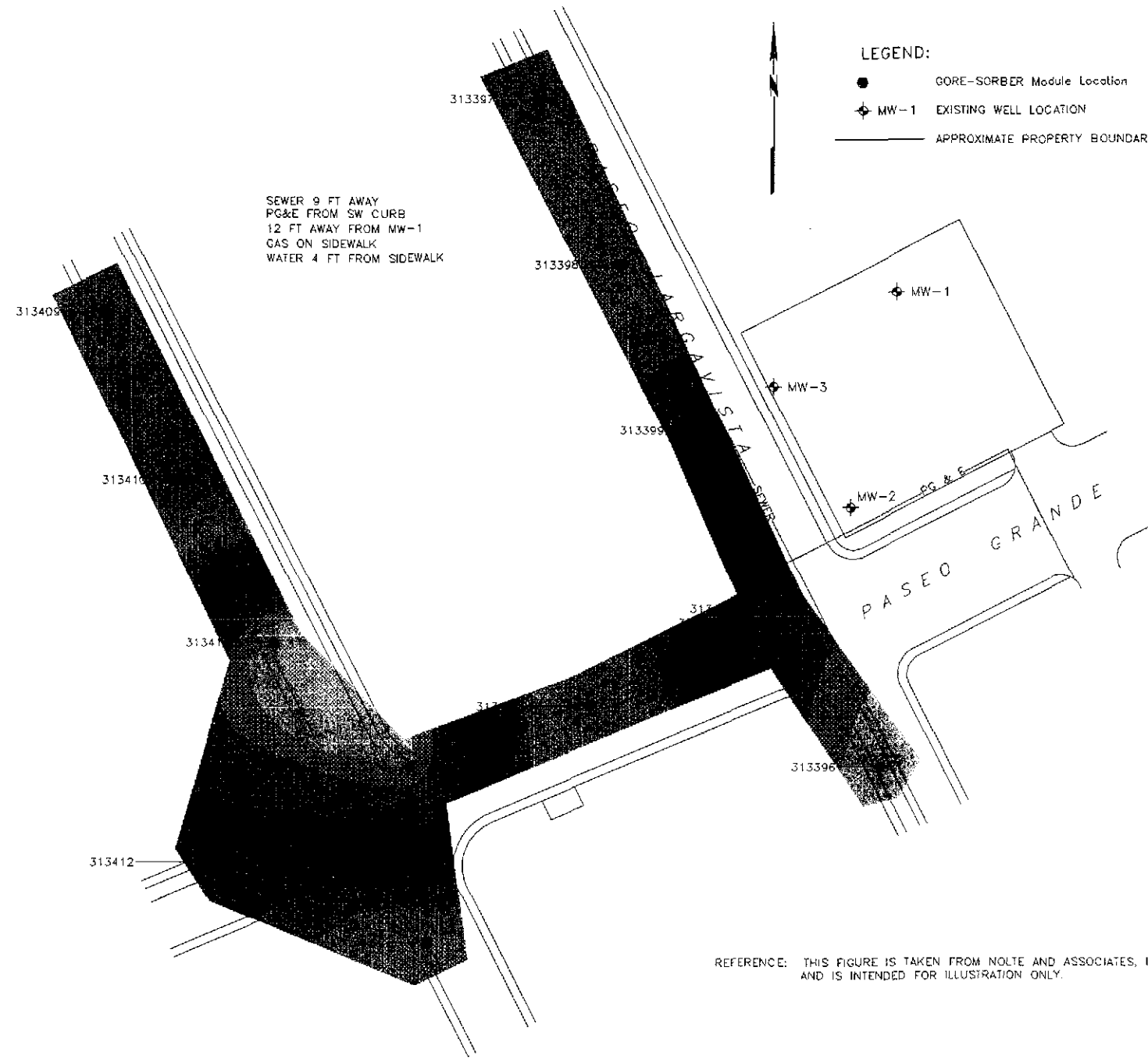
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In sequence order

