Soil Vapor Investigation Report

German Autocraft Fuel Leak
301 E. 14th Street
San Leandro, California

Global ID No. T0600100639
AC LOP Case # 2783

Prepared For

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Prepared By

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Cleaning California from the Groundwater up
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(415) 665-6181

Date of Report: February 27, 2009

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1.0 INTRODUCTION

Groundwater Cleaners, Inc.(GCI) recently prepared a Corrective Action Plan (CAP) for this San Leandro fuel leak (see Figures 1 and 2) that, subject to results of pending feasibility/pilot testing work, proposes to reduce lingering high concentrations of subsurface petroleum hydrocarbons using a process known as dual-phase extraction and air sparging [DPE/AS (GCI November 28, 2007)]. The Alameda County Environmental Health (ACEH) letter dated December 28, 2008 agreed with the choice of DPE/AS for a pilot test feasibility study; however due to the data gap related to potential risk associated with the vapor intrusion pathway, the ACEH requested that further site characterization be performed; specifically, a soil vapor investigation.

This investigation obtained subsurface information from four (4) on-site and four (4) off-site down-gradient locations. At each location, a grab groundwater sample was obtained for laboratory analysis and in an adjacent boring, a temporary dual-completion vapor well was installed, subsequently sampled and destroyed. The corresponding findings are presented herein and used to evaluate the potential risk of vapor intrusion from subsurface contaminants emanating from the site to businesses or residences that lie above the contaminant plume.

1.1 Objectives of Soil Vapor Investigation

The subject soil vapor investigation had the following primary objectives; (a) to quantify petroleum hydrocarbon constituent concentrations in soil vapor both on-site and off-site from discrete depth intervals within the vadose zone; (b) to evaluate the potential risk to both the on-site, commercial use situation and the off-site residential setting; (c) to obtain coincident sets of grab groundwater and depth discrete soil vapor concentrations to facilitate the calculation of vertical attenuation rates and thus allow the back-calculation of groundwater values protective of vapor intrusion concerns; and finally; (d) to utilize the findings to focus the corrective action specifics as warranted.

1.2 Local Hydrogeology Clarifications

Section 2.1 of the CAP discusses the general hydrogeologic conditions within the San Leandro Sub-Area of the East Bay Plain Groundwater Basin as presented in the cited references. The groundwater flow tendencies are described on the basis of the four principle compass directions (i.e., east to west) and not more refined directions. Both the preponderance of numerous groundwater contour plots and subject plume's principle axis orientation suggest that the local prevailing groundwater flow direction is WNW as we mention in CAP Section 2.2. If this is generalized to just the four compass directions, it would be considered an east to west flow. Further, the references mention topographic influences, but the subject site is situated well west of the basin's hilly area and this aspect does not apply.

Most, if not all, of this fuel leak case's offsite impact definition was directed and field logged by a Registered Geologist who documented that the dissolved phase fuel had migrated via the more permeable unit between 25-35 feet below grade (bg). This unit is also where first groundwater is encountered, which is where lighter-than-water fuel impacts tend to accumulate. During the current investigation to obtain grab groundwater samples, the eight holes (SV-1 through SV-8) were advanced to between 30 and 35 feet bg. Continuous cores were recovered and logged by a geologist from four of the borings to 30 feet bg and one boring to 35 feet bg. Only one boring (SV-3) was observed to contain significant clean sand from 28 to 30 feet bgs and SV-7 was terminated within clayey sand at 30 feet bgs. The remainder of the borings logged encountered predominantly clay, sandy clay.

Groundwater was generally encountered between 26.5 to 29 feet bg. Groundwater recharge varied between locations suggestive of differing permeability; groundwater was first encountered in boring SV-3 within the sand at 28 feet bgs and immediately rose within the temporarily inserted PVC casing to 18 feet bgs. Conversely, the temporarily cased locations SV-1, SV-2 and the hydropunch screen driven and retracted from 35 feet bgs for SV-8 required 48 hours or more for groundwater to recharge, indicating the saturated zone to be outside the transmissive, sandy layers associated with transport of contaminants.

It remains GCI's opinion that the 25-35 feet bg permeable unit has been the pathway of *historic* dissolved fuel migration as covered in Section 2.5 of the CAP. However, ongoing monitoring of groundwater at the down-gradient plume perimeter wells (Wells MW-1A, MW-12 and MW-13) indicates that there has been no appreciable increase in concentration or spreading of dissolved petroleum hydrocarbons for many years, but rather stable or decreasing concentrations have been observed. In the future, it is unlikely for significant migration to start-up under a natural progression of conditions. Recognizing this permeable unit's importance, it is the main target for cleanup proposed in GCI's CAP.

The case's network of groundwater wells are screened from approximately 20 to between 30 and 40 feet bgs, are not submerged, and screen current static groundwater levels; therefore are suitable for pilot testing. GCI has proposed the installation of two air sparge points to enhance recovery of dissolved phase hydrocarbons. Further, due to the lateral continuity of the approximate 1-foot thick permeable zone encountered in the SV-1 through SV-8 locations at between approximately 11 and 14 feet bg; shallow, horizontal vapor extraction wells will likely be included in any remedial action to target this horizon.

2.0 SCOPE OF WORK

Petroleum hydrocarbons emanating from the site have migrated down-gradient in groundwater within the relatively more permeable (increased sand) zones at approximately 25 feet bg. Overlying vadose zone soil is of lower permeable clay and silty clay. Therefore, significant attenuation of soil vapor upwards is anticipated and the following scope of work quantitatively demonstrated this attenuation.

- Acquired an encroachment agreement with the City of San Leandro for the four off-site boring locations and acquired necessary permits from the Alameda County Public Works Agency for the eight locations.
- Marked the sampling locations, notified Underground Services Alert and utilized a private geophysical locator service to clear the boring locations for subsurface utilities.
- Advanced eight hydraulic-push borings (shown on Figure 2) into first encountered groundwater and obtained a grab sample from each boring (approximate total depth of 30 to 35 feet bgs).
- Advanced eight (adjacent) shallow hydraulic-push borings to a depth of approximately 12 to 15 feet to facilitate the construction of a dual-completion temporary vapor well in each. The vapor sampling intervals at each location were set at approximately 13-feet and 5-feet bg with completions based on the observation of higher permeable material if present.
- Upon allowing sufficient time for equilibration (minimum 48-hours), sampled soil vapor from each of the discrete intervals.
- Submitted the groundwater samples for laboratory analysis of TPHg, BTEX compounds and MtBE by EPA Method 8015/8020. Submitted the soil vapor samples for laboratory analysis of TPHg, BTEX compounds, MtBE and the leak check compound 2-propanol by EPA Method TO15.

In concert with ACEH input, the sampling locations were based on the expected configuration of the contaminant plume and the need to address both on-site and off-site conditions above different concentrations of contaminants and proximity to possible sensitive receptors. Additionally, the on-site locations were selected to allow comparison of grab groundwater sample analytical results to groundwater monitoring well results. Figure 2 presents the temporary soil vapor well locations. The boring/well logs and certified analytical results are presented in Appendix A. Detailed field installation and sampling procedures are presented in Appendix B.

3.0 WORK SCHEDULE

The starting schedule for this investigation was delayed somewhat by the difficulty of obtaining access permission and the encroachment permit (requiring traffic and pedestrian control plans) from the City of San Leandro.

4.0 FINDINGS OF THE INVESTIGATION

The data from the four on-site locations provides a picture of what the core area soil vapor concentrations are stemming from a combination of residual impacts to vadose zone soil and the most heavily contaminated groundwater. The four locations along the north side of Garcia Avenue yield soil vapor data concerning the degree of upward volatilization that is occurring from the down-gradient groundwater plume itself.

4.1 Subsurface Soils

Detailed logs of the eight boring locations are included in Appendix A. Soils encountered in these borings consisted predominantly of low permeability clay to their total explored depth (maximum 35 feet bgs). Between approximately 11 and 14 feet bgs an approximate 1-foot thick sand, clay with sand, clayey gravel or gravelly clay was often encountered which was the target of the lower soil vapor sample completion depth. Only in one boring (SV-3) was a significant sand layer observed in the saturated zone from 28 to 30 feet bg. The previously installed groundwater monitoring wells encountered significant high permeability sands within the saturated zone, however they were completed to deeper depths in the range of 35 to 40 feet bgs. Updated geologic cross-sections are provided in Appendix A. Groundwater was generally first encountered at 26.5 to 29 feet bg. The transport of fuel contaminants is likely associated with the more permeable sandy lenses and may therefore differ significantly from what one might expect with more uniform subsurface strata.

4.2 Grab Groundwater Samples

Grab groundwater analytical results are presented on Table 1. Petroleum hydrocarbons and benzene in grab groundwater concentrations are presented on Figures 3 and 4, respectively. Grab groundwater sample data were generally in accord with historic monitoring well data.

As expected, the highest concentrations of petroleum hydrocarbons (TPH-g, and BTEX compounds) were reported from samples located on the site. The maximum concentrations of TPH-g (82,000 µg/L), toluene (3,000 µg/L), ethylbenzene (4,600 µg/L) and xylenes (24,000 µg/L) in groundwater were reported from location SV-2 located immediately east of the UST excavation. The maximum concentration of benzene reported in grab groundwater (1,600 µg/L) was from location SV-1 located along the western boundary of the site. These elevated grab groundwater analytical results compare favorably to their nearby, respective groundwater monitoring results of September 5, 2008 (SV-1 is proximal to MW-2 and SV-2 is proximal to MW-1; see Figure 2). Similar to the results at SV-2; MW-1 contained the maximum concentration of petroleum hydrocarbons within a monitoring well (TPH-g 110,000 µg/L; toluene 11,000 µg/L; ethylbenzene 4,200 µg/L and xylenes 21,000 µg/L). Both Well MW-1 and MW-2 reported elevated concentrations of benzene at 1,000 µg/L.

4.3 Soil Vapor Samples

Adjacent to each grab groundwater sample, two depth-discrete soil vapor samples were collected within the vadose zone. A shroud was placed over the borehole and entire sampling train including all connections during the collection of each sample. Detailed soil vapor sampling procedures are presented in Appendix B. The results of the datalogged shroud atmosphere are presented on Table 2 and indicate concentrations of 10,000 to 130,000 microgram per cubic meter ($\mu g/m^3$) 2-propanol (the leak detection compound) within the shroud. In addition, two samples of the shroud atmosphere were analyzed by the laboratory and confirmed the elevated PID readings present there. No 2-propanol was detected [at less than (<) 110 or 120 $\mu g/m^3$] in any soil vapor sample analyzed, therefore all sampling trains are deemed to be tight and samples collected representative of field in-situ conditions at the specified depths.