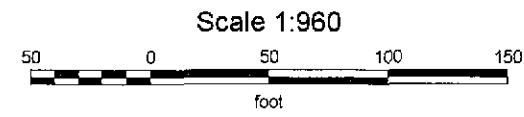



TIC - SITE BCO - PRODUCTION ORDER #10154673
In sequence order





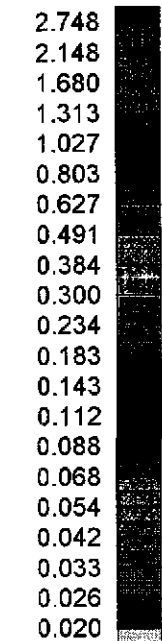
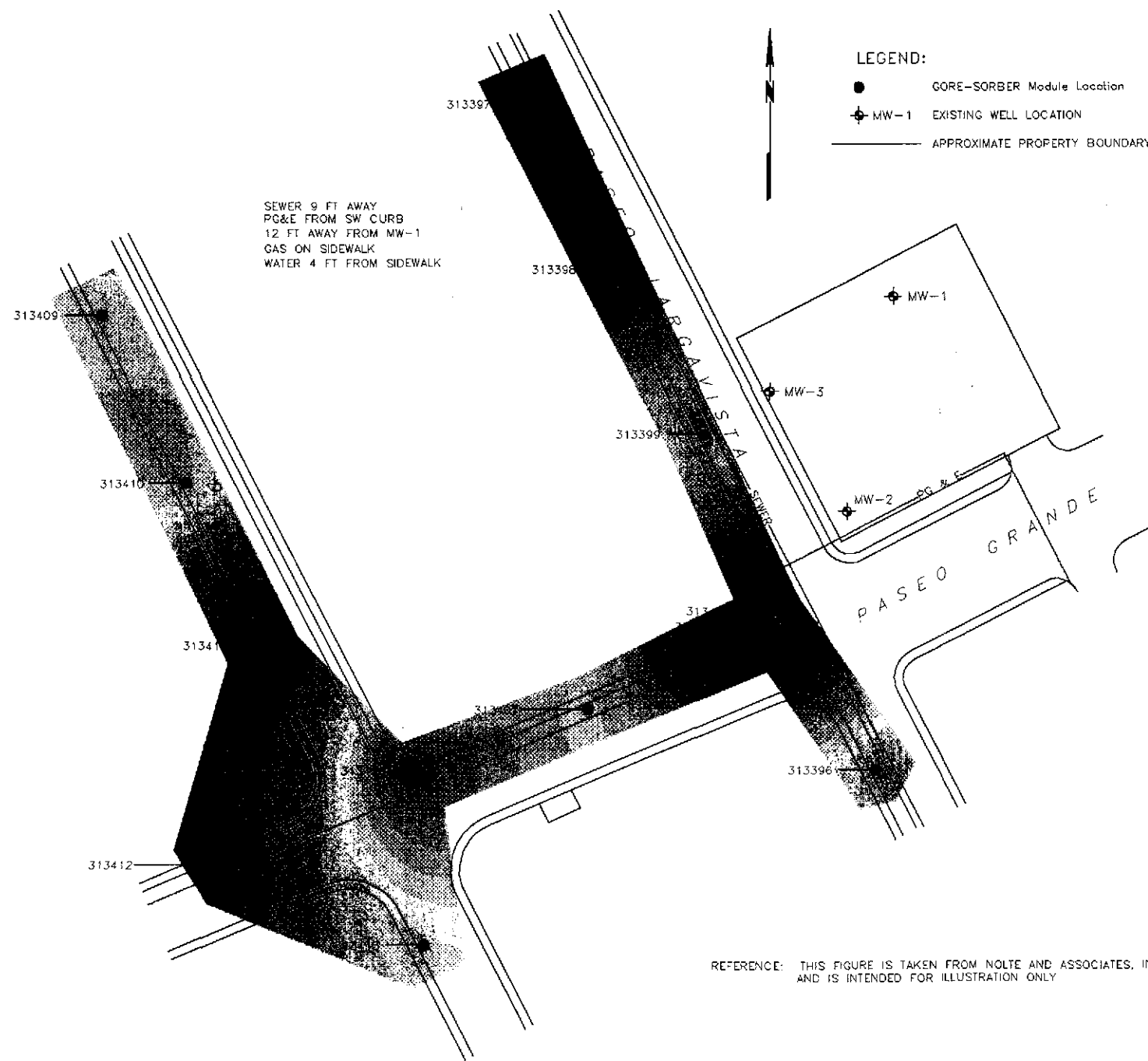
REFERENCE: THIS FIGURE IS TAKEN FROM NOLTE AND ASSOCIATES, INC. AND IS INTENDED FOR ILLUSTRATION ONLY.



GORE-SORBER® Screening Survey			
 Creative Technologies Worldwide		W.L. GORE & ASSOCIATES, INC. 100 CHESAPEAKE BOULEVARD ELKTON, MD, USA 21921 USA (410) 382-7600	
SECOR Environmental Engineering, Concord, CA Bohannon Site, San Lorenzo, CA Gasoline-Range Petroleum Hydrocarbons			
DATE DRAWN: 26 August 1999	DRAWN BY: JH	ORIG. CAD: Siteplan2.dwg	SITE CODE: BCO
REV. DATE:	REV. #:	PROJECT NUMBER: 10154873	

GORE-SORBER IS REG. PAT. & T.M. OFF.
 GORE-SORBER Screening Survey IS A REGISTERED SERVICE MARK OF W.L. GORE & ASSOCIATES
 GORE-SORBER Module IS A REGISTERED TRADEMARK OF W.L. GORE & ASSOCIATES

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BTEX
[µg]

REFERENCE: THIS FIGURE IS TAKEN FROM NOLTE AND ASSOCIATES, INC. AND IS INTENDED FOR ILLUSTRATION ONLY

GORE-SORBER® Screening Survey



W.L. GORE & ASSOCIATES, INC.

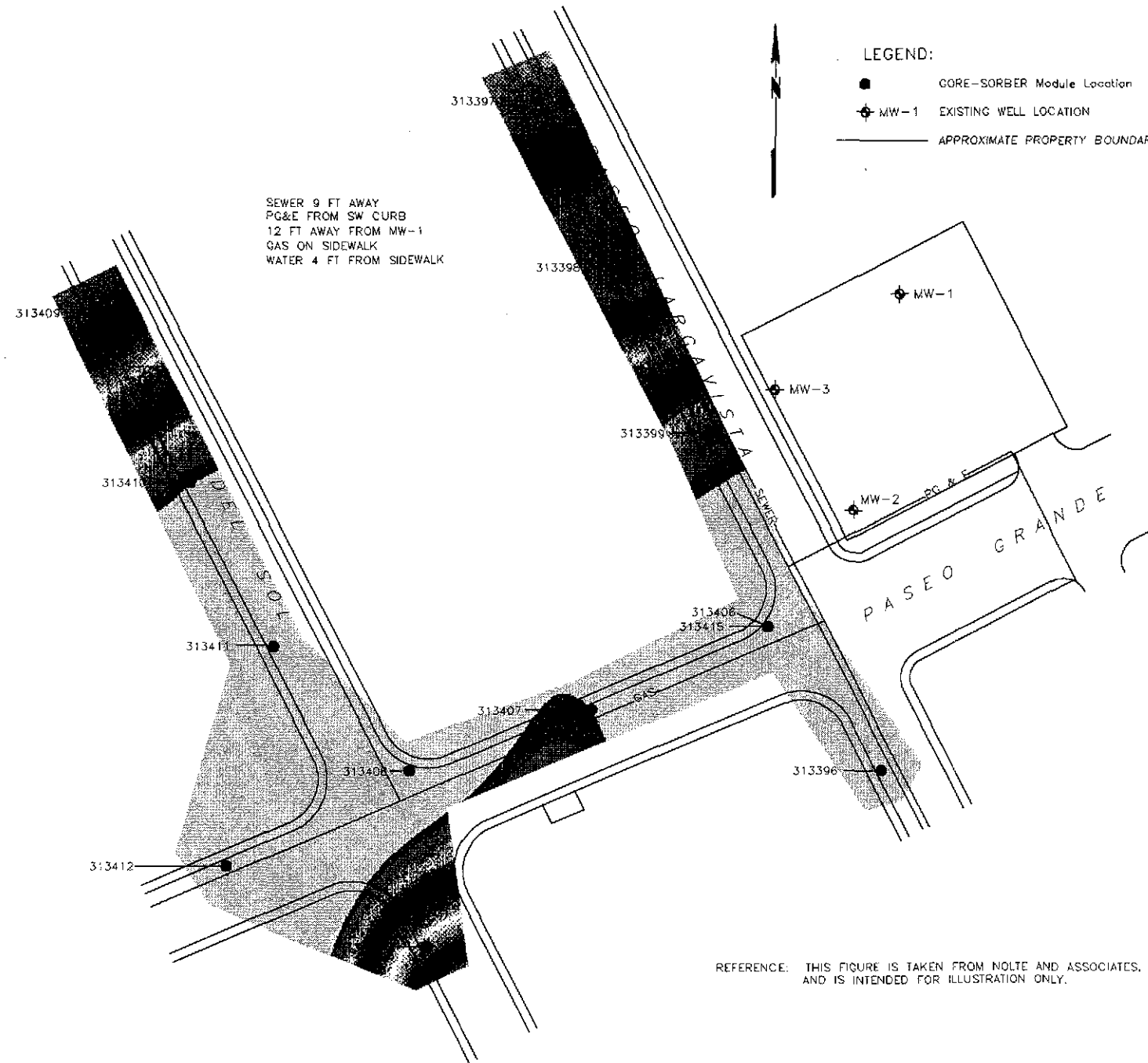
100 CHESAPEAKE BOULEVARD
ELKTON, MD, USA 21821
USA
(410) 382-7800