Soil vapor analytical data and measurements are presented on Table 2. TPH-g and benzene concentrations in shallow and deep soil vapor are presented on Figures 5 and 6, respectively. In general, the deeper soil vapor sample reported a higher concentration of petroleum hydrocarbons (if detected) than the upper (approximate 5-foot depth) sample, though this was not always the case. The maximum concentration of TPH-g (330,000 $\mu g/m^3$) was reported in the deeper soil vapor zone sampled (an approximate 1-foot thick sand layer) from SV-7 at 12.5 feet bgs (adjacent to Well MW-3). However, the shallow interval sampled at SV-7 contained only 1,200 $\mu g/m^3$ TPH-g at 5.5 feet bgs. These results suggest significant attenuation is occurring due to the low permeability clays and the greater distance to the petroleum hydrocarbons present in groundwater.

The maximum concentration of benzene in soil vapor was reported in the shallow soil vapor sample collected from SV-2 at 5.5 feet bgs. This 270 $\mu g/m^3$ concentration of benzene is likely at least partially due to shallow source area soils proximal to the UST excavation in combination with the underlying petroleum hydrocarbons volatilizing from groundwater.

4.4 Comparison of Soil Vapor Results to ESLs

Table 2 presents a comparison of the two depth-discrete soil vapor data sets to the most current Environmental Screening Levels (ESLs) protective of vapor intrusion concerns under a commercial land use (for the on-site auto repair business) and residential (for the predominant offsite land use), respectively (RWQCB-SF, 2008). The 5-foot depth TPHg concentrations do not exceed their respective ESLs, which are derived from fairly conservative, generic assumptions. Additionally, only one 5-foot depth benzene soil vapor concentration, located on-site and adjacent to the former UST complex exceeds the residential ESL (84 $\mu g/m^3$) at 270 $\mu g/m^3$ (SV-2 at 5.5 feet bgs). Furthermore, only two of the deeper depth-discrete soil vapor samples exceeded the residential ESL and only for TPH-g (SV-7 at 12.5 feet bgs contained 330,000 $\mu g/m^3$ and SV-8 at 13.5 feet bgs contained 17,000 $\mu g/m^3$).

Given the predominance of clay in the subsurface soils, the depth to first encountered groundwater (approximately 26.5 to 29 feet bgs) and the relatively low concentrations of petroleum hydrocarbons in the shallow soil vapor there is a clear confirmation that significant vertical attenuation is occurring. The shallow soil vapor sampling results below applicable ESLs indicate that vapor intrusion concerns are unlikely based on commercial on-site use and off-site residential uses.

Utilizing the grab groundwater and depth discrete soil vapor data; estimates of volatility coefficients of petroleum hydrocarbons volatilizing from groundwater to shallow soil vapor may be calculated. Then, based on these coefficients and the shallow soil vapor ESLs, back-calculation of groundwater values protective of vapor intrusion concerns may be performed. The table presenting these calculations is presented in Appendix C. Due to possible on-site shallow source area soil impact (i.e., SV-2), only the four downgradient off-site borings were statistically analyzed to present the volatility factors.

Based on the arithmetic mean of the ratio of the grab groundwater concentration to the 5-foot depth soil vapor samples at the off-site locations, the calculations indicate that 69,000 µg/L TPH-g and 128 µg/L benzene in groundwater are protective of residential vapor intrusion concerns. Utilizing a conservative 95% confidence interval suggests that 33,300 µg/L TPH-g and 52 µg/L benzene are protective of residential vapor intrusion concerns. In comparison, the RWQCB ESL for benzene in groundwater protective of vapor intrusion concerns is 540 µg/L. This indicates that the back-calculated concentrations are very conservative, likely due to the small data set and utilizing ½ the detection limit when the constituent was not detected. The groundwater ESLs protective of vapor intrusion concerns (at the bottom of the table included in Appendix C) are therefore proposed to be utilized as a screening tool however, care must be taken as can be seen when possible shallow source area soils contribute to shallow soil vapor impact such as at location SV-2.

5.0 RECOMMENDATIONS

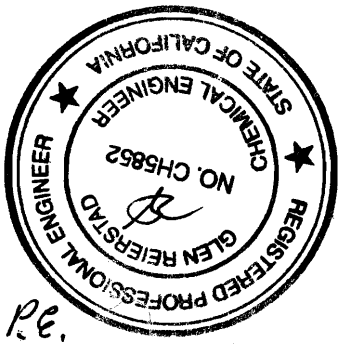
Based on the shallow depth-discrete soil vapor analytical results all being below their applicable ESLs (except SV-2 next to the former UST cluster), GCI concludes that there is minimal risk to inhabitants of the dwellings above the contaminated groundwater plume. Given the predominance of clay in the subsurface soils, the depth to first encountered groundwater (approximately 26.5 to 29 feet bgs) and the relatively low concentrations of petroleum hydrocarbons in the shallow soil vapor suggest significant vertical attenuation is occurring. No further soil vapor sampling is proposed at this time. However, the contaminants continue to present a barrier to beneficial use of the groundwater near the location of the plume. In particular, there is an irrigation well located at 141 Farrelly Drive that has been out of service for some years, resulting from the proximity of subsurface contaminants. Therefore, remedial pilot testing proposed in the CAP will be performed, followed by a technical report of DPE/AS.

3.0 PROFESSIONAL CERTIFICATION

We declare, under penalty of perjury, that to the best of our knowledge, everything presented in this Report is true and correct.

Should you have any questions or require supplemental information, please do not hesitate to contact us at (415) 665-6181.

Sincerely,



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Ross W. Tinline, PG
Project Geologist

7.0 REFERENCES

Alameda County Environmental Health (ACEH, 2007), Letter to Seung Lee, LOP Case No, RO0000302 (global ID# T0600100639), German Autocraft, 301 E 14th Street, San Leandro, CA, December 28, 2007; unpublished regulatory letter.

California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB-SF, 2007), Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, November 2007.

Groundwater Cleaners, Inc. (GCI, 2007), Corrective Action Plan for Core Area of Fuel Impacts, German Autocraft, 301 E 14th Street, San Leandro, California, Global ID No. T0600100639 (GeoTracker), AC LOP Case #2783, …, November 28, 2007; unpublished consultant's report.

Tables

Groundwater Cleaners, Inc.
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347 Frederick Street, San Francisco, California 94117
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Table 1
Groundwater Analytical Data, January 6, 2009
German Autocraft
301 E. 14th Street, San Leandro, CA

Sample Number	TPHg µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Xylenes µg/L	MTBE µg/L
SV-1	15,000	1,600	23	890	680	ND
SV-2	82,000	490	3,000	4,600	24,000	ND
SV-3	15,000	24	77	54	28	ND
SV-4	3,900	550	49	140	83	ND
SV-5	44,000	480	470	1,700	7,100	ND
SV-6	4,200	11	24	31	19	ND
SV-7	700	1.5	9.3	1.1	4.2	ND
SV-8	860	0.58	15	5.6	18	ND

Table 2
Soil Vapor Analytical Data and Measurement

German Autocraft
301 East 14th Street, San Leandro, CA
by Modified EPA Method TO-15 using GC/MS in full scan mode

Sample Number depth (d) in feet	Date Sampled	TPH-g (µg/m³)	Benzene (µg/m³)	Toluene (µg/m³)	Ethylbenzene (µg/m³)	m,p-Xylene (µg/m³)	o-Xylene (µg/m³)	MtBE (µg/m³)	2-Propanol (µg/m³)	2-Propanol (µg/m³)	Average Measured 2-Propanol Shroud Concentration PID using CF=6 (µg/m³)	Drops of Isopropyl Alcohol in Shroud (drops)
Sub-Slab Soil Vapor										**Shroud Atmosphere**		
Laboratory Reported Analytical Results												
SV-1d5.5	01/13/09	3,800	<37	78	230	490	400	<42	<110		19,170	20
SV-1d13	01/13/09	<950	<37	<44	<50	<50	<50	<42	<110		33,916	20
SV-2d5.5	01/13/09	3,800	**270**	50	<50	<50	<50	<42	<110		33,916	20
SV-2d12.5	01/13/09	4,100	<37	<44	<50	<50	<50	<42	<110		53,086	20
SV-3d5	01/14/09	4,900	<37	<44	<50	<50	<50	<42	<110		126,816	10
SV-3d13	01/14/09	<950	40.0	67	<50	60	<50	<42	<110		131,240	10
QCSV-3d13	01/14/09	--	--	--	--	--	--	--	--	110,000	131,240	10
SV-4d5	01/14/09	<970	<38	<45	<52	<52	<52	<43	<120		42,763	12
SV-4d14	01/14/09	<950	<37	<44	<50	<50	<50	<42	<110		91,425	12
SV-5d5	01/14/09	<970	<38	<45	<52	<52	<52	<43	<120		30,967	10
SV-5d13	01/14/09	<970	76	120	<52	75	<52	<43	<120		33,916	10
SV-6d5	01/14/09	<990	<39	63	<52	85	<52	<44	<120		131,240	20
SV-6d11.5	01/14/09	2,000	44.0	130	<52	83	<52	<44	<120		106,171	10
QCSV-6d11.5	01/14/09	--	--	--	--	--	--	--	--	79,000	106,171	10
SV-7d5.5	01/13/09	1,200	<36	280	270	810	140	<41	<110		22,119	20
SV-7d12.5	01/13/09	***330,000***	67	170	440	1,200	240	<42	<110		70,781	20
SV-8d5	01/13/09	8,600	<36	340	530	1,800	290	<41	<110		10,322	10
SV-8d5(dup)	01/13/09	9,400	<36	320	500	1,600	270	<41	<110		10,322	10
SV-8d13.5	01/13/09	**17,000**	<37	<44	<50	280	250	<42	<110		23,594	15
Environmental Screening Level (ESL												
Residential - Soil Gas		10,000	84	63,000	980	21,000	21,000	9,400	--			
Commercial - Soil Gas		29,000	280	180,000	3,300	58,000	58,000	31,000	--			