SECOR Environmental Engineering, Concord, CA
Bohannon Site, San Lorenzo, CA
BTEX

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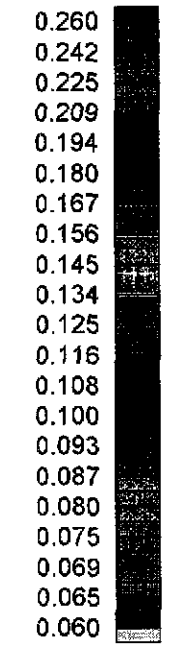
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DATE DRAWN: 28 August 1999	DRAWN BY: JH	ORIG. CAD: Siteplan2.dwg	SITE CODE: BCO
REV. DATE:	REV. #:	PROJECT NUMBER: 10154873	



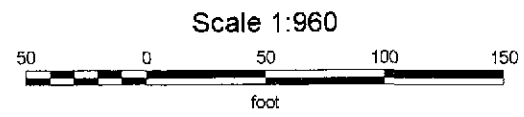
SEWER 9 FT AWAY
PG&E FROM SW CURB
12 FT AWAY FROM MW-1
GAS ON SIDEWALK
WATER 4 FT FROM SIDEWALK

- LEGEND:
- GORE-SORBER Module Location
 - ⊕ MW-1 EXISTING WELL LOCATION
 - APPROXIMATE PROPERTY BOUNDARY



Benzene
[µg]

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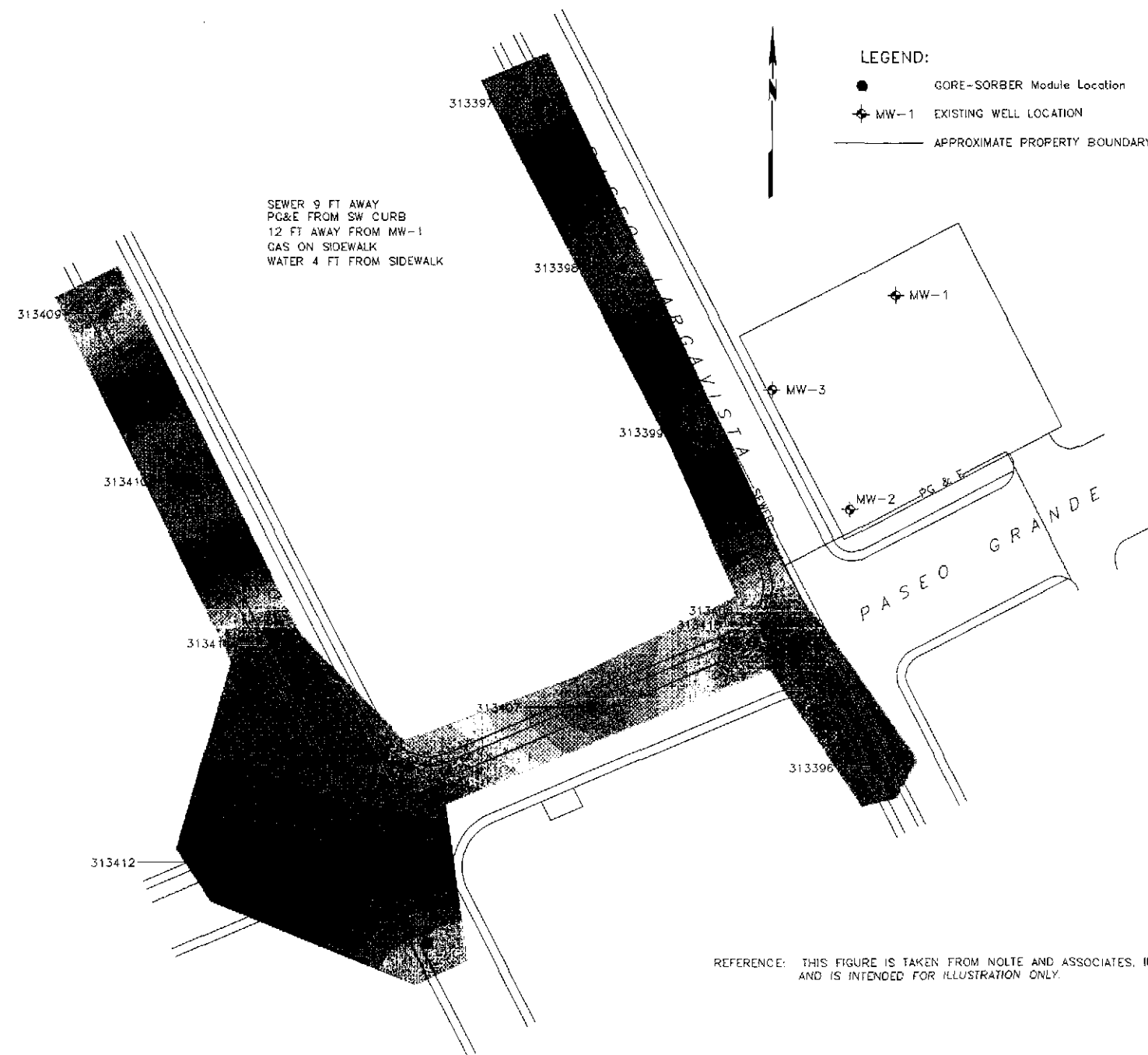
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SECOR Environmental Engineering, Concord, CA
Bohannon Site, San Lorenzo, CA
Benzene

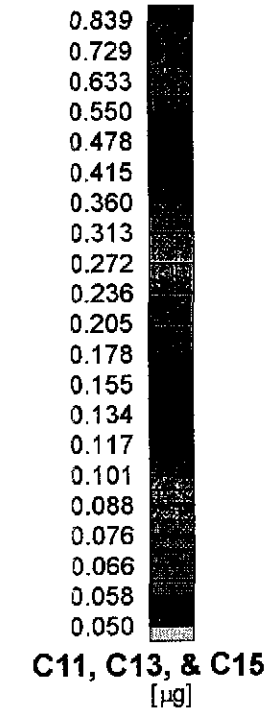
DATE DRAWN: 26 August 1999	DRAWN BY: JH	ORIG. CAD: Siteplan2.dwg	SITE CODE: BCO
REV. DATE:	REV. #:	PROJECT NUMBER: 10154873	

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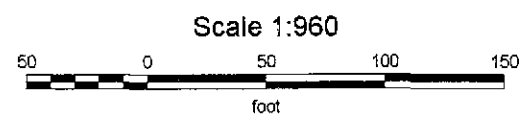
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LEGEND:
 ● GORE-SORBER Module Location
 ⊕ MW-1 EXISTING WELL LOCATION
 — APPROXIMATE PROPERTY BOUNDARY



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SECOR Environmental Engineering, Concord, CA
 Bohannon Site, San Lorenzo, CA
 Undecane, Tridecane, & Pentadecane

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***WORK PLAN FOR ADDITIONAL GROUNDWATER
MONITOR WELL INSTALLATION***

**WORK PLAN FOR ADDITIONAL GROUNDWATER
MONITORING WELL INSTALLATION**

**575 PASEO GRANDE
SAN LORENZO, CALIFORNIA**

Job No. 007.03814.000

Submitted by
SECOR International Incorporated
1390 Willow Pass Road, Suite 360
Concord, California

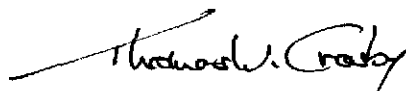
Prepared For
David D. Bohannon Organization
60 Hillsdale Mall
San Mateo, California

October 22, 1999

Prepared by:


Robert Robitaille
Project Geologist

Reviewed by:


Thomas W. Crosby, C/Hg. # 257
Principal Hydrogeologist

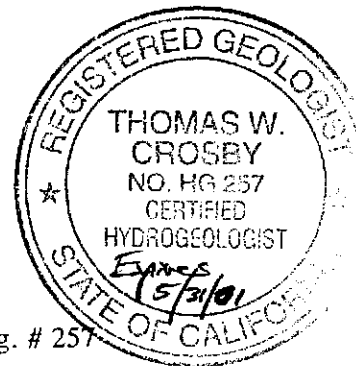


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FIGURE 1	Site Location Map
FIGURE 2	Proposed Boring Location Map

1.0 INTRODUCTION

This work plan describes the procedures to install three additional groundwater monitoring wells at the David D. Bohannon Organization site located at 575 Paseo Grande in San Lorenzo, California (Figure 1). The work plan has been prepared in response to a request from the Alameda County Health Care Services Agency (ACHCSA) in a letter dated September 15, 1999, to install at least one groundwater monitoring well adjacent to the residential properties west of the Site. The purpose of the work is to evaluate possible off-site migration of subsurface impacts originating from the site and to collect data that will be used to direct further subsurface investigations, and/or remediation at the Site, if necessary.