µg/m³ = Micrograms per cubic meter
PCE = Tetrachloroethene
TCE = Trichloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
cis-1,2-DCE = cis-1,2-Dichloroethene
VOC = Volatile Organic Compounds (see attached Certified Analytical Reports for specific detection limits)
< = Not Detected, less than laboratory reporting limit
ESL = SFRWQCB ESL (November 2007) for shallow soil gas screening level for evaluation of vapor intrusion concerns.
CF = Correction Factor for 2-propanol from isobutylene detected by PID (Literature Value = 6)
Bold = Concentration above Residential Soil Gas ESL
Bold = Concentration above Residential and Commercial Soil Gas ESL
Dup = Laboratory Duplicate Sample

Figures

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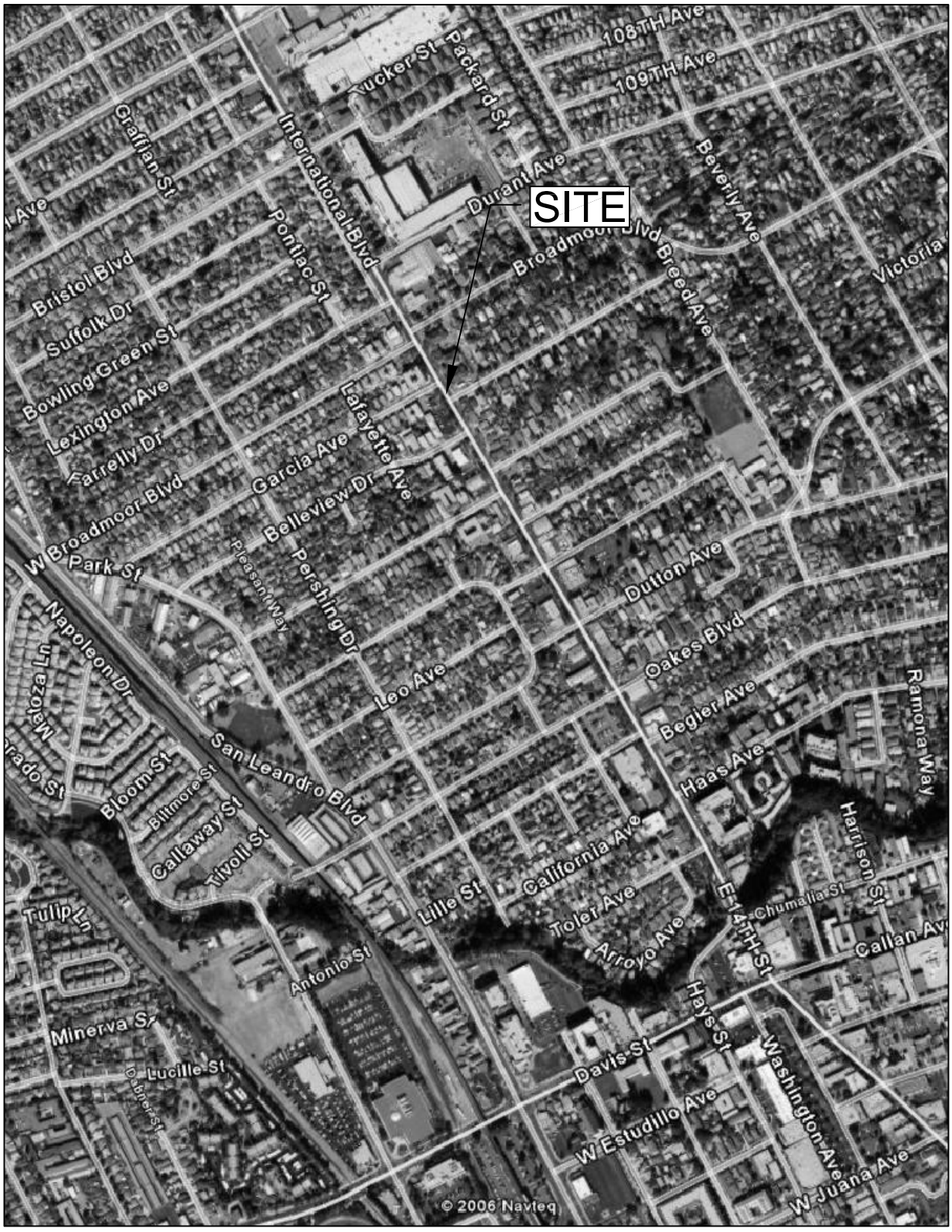

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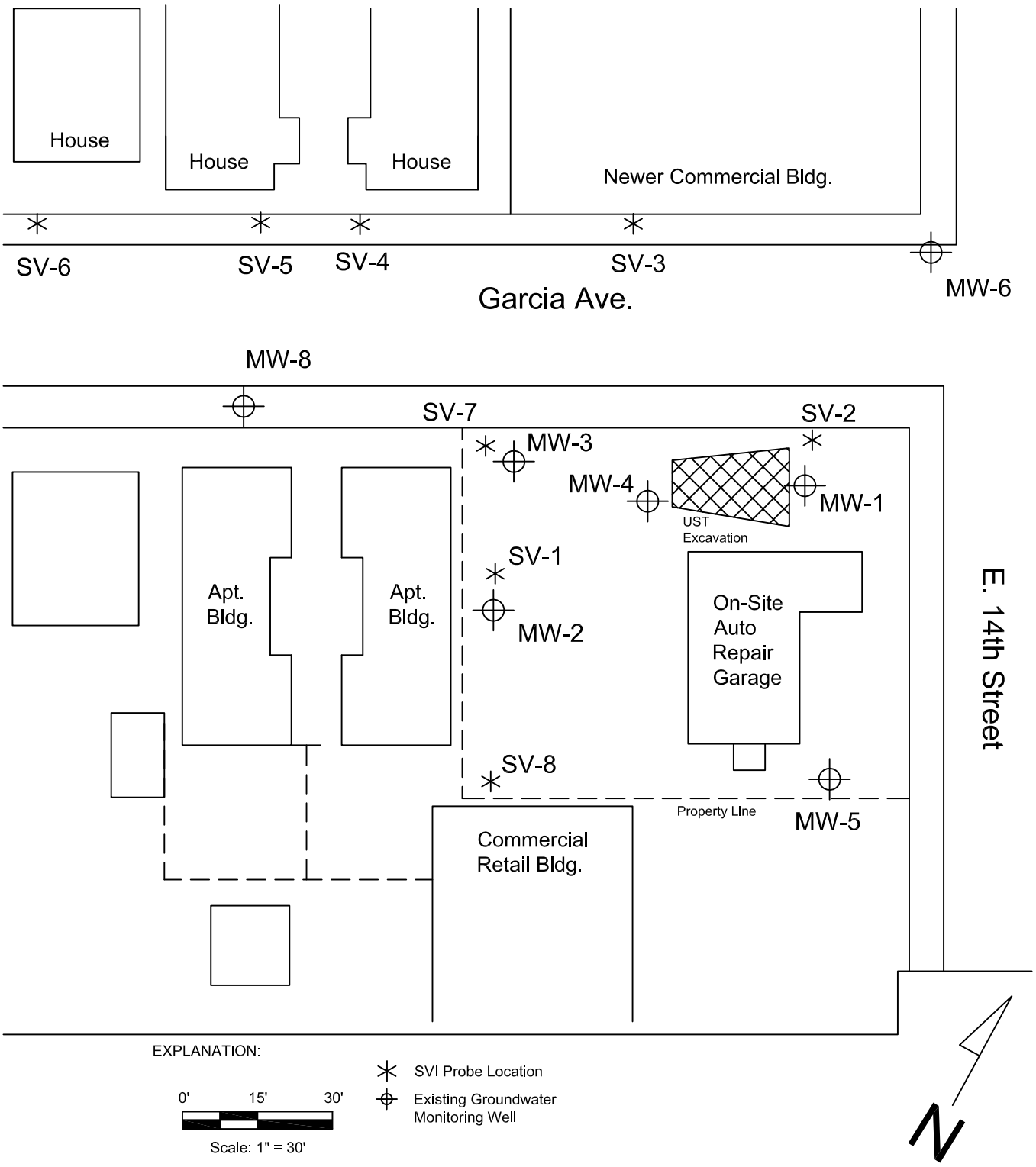
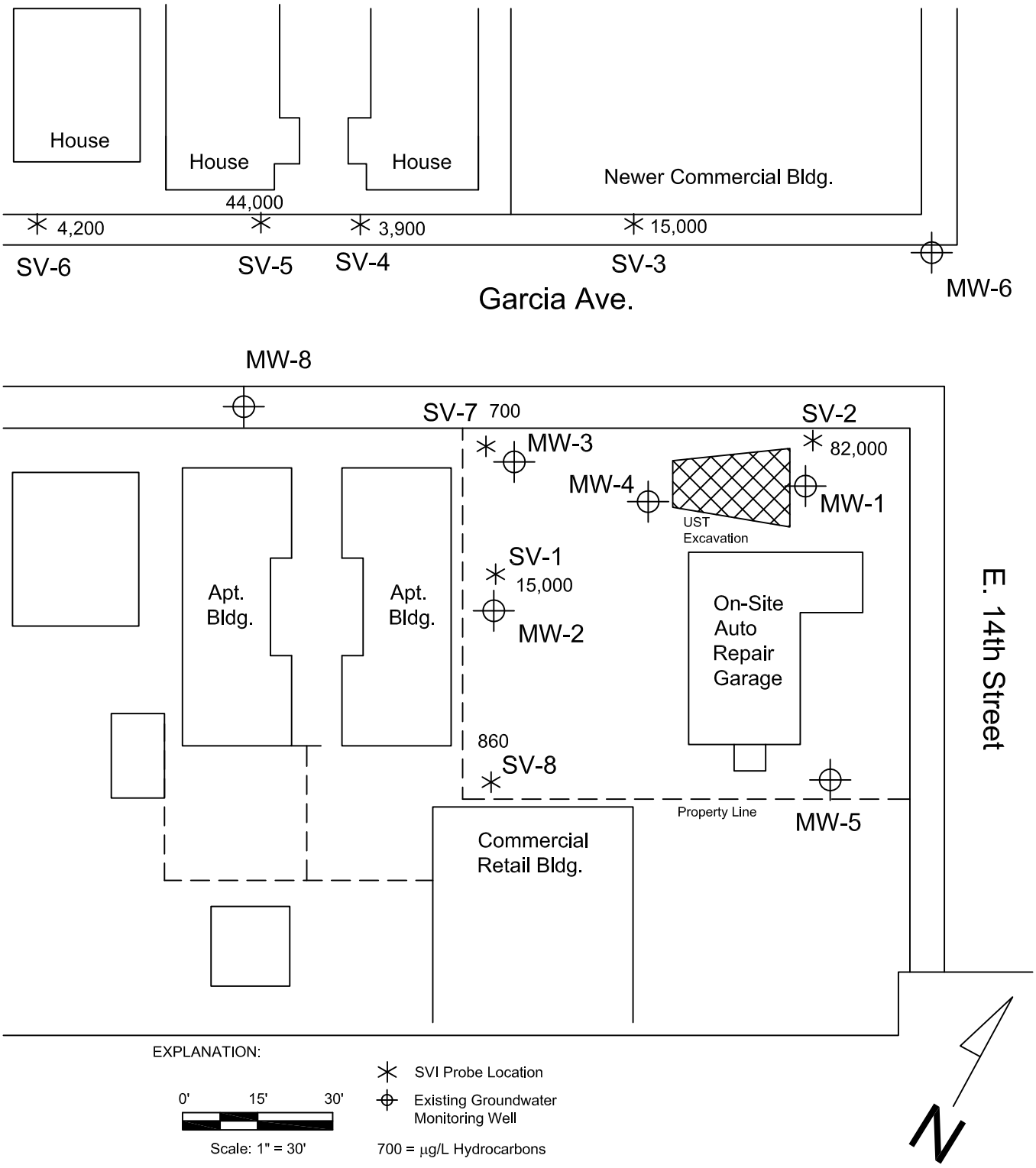
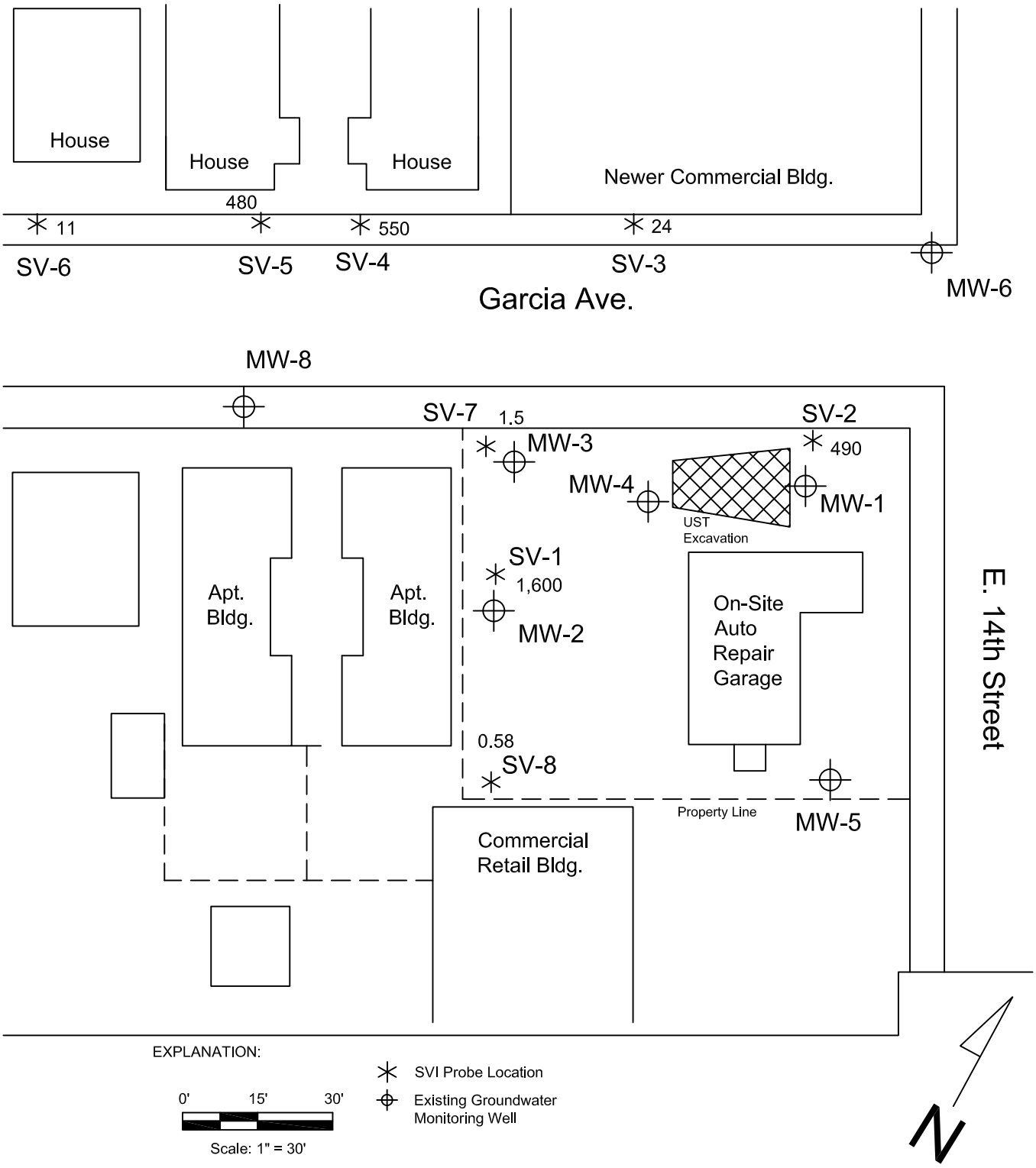
Groundwater GWC Cleaners Inc. *Cleaning California from the Groundwater Up* 347 Frederick Street, San Francisco, California, 94117 (415) 665-6181	German Autocraft 301 East 14th Street San Leandro, California	Figure 1 Rev. B
	Site Area Map	10.01.06