Over the last 25 years, the Site has been used as an asphalt paved parking area located in a commercial area zoned as C1. The Site was a gasoline station prior to 1969. Little information is known about the Site history related to its use as a gasoline service station. In anticipation of property redevelopment, initial investigation activities were conducted in March 1995 to determine if out-of-service gasoline service station underground equipment remained on-site. The work was conducted by Twining Laboratories, Inc. (TLI), as documented in their letter report dated April 15, 1995. The work conducted included a magnetometer survey followed by an exploratory excavation. In summary, the work conducted identified underground gasoline service station equipment which included what appeared to be the former tank pit, approximately 110 feet of fuel delivery system piping, and a grease sump and/or hydraulic lift pit in an area which may have been the former service garage. Field evidence and one soil sample indicated the potential for soil contamination along the piping runs, around the grease sump, and around the inferred location of the former tank pit. Characterization of the magnitude and extent of potential soil contamination was not conducted during initial investigation activities.

In June 1995, SECOR conducted additional activities at the Site which included removal of the former underground storage tank (UST) system piping and the former grease sump, and characterization soil sampling along pipelines and around the former grease sump and former tank pit areas. This work was summarized in SECOR's letter report dated June 29, 1995. The characterization data from this investigation indicated that there were two areas of concern (AOCs) at the Site. These areas were the former grease sump area and the former gasoline distribution system area. SECOR subsequently conducted excavation activities in the vicinity of the two AOCs. The soil excavated from the former sump area was transported off-site for disposal. The soil generated from the UST excavation was treated by means of aeration and transported off-site for disposal. Three groundwater monitor wells (MW-1, MW-2, and MW-3) were installed during the investigation activities to evaluate the degree to which the groundwater had been impacted. The results of the soil characterization and groundwater monitoring activities are reported in SECOR's Report of Interim Remedial Actions dated June 4, 1996, and Fourth Quarter 1996 Monitoring and Sampling Report dated November 26, 1996.

In June 1999, utility trench survey was conducted around the Site, and a passive soil vapor survey was conducted in the downgradient direction from the Site. The results of the utility trench and passive soil vapor surveys are documented in SECOR's Third Quarter 1999 Groundwater Monitoring Results and Plume Definition Report, dated October 21, 1999. The results of the surveys suggested that soil vapor, possibly associated with known on-site impacts, are present in the subsurface to the southwest of the Site. Utility trenches in the area do not appear to be deep enough to influence groundwater flow.

2.0 SCOPE OF WORK

The proposed scope of work includes permitting for the installation of three shallow groundwater monitoring wells, collecting soil samples for laboratory analysis, and surveying the new wells establish groundwater elevation relative to mean sea level. All work will be performed in accordance with the updated site-specific health and safety plan and will comply with the requirements of Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.120. All work will be conducted under the supervision of a California Registered Geologist.

The objectives of the investigation are to:

- Determine whether or not TPHg, BTEX and lead impacts detected at the Site have impacted soil and/or groundwater off-site.
- Collect hydrogeologic data that will help direct further subsurface investigation, and/or remediation at the Site, if necessary.

The subsurface investigation will consist of the following specific work steps:

- Obtain well installation permits from the Alameda County Water District and encroachment permits from the Alameda County Department of Public Works.
- Conduct a utility clearance in the vicinity of the proposed drilling locations.
- Advance 3 soil borings and collect soil samples for laboratory analysis.
- Install a groundwater monitoring well in each of the bore holes.
- Develop the new wells and survey the elevation of the wells.
- Prepare a report detailing the findings of the investigations with recommendations for future work, if necessary.

2.1 PERMITTING

Well permit applications will be submitted to, and approval received from, the Alameda County Water District, Zone 7. Encroachment permit applications will be submitted to, and approval received from, the Alameda County Department of Public Works.

2.2 UTILITY CLEARANCE

Prior to drilling, a utility locator will be contracted to locate utilities in the vicinity of the proposed drilling locations. In addition, Underground Service Alert (USA) will be notified at least 48 hours prior to drilling.