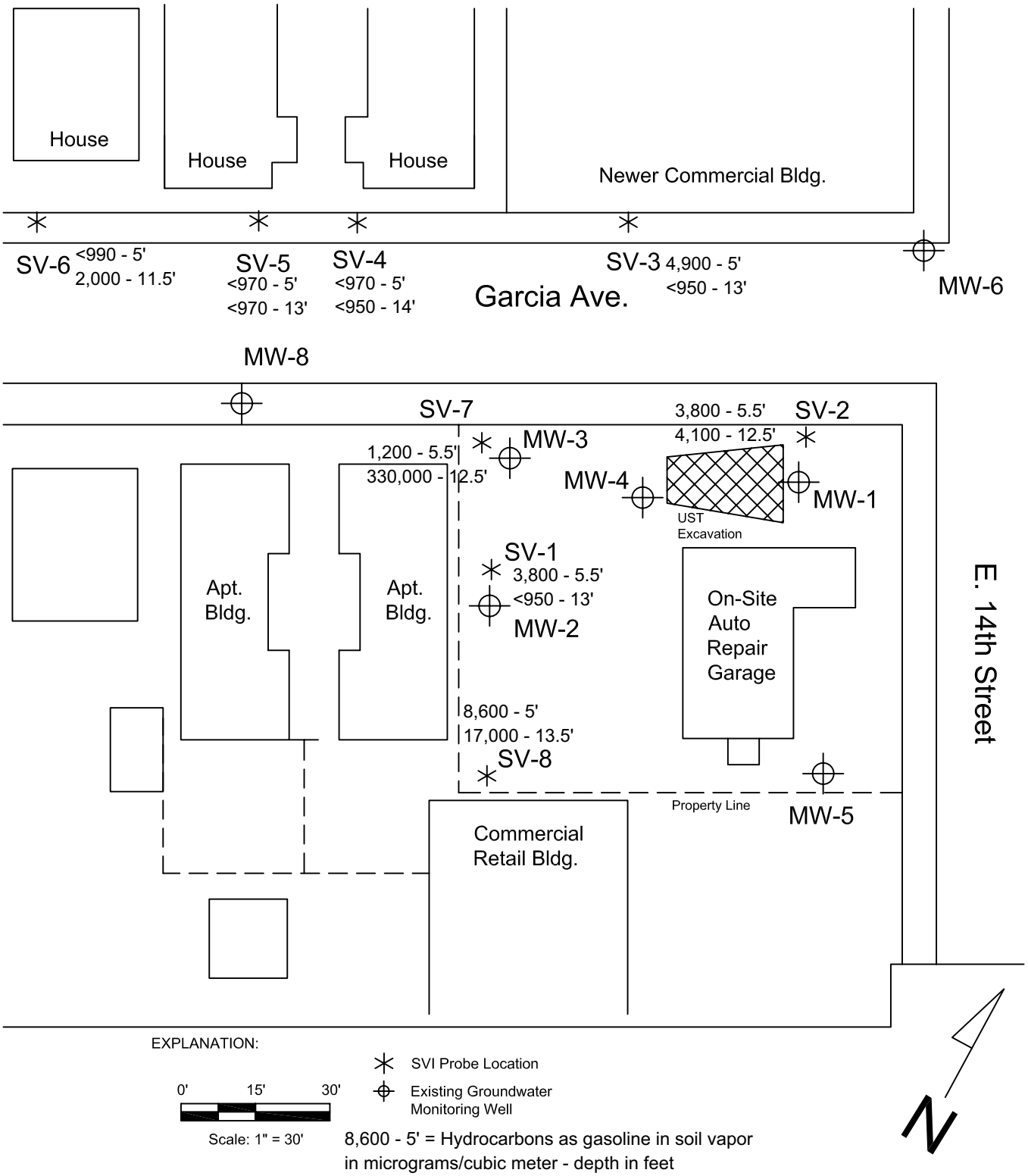
Groundwater GWC Cleaners Inc. *Cleaning California from the Groundwater Up* 347 Frederick Street, San Francisco, California, 94117 (415) 665-6181	German Autocraft 301 East 14th Street San Leandro, California	Figure 2 Rev. A
	Soil Vapor Well Locations	02.02.09



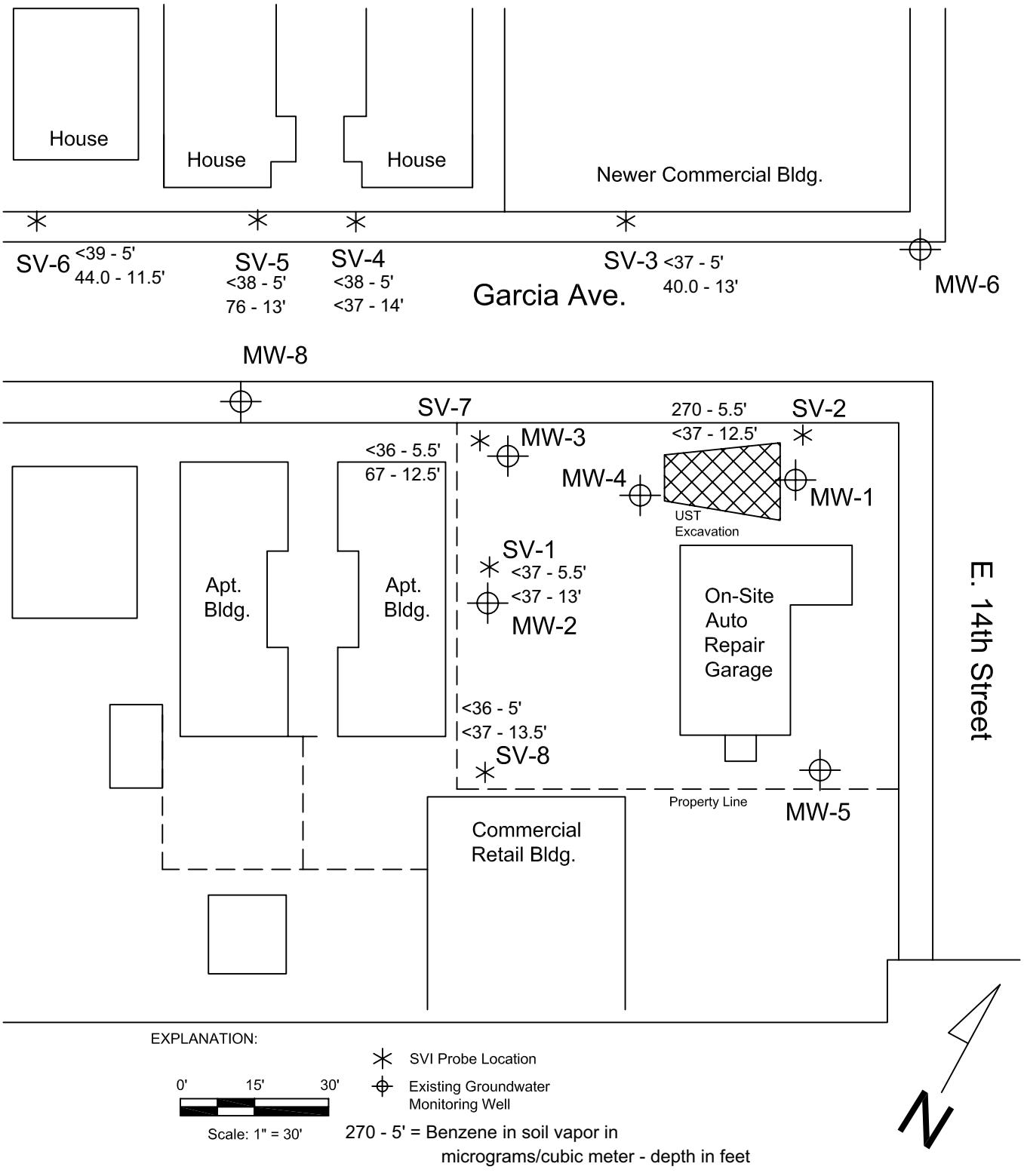
Groundwater GWC Cleaners Inc. *Cleaning California from the Groundwater Up* 347 Frederick Street, San Francisco, California, 94117 (415) 665-6181	German Autocraft 301 East 14th Street San Leandro, California	Figure 3 Rev. A
	Hydrocarbons in Groundwater	02.02.09



Groundwater GWC Cleaners Inc. *Cleaning California from the Groundwater Up* 347 Frederick Street, San Francisco, California, 94117 (415) 665-6181	German Autocraft 301 East 14th Street San Leandro, California	Figure 4 Rev. A
	Benzene in Groundwater	02.02.09



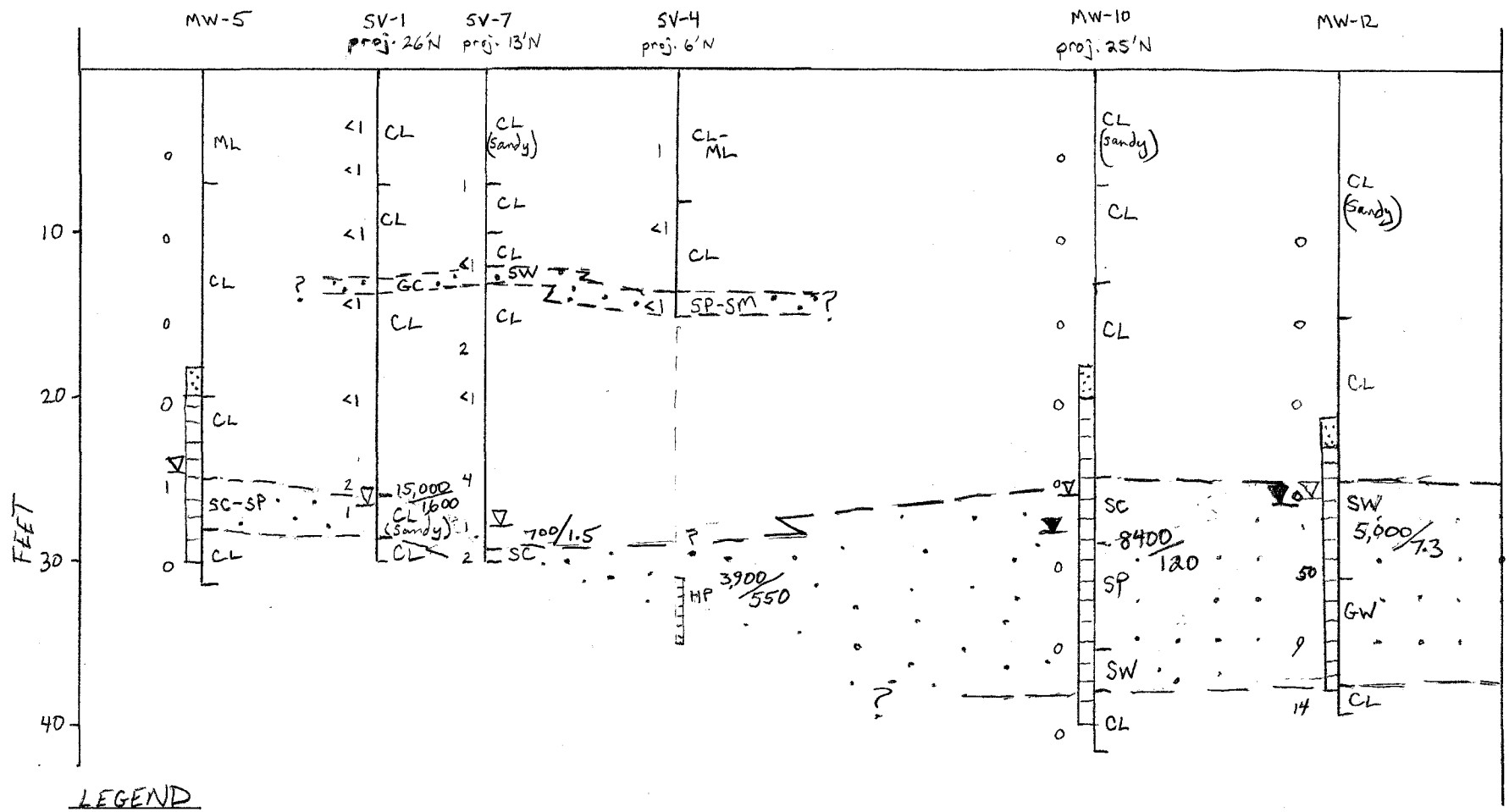
Groundwater GWC Cleaners Inc. *Cleaning California from the Groundwater Up* 347 Frederick Street, San Francisco, California, 94117 (415) 665-6181	German Autocraft 301 East 14th Street San Leandro, California	5 Rev. A
	TPH-G IN SOIL VAPOR	02.02.09



Groundwater GWC Cleaners Inc. *Cleaning California from the Groundwater Up* 347 Frederick Street, San Francisco, California, 94117 (415) 665-6181	German Autocraft 301 East 14th Street San Leandro, California	6 Rev. A
	BENZENE IN SOIL VAPOR	02.02.09

Appendix A

Geologic Cross-Section and Supplemental Information



LEGEND

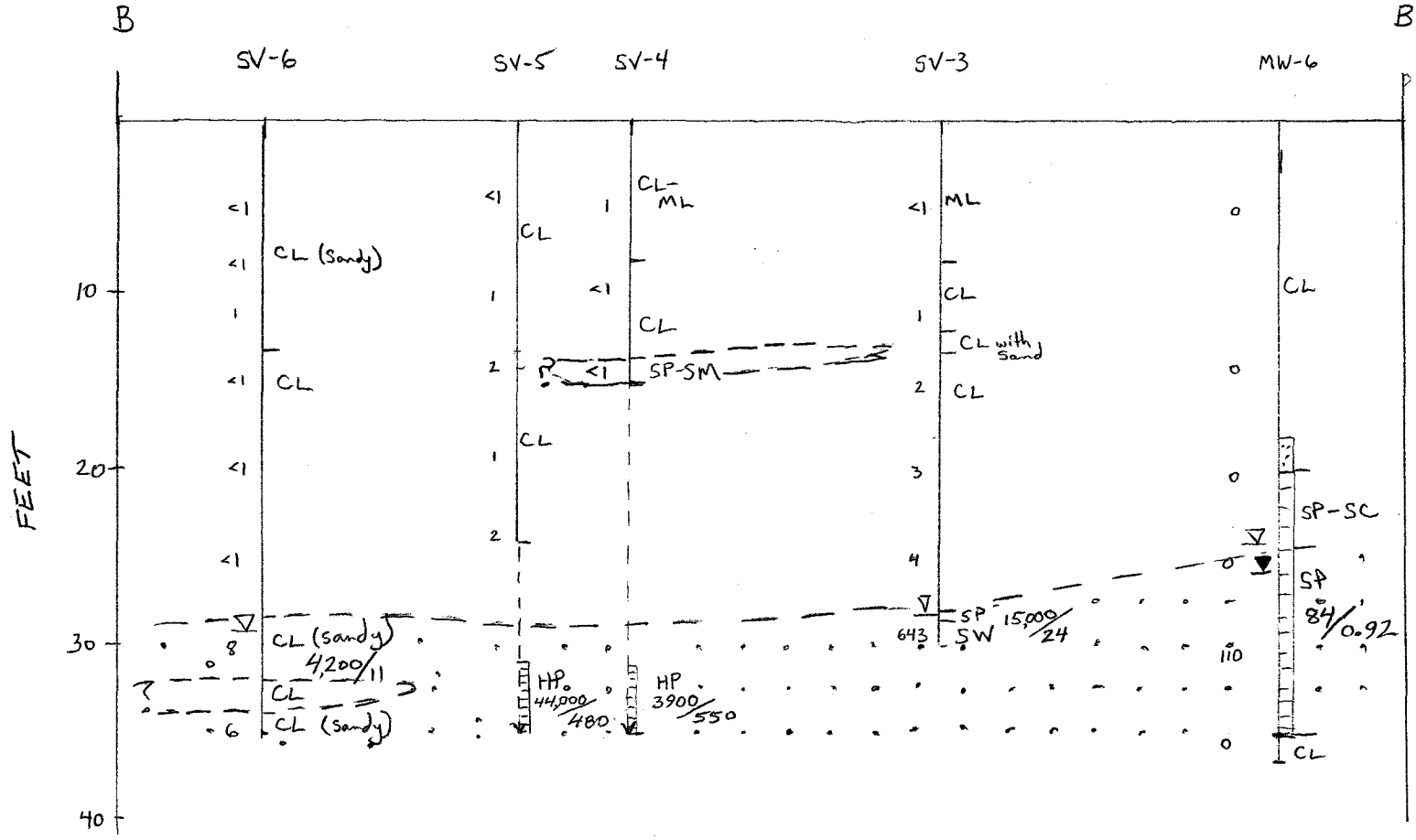
- Low Permeability Soil: Clay (CL); silt (ML)
- Medium and High Permeability Soil: Clayey Sand (SC) Well-graded sand (SW); Poorly graded sand (SP); silty Sand (SM); Clayey Gravel (GC); Gravel (GW)
- ▽ First encountered groundwater
- ▼ Static Groundwater elevation 12-13-08
- o PID measurement at time of drilling.
- 3900/550 TPHg/benzene concentration in groundwater [Jan 2009 and 9-5-08 (from wells)]