2.3 DRILLING SOIL SAMPLING AND WELL INSTALLATION

A total of three soil borings will be drilled at the locations shown on Figure 2. Soil borings will be drilled using a truck-mounted drill rig equipped with 7.5-inch outside diameter hollow stem augers. The soil borings will be advanced to a depth of approximately 15-feet below ground surface (bgs), or approximately 5-feet below the first encountered groundwater. Previous borings at the Site, encountered groundwater in confined or partly confined conditions at depths ranging from 5.5 to 14-feet bgs. Soil samples will be collected from the borings continuously, using a 1.5-foot long by 2-inch diameter split- spoon sampler lined with brass sample sleeves. The cores will be logged in the field by a SECOR geologist in accordance with the Unified Soil Classification System (USCS) to produce an accurate lithologic and stratigraphic profile. The soil cores will be field screened using a photo-ionization detector (PID) equipped with a 10.2 eV lamp. The PID readings will be incorporated into the final boring logs.

Selected soil samples will be retained from the continuous core in brass tubes and sealed with Teflon™ tape and plastic caps. The samples will be selected based on field observations of PID readings, staining and proximity to groundwater. At a minimum, the sample collected immediately above the saturated/unsaturated interface will be retained for laboratory analysis. The soil samples will be labeled with the appropriate borehole information, time and date of collection, and placed on ice for subsequent transport and analysis at a state-certified analytical laboratory. Chain-of-custody procedures will be followed at all times. At least one soil sample from each boring will be selected for analysis of total petroleum hydrocarbons-as-gasoline (TPHg) using modified U.S. Environmental Protection Agency (EPA) Method 8015 and for BTEX using EPA Method 8020.

After drilling is completed, groundwater monitoring wells will be constructed using 10-feet of 2-inch diameter poly-vinyl-chloride (PVC) 0.020-inch slot well screen installed to the bottom of the borehole, and blank PVC casing to the surface. A filter pack consisting of #2/12 Lonestar sand, or equivalent, will be placed around the well screen and will extend at least 1.5-feet above the well screen. A minimum 1.5-foot thick hydrated bentonite seal will be installed above the filter pack and the remainder of the annulus will be backfilled to just below surface grade with cement/bentonite slurry. The monitoring well will then be completed at surface grade with a water tight locking cap and a traffic rated street box set in concrete.

Soil and debris generated during drilling will be contained in drums pending proper disposal. Between borings, all down hole drilling equipment and sampling equipment will be either steam-cleaned or washed with a laboratory grade detergent in water followed by a triple rinse with clean water. All decontamination rinsate will be collected and placed into drums and stored on-site pending proper disposal.

2.4 WELL DEVELOPMENT, SURVEYING, AND GROUNDWATER SAMPLING

After a minimum of 72 hours, the new wells will be developed by hand using a bailer to alternately surge the screened portion of the wells and purge the sediment laden water. Development will continue until the water removed is relatively clear and sediment free. The volume, temperature, pH, and conductivity of the purged water will be recorded during well development. Water generated during well development activities will be contained in drums and placed on-site pending proper disposal.

A California licensed surveyor will provide horizontal and lateral control to within 0.01 feet for the new wells. The well elevation data will be relative to mean sea level. The survey data will be used to calculate the groundwater elevation and flow direction.

Groundwater samples will be collected using the low-flow purge method during the next scheduled quarterly sampling event. The groundwater samples will be analyzed for TPHg, BTEX and dissolved lead using EPA Methods 8015 modified, 8020 and DHS-LUFT Method, respectively.