SECTION A-A' Looking South

German Autocraft
301 East 14th Street
San Leandro, CA

0 60 feet

Approximate Horizontal Scale.



LEGEND

0 30 Feet
Approximate Scale

- Low Permeability Soils: Clay (CL); Silt (ML)
- Medium and high permeability soil; Clayey Sand (SC) Well graded sand (SW); poorly graded sand (SP) Silty Sand (SM).
- First encountered groundwater
- Static groundwater elevation 12-13-08
- 2 PID measurement at time of drilling
- 3900/550 TPHg/benzene concentration in groundwater [Jan 2009 and 9/5/08 (from well)]

SECTION B-B' LOOKING NORTHWEST

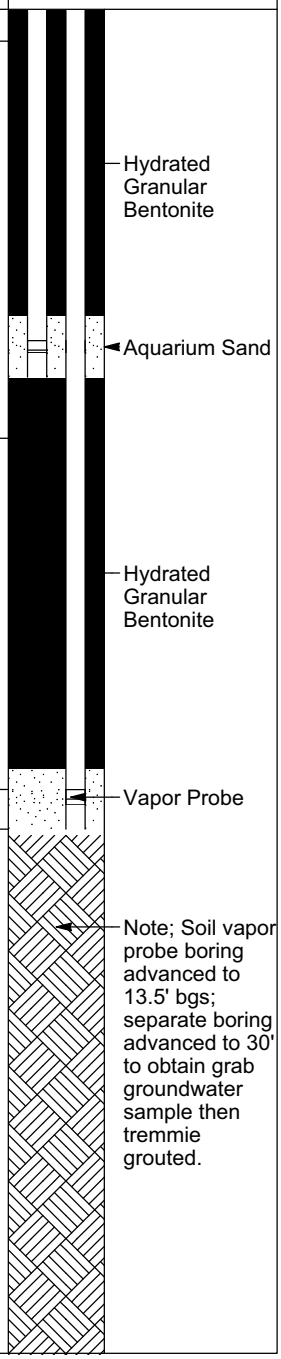
German Autocraft
301 East 14th Street
San Leandro, CA

WELL NUMBER SV-1

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/6/09
DATE COMPLETED 1/6/09
TOTAL BORING DEPTH 30.0 ft
TOTAL WELL DEPTH 13.4 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Asphalt and Baserock.
							CLAY; dark olive grey to mid to dark bown; > 90% fines; <10% very fine sand; medium plasticity; silty texture; NPO.
<1		-			CL		
		SS -		5			@ 4' - color change to light to mid brown with increased sand and silt content; silty texture predominant; low plasticity; damp; NPO.
<1		-					
							CLAY; dark grey to olive grey then to light brown; > 90% fines; <10% very fine sand; high plasticity; very stiff; NPO.
							@7' - Moist.
<1		SS - -		10	CL		
					GC		CLAYEY GRAVEL; light brown; 75% angular gravels to 1/2-inch diameter with high plastic fines up to 25%. Note: adjacent boring for groundwater hosted a well sorted sand at this interval.
<1		-					CLAY; light brown; > 90% clay with silt; <10% very fine sand; high plasticity; medium stiff to stiff; NPO.
		SS -		15			@14' - Very moist to wet.
							@15 - Moist.
					CL		@18' -Damp to moist.
<1		SS - -		20			@ 20' -Moist with minor grey mottling.



PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A **DATE STARTED** 1/6/09

PROJECT NAME German Autocraft **DATE COMPLETED** 1/6/09

Continued from Previous Page

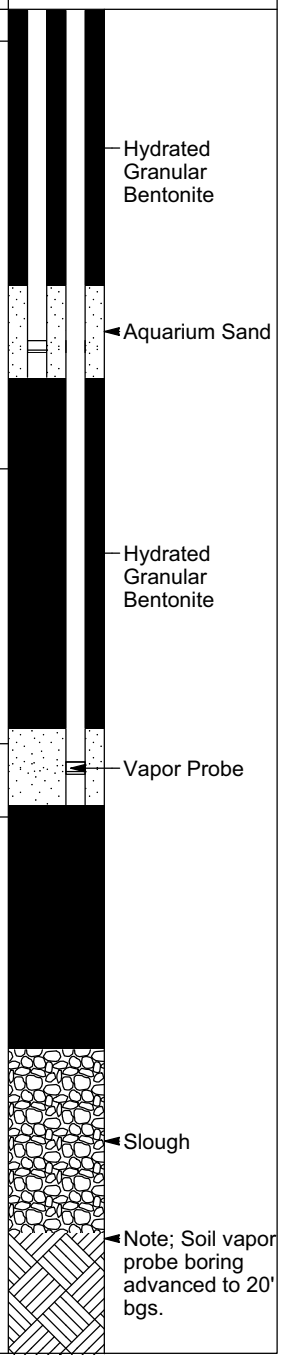
FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
					CL		CLAY; light brown; > 90% clay with silt; <10% very fine sand; high plasticity; medium stiff to stiff; NPO. *(continued)*	
2		SS -		**25**			@ 24.5' - Moist.	
1		-			CL		SANDY CLAY; light olive grey; >75-80% fines; 20-25% fine sand; very stiff; medium plasticity; soft; weak product odor. ▽	
					CL		CLAY; light brown; > 90% clay with silt; <10% very fine sand; high plasticity; very stiff; minor light grey mottling; damp to moist; NPO.	
				30			Bottom of borehole at 30.0 feet.	

WELL NUMBER SV-2

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/6/09
DATE COMPLETED 1/6/09
TOTAL BORING DEPTH 30.0 ft
TOTAL WELL DEPTH 13.0 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Asphalt and Baserock
					ML		SILT; light brown;; >90% fines; <10% fine sand; no plasticity; minor secondary vertical porosity; trace fine rootlets; no product odor (NPO).
							@ 3' - Damp
<1		- SS -		5			@ 5.5' - Damp
<1		-			CL		CLAY; olive grey; >95%fines; <5% fine sand; very stiff; high plasticity; minor secondary porosity; damp; NPO.
4		SS - -		10			@10' - color change to light brown; very stiff clay continues.
2		-			SW		SAND; >90% fine to coarse angular and subrounded sand with <10% fines; loose; trace gravel to 1/2-inch diameter; damp; NPO.
					CL		CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; upper contact to 13.5 feet has increased sand content; NPO.
2		- SS -		15			@15 - Damp to moist.
301		- SS -		20			@20' - clay as above but mottled light brown and mid grey; stiff to very stiff; moist; moderate to strong product odor.



PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A **DATE STARTED** 1/6/09

PROJECT NAME German Autocraft **DATE COMPLETED** 1/6/09

Continued from Previous Page

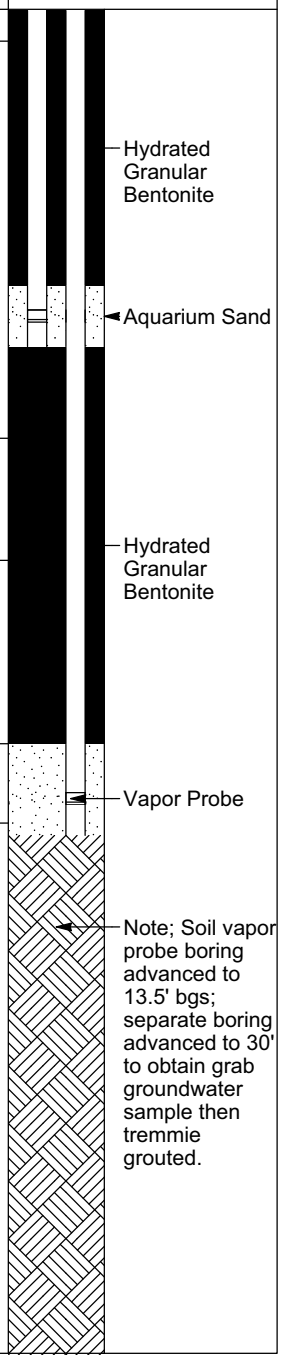
FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
5		SS -		25	CL		CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; upper contact to 13.5 feet has increased sand content; NPO. *(continued)* @ 22.5' -clay as above; olive grey; very stiff, weak product odor. @ 23' - Moist. @27' - very moist. @27 to 28' - color change to olive grey with 1-inch fine gravel lenses; clay is soft from moisture content; very moist to wet. ▽	Note; Soil vapor probe boring advanced to 20' bgs; separate boring advanced to 30' to obtain grab groundwater sample then tremmie grouted.
125		-		30			Bottom of borehole at 30.0 feet.	

WELL NUMBER SV-3

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/8/09
DATE COMPLETED 1/8/08
TOTAL BORING DEPTH 30.0 ft
TOTAL WELL DEPTH 13.5 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Concrete Sidewalk
					ML		SILT; light brown to mid brown; ; >90% fines (predominantly silt); <10% fine sand; no plasticity; soft silty texture; no product odor (NPO).
							@ 4' - Color change to light borwn to tan; damp to dry.
<1		- SS -		5			
					CL-ML		SILTY CLAY; olive grey; >95%fines; <5% fine sand; soft silty texture; NPO.
		SS -		10	CL		CLAY; light brown; >90% clay with silt; <10% fine sand; stiff; high plasticity; NPO.
1		-					
					CL		CLAY with SAND; light brown; >80-85% clay with silt; <15-20% fine sand; silty texture; low to medium plasticity; medium stiff; minor to 1/4-inch diameter angular gravels to 5%; NPO.
							@12' - Damp.
							CLAY; olive grey to mid to dark brown; >95% fines; <5% fine sand; very stiff; high plasticity; homogeneous tight clay; NPO.
2		- SS -		15			
					CL		@17.5' - Damp.
3		- SS -		20			



PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A **DATE STARTED** 1/8/09

PROJECT NAME German Autocraft **DATE COMPLETED** 1/8/08

Continued from Previous Page

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
					CL		@ 21.5' -Moist. CLAY; olive grey to mid to dark brown; >95% fines; <5% fine sand; very stiff; high plasticity; homogeneous tight clay; NPO. *(continued)*	
4		- SS -		25	CL		CLAY with SAND; color change to light grey; sand content increases with depth to 15 to 20%; 80-85% fines; soft to medium stiff; NPO. @ 24.5' - Very moist. @27' - very moist.	
					SP		SAND; olive grey; >90% fine sand; <10% fines; loose to medium dense; moderate product odor.	
643		-		30	SW		SAND; well graded; predominantly medium sand with 30% coarse sand and gravels to 1-inch diameter; loose; strong product odor. @29.5' - Wet.	

Note: groundwater immediately rose to approximatelly 18-feet bgs upon penetrating the sands at approximately 28 feet.

Bottom of borehole at 30.0 feet.

WELL NUMBER SV-4

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/8/09
DATE COMPLETED 1/8/09
TOTAL BORING DEPTH 14.5 ft
TOTAL WELL DEPTH 14.5 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY	EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
		CORE - SS -						Concrete Sidewalk	
						CL-ML		SILTY CLAY; light to mid brown; >95% fines; <5% fine sand; low to medium plasticity; silty texture; no product odor (NPO).	Hydrated Granular Bentonite
								@ 3.5' - Moist.	
1		- SS -			5			@ 5' to 10' - no recovery.	Aquarium Sand
								@9' - Damp to moist.	Hydrated Granular Bentonite
<1		- SS -			10	CL		CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; NPO.	
						SP-SM		SAND with SILT; light brown; >85% very fine grained sand; <15% silt; medium dense; no plasticity; NPO.	Vapor Probe
<1		-							

Note: Hydropunched adjacent to SV-4 to 35 feet and retracted screen 4' to 31 feet bgs to obtain grab groundwater sample. Tremmie grouted hydropunch boring.

Bottom of borehole at 14.5 feet.

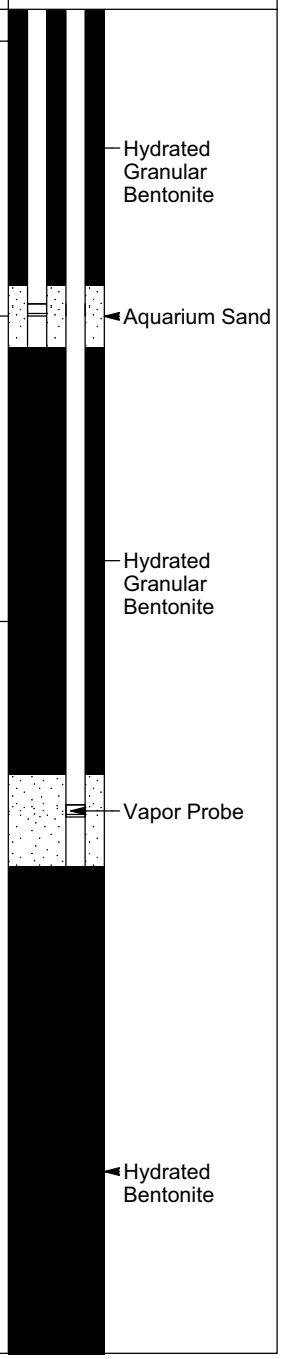
WELL NUMBER SV-5

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/7/09
DATE COMPLETED 1/7/09
TOTAL BORING DEPTH 24.0 ft
TOTAL WELL DEPTH 14.0 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Concrete Sidewalk
					CL		CLAY; olive grey; >90% fines; <10% fine sand; soft to medium stiff; medium plasticity; NPO.
							@ 3' - Moist.
<1		-					
		SS -		5			@ 5' to 10' - no recovery.
1		- SS -		10			CLAY; light brown; 90 to 95% fines; 5 to 10% fine sand; very stiff; high plasticity; NPO. @ 10' - Damp to moist.
							@13' - Minor angular and subrounded gravels within stiff clay matrix; slight increase in sand to 10 or 15%.
2		-					@14' - light brown homogeneous, tight stiff, high plasticity clay continues as described above. @ 14.5' - Damp to moist.
				15	CL		
1		SS -		20			@18.5' - Moist.

WELL DIAGRAM



PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A **DATE STARTED** 1/7/09

PROJECT NAME German Autocraft **DATE COMPLETED** 1/7/09

Continued from Previous Page

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
2		-			CL		CLAY; light brown; 90 to 95% fines; 5 to 10% fine sand; very stiff; high plasticity; NPO. *(continued)* @23.5' - Moist.	

Note: Adjacent hydropunch boring advanced to 35 feet bgs and screen retracted 4 feet to obtain a grab groundwater sample then tremmie grouted.

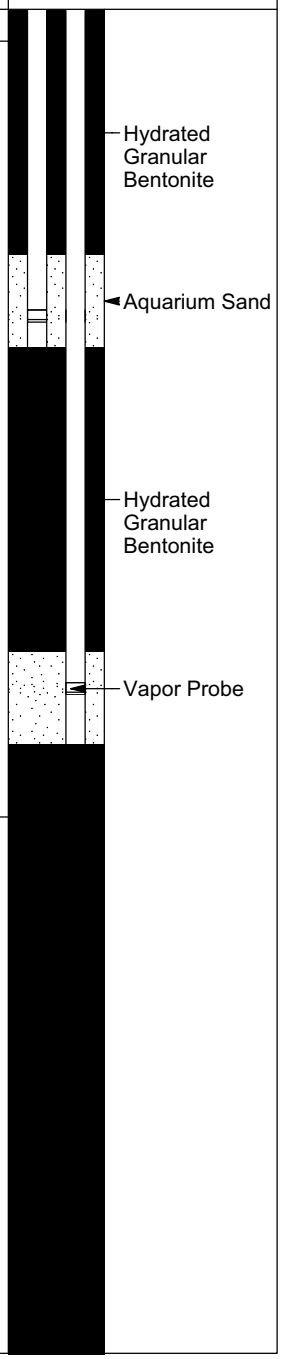
Bottom of borehole at 24.0 feet.

WELL NUMBER SV-6

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/7/09
DATE COMPLETED 1/7/09
TOTAL BORING DEPTH 35.0 ft
TOTAL WELL DEPTH 12.0 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Concrete Sidewalk
							SANDY CLAY; mid brown; 60 to 80% fines; 15 to 40% fine sand (variable and locally clayey sand); medium plasticity; NPO.
<1		SS - -		5	CL		@ 5' - Moist.
<1		-					
		SS -		10			@9.5' - Very moist to wet.
1		-					@10.5' - increased sand content to 30 to 40%.
							@11.5' - minor 3-inch thick zone of clayey gravel with sand; NPO.
							CLAY; dark brown; >90% fines; <10% fine sand; trace fine gravel; stiff; high plasticity; NPO.
<1		- SS -		15	CL		@15' - color change to mid to light brown; homogeneous stiff clay continues.
							@ 16' -Moist.
<1		SS - -		20			



PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A **DATE STARTED** 1/7/09
PROJECT NAME German Autocraft **DATE COMPLETED** 1/7/09

Continued from Previous Page

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
<1		- SS -		25	CL		CLAY; dark brown; >90% fines; <10% fine sand; trace fine gravel; stiff; high plasticity; NPO. *(continued)* @23.5' -Moist.	Hydrated Bentonite
8		- SS -		30	CL		SANDY CLAY; light brown; 85% fines; 15% very fine sand; medium plasticity; soft to medium stiff; color change to light grey; ▽ NPO. @ 29' - Very moist to wet; weak to moderate product odor. @30' - Very moist.	
					CL		CLAY; mid grey; >95% fines; <5% fine sand; very stiff; high plasticity; NPO.	
6		-		35	CL		SANDY CLAY; light brown;; 85% fines; 15% fine sand; soft to medium stiff; medium to high plasticity; NPO.	

Note: adjacent hydropunch boring attempted but not completed due to utilities. Utilized tremmie to place hydrated bentonite from the bottom of the boring to 12 feet bgs prior to building the temporary soil vapor well.

Bottom of borehole at 35.0 feet.

WELL NUMBER SV-7

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/6/08
DATE COMPLETED 1/6/08
TOTAL BORING DEPTH 30.0 ft
TOTAL WELL DEPTH 13.0 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Asphalt and Baserock
					CL		SANDY CLAY; light brown; 85%fines; 15% fine sand; soft; medium plasticity; NPO.
		SS -		5			@ 5.5' - Moist.
1		-					@ 6.5' - Very moist.
					CL		CLAY; dark olive grey; >90%fines; <10% fine sand; medium stiff; high plasticity; NPO. @8' - Moist.
		SS -		10			CLAY; light brown; >95% clay with silt; <5% fine sand; very stiff; high plasticity; damp; NPO.
					CL		
<1		-			SW		SAND; light brown; >90% fine to coarse angular and subrounded sand with <10% fines; loose; damp to moist; NPO. Note: lithology from boring advanced for groundwater sample collection. In soil vapor boring, SAND was finer with up to 30% clay (SC) between 12 and 13'bgs.
					CL		CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; upper contact from 13 to 14'bgs has 20% fine sand and is soft due to increased moisture content; below 14' is very stiff clay; NPO.
		SS -		15			
2		-			CL		SANDY CLAY; light brown; 70% clay with silt; 30% fine sand; soft; medium plasticity; very moist; NPO.
					CL		CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; moist; color change to light olive grey at 19' bgs; NPO.
<1		- SS -		20			

WELL DIAGRAM

- Hydrated Granular Bentonite
- Aquarium Sand
- Hydrated Granular Bentonite
- Vapor Probe
- Note; Soil vapor probe boring advanced to 14' bgs; separate boring advanced to 30' to obtain grab groundwater sample then tremmie grouted.