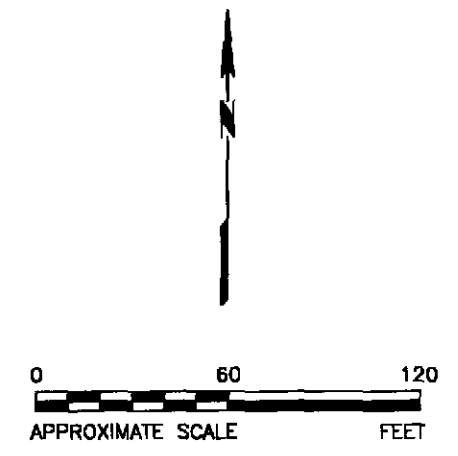
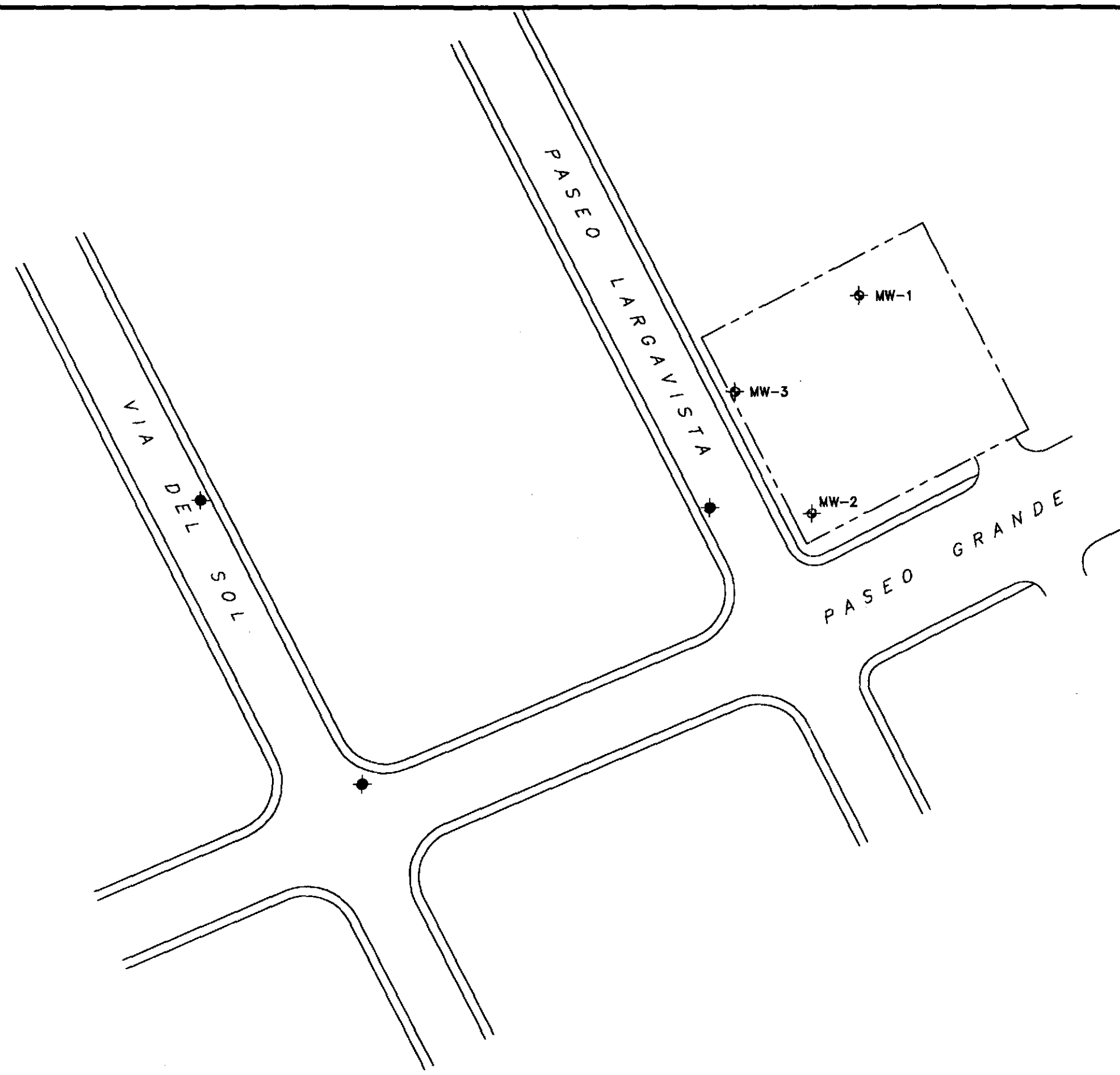
2.5 FINAL REPORTING

The results of the subsurface investigation will be presented in a well installation report incorporating all data collected from the drilling of the soil borings, the laboratory analysis of the soil samples, well installations, development and surveying activities. The report will be reviewed and approved by a California registered Geologist. At a minimum, the subsurface investigation portion of the report will contain the following:

- Copies of permits obtained;
- Details of field procedures and operations;
- A scaled plot plan showing the final boring locations;
- Boring and well construction logs;
- Copies of the soil sample analytical reports and chain-of-custody manifests; and
- Recommendations for future work.

FIGURES

- LEGEND:**
- ◆ PROPOSED GROUNDWATER MONITORING WELL LOCATION
 - ⊕ MW-1 EXISTING WELL LOCATION
 - - - - - APPROXIMATE PROPERTY BOUNDARY



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International
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DRAWN	TJZ
APPR	NH/GH
DATE	20AUG99
JOB NO.	007.03814.001

FIGURE 2
DAVID D. BOHANNON ORGANIZATION
575 PASEO GRANDE
SAN LORENZO, CALIFORNIA
**PROPOSED GROUNDWATER MONITORING
WELL LOCATION MAP**

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