WELL NUMBER SV-7

PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A **DATE STARTED** 1/6/08

PROJECT NAME German Autocraft **DATE COMPLETED** 1/6/08

Continued from Previous Page

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	WELL DIAGRAM
							CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; moist; color change to light olive grey at 19' bgs; NPO. *(continued)*	
							@ 22' - Moist.	
							@24' - very moist.	
4		SS -		25	CL		@25' - 3-inch zone of increased sand to 25% within the high plastic clay; weak product odor. Olive grey clay continues with 10-15% fine sand within high plastic clay; medium stiff; weak product odor. Increasing sand content to lower contact.	
1		-					@28' - Very moist. ▽	
							@29' - Very moist to wet.	
2		-		30	SC		CLAYEY SAND; light olive grey; 70% fine to medium sand; 30% fines; low plasticity; wet; weak product odor.	
							Bottom of borehole at 30.0 feet.	

WELL NUMBER SV-8

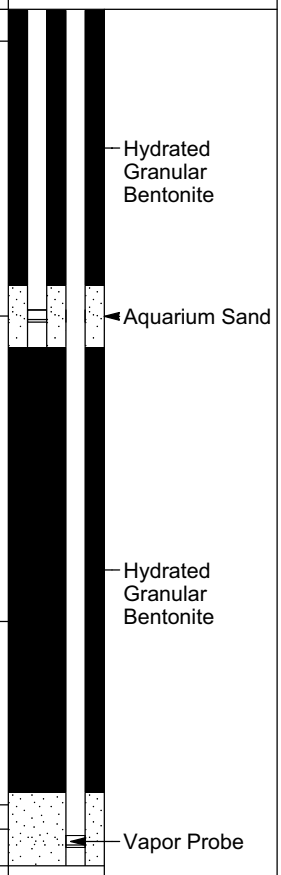
PROJECT NUMBER Groundwater Cleaners Inc. - GWC-01.1A
PROJECT NAME German Autocraft
LOCATION 301 East 14th Street, San Leandro, CA
DRILLING METHOD Hydraulic Push
SAMPLING METHOD Hydraulic Push
GROUND ELEVATION ----
TOP OF CASING ELEVATION ----
TOP OF BOX ELEVATION ----

DATE STARTED 1/8/09
DATE COMPLETED 1/8/09
TOTAL BORING DEPTH 14.0 ft
TOTAL WELL DEPTH 14.0 ft
BORING / WELL DIAMETER 2 in. / 1/4-inch OD Teflon Tubing in.
DRILLED BY Vironoex
LOGGED BY Ross Tinline

FID (ppm)	BLOW COUNTS	SAMPLE ID.	RECOVERY / EXTENT	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION
		CORE - SS -					Asphalt and baserock.
					CL-ML		CLAY to SILTY CLAY; dark olive grey; >95% fines; <5% fine sand; medium plasticity; silty texture; increased silt content with depth grading to silty clay; no product odor (NPO).
							@ 3' - Moist.
<1		- SS -		5			CLAY; dark olive grey to dark grey; >95% clay with silt; <5% fine sand; soft to medium stiff; high plasticity; NPO.
					CL		@7.5' -Moist.
<1		- SS -		10			CLAY; light brown; >90% clay with silt; <10% fine sand; very stiff; high plasticity; minor fine rootlets; NPO.
					CL		@11' - Damp.
<1		-			CL		GRAVELLY CLAY; light brown; <60% fines; >30% angular gravel to 3/4-inch diameter and 10% medium sand; medium plasticity; medium stiff; moist; NPO.
					CL		CLAY with SAND; light brown; <85% clay with silt; >15% fine to medium sand; soft to medium stiff; medium plasticity; NPO.

Note: Hydropunched adjacent to SV-8 to 35 feet and retracted screen 4' to 31 feet bgs to obtain grab groundwater sample. Tremmie grouted hydropunch boring after being left overnight for sufficient groundwater to enter for sampling.

Bottom of borehole at 14.0 feet.



AN ENVIRONMENTAL ANALYTICAL LABORATORY

1/28/2009

Mr. Ross Tinline
SVC Environmental, Inc.
11 Kenton Ave

San Carlos CA 94070

Project Name: German Autocraft
Project #: GWC-01.1A

Dear Mr. Ross Tinline

The following report includes the data for the above referenced project for sample(s) received on 1/16/2009 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 (5&20 ppbv) are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for you air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kyle Vagadori
Project Manager

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0901284

Work Order Summary

CLIENT:	Mr. Ross Tinline SVC Environmental, Inc. 11 Kenton Ave San Carlos, CA 94070	**BILL TO:**	Mr. Ross Tinline SVC Environmental, Inc. 11 Kenton Ave San Carlos, CA 94070
PHONE:	650.551.0116	**P.O. #**	
FAX:		**PROJECT #**	GWC-01.1A German Autocraft
DATE RECEIVED:	01/16/2009	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	01/28/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SV-8d 5	Modified TO-15 (5&20 ppbv)	3.5 "Hg	15 psi
01AA	SV-8d 5 Lab Duplicate	Modified TO-15 (5&20 ppbv)	3.5 "Hg	15 psi
02A	SV-8d 13.5	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
03A	SV-1d 5.5	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
04A	SV-1d 13	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
05A	SV-7d 5.5	Modified TO-15 (5&20 ppbv)	3.5 "Hg	15 psi
06A	SV-7d 12.5	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
07A	SV-2d 5.5	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
08A	SV-2d 12.5	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
09A	SV-6d 5	Modified TO-15 (5&20 ppbv)	5.0 "Hg	15 psi
10A	QCSV-6d 11.5	Modified TO-15 (5&20 ppbv)	7.0 "Hg	15 psi
11A	SV-6d 11.5	Modified TO-15 (5&20 ppbv)	5.0 "Hg	15 psi
12A	SV-5d 5	Modified TO-15 (5&20 ppbv)	4.5 "Hg	15 psi
13A	SV-5d 13	Modified TO-15 (5&20 ppbv)	4.5 "Hg	15 psi
14A	SV-4d 5	Modified TO-15 (5&20 ppbv)	4.5 "Hg	15 psi
15A	SV-4d 14	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
16A	SV-3d 5	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi

Continued on next page

WORK ORDER #: 0901284

Work Order Summary

CLIENT:	Mr. Ross Tinline SVC Environmental, Inc. 11 Kenton Ave San Carlos, CA 94070	**BILL TO:**	Mr. Ross Tinline SVC Environmental, Inc. 11 Kenton Ave San Carlos, CA 94070
PHONE:	650.551.0116	**P.O. #**	
FAX:		**PROJECT #**	GWC-01.1A German Autocraft
DATE RECEIVED:	01/16/2009	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	01/28/2009		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
17A	SV-3d 13	Modified TO-15 (5&20 ppbv)	4.0 "Hg	15 psi
18A	QCSV-3d 13	Modified TO-15 (5&20 ppbv)	2.5 "Hg	15 psi
19A	Lab Blank	Modified TO-15 (5&20 ppbv)	NA	NA
20A	CCV	Modified TO-15 (5&20 ppbv)	NA	NA
21A	LCS	Modified TO-15 (5&20 ppbv)	NA	NA

CERTIFIED BY: Linda D. Fruman DATE: 01/28/09

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/08, Expiration date: 06/30/09
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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

LABORATORY NARRATIVE
Modified TO-15 Soil Gas
SVC Environmental, Inc.
Workorder# 0901284

Eighteen 1 Liter Summa Canister samples were received on January 16, 2009. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

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

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

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

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Analytical discrepancies of samples are notated by data qualifying flags. Definitions for each data qualifying flag can be found on associated sample result summary pages.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

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

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: SV-8d 5

Lab ID#: 0901284-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	11	90	43	340
Ethyl Benzene	11	120	50	530
m,p-Xylene	11	410	50	1800
o-Xylene	11	68	50	290
TPH ref. to Gasoline (MW=100)	230	2100	940	8600

Client Sample ID: SV-8d 5 Lab Duplicate

Lab ID#: 0901284-01AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	11	85	43	320
Ethyl Benzene	11	110	50	500
m,p-Xylene	11	370	50	1600
o-Xylene	11	63	50	270
TPH ref. to Gasoline (MW=100)	230	2300	940	9400

Client Sample ID: SV-8d 13.5

Lab ID#: 0901284-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
m,p-Xylene	12	65	50	280
o-Xylene	12	58	50	250
TPH ref. to Gasoline (MW=100)	230	4200	950	17000

Client Sample ID: SV-1d 5.5

Lab ID#: 0901284-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	12	21	44	78
Ethyl Benzene	12	52	50	230
m,p-Xylene	12	110	50	490
o-Xylene	12	92	50	400
TPH ref. to Gasoline (MW=100)	230	930	950	3800

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: SV-1d 13

Lab ID#: 0901284-04A

No Detections Were Found.

Client Sample ID: SV-7d 5.5

Lab ID#: 0901284-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	11	73	43	280
Ethyl Benzene	11	63	50	270
m,p-Xylene	11	180	50	810
o-Xylene	11	33	50	140
TPH ref. to Gasoline (MW=100)	230	290	940	1200

Client Sample ID: SV-7d 12.5

Lab ID#: 0901284-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	12	21	37	67
Toluene	12	46	44	170
Ethyl Benzene	12	100	50	440
m,p-Xylene	12	270	50	1200
o-Xylene	12	56	50	240
TPH ref. to Gasoline (MW=100)	230	81000	950	330000

Client Sample ID: SV-2d 5.5

Lab ID#: 0901284-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	12	84	37	270
Toluene	12	13	44	50
TPH ref. to Gasoline (MW=100)	230	930	950	3800

Client Sample ID: SV-2d 12.5

Lab ID#: 0901284-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH ref. to Gasoline (MW=100)	230	1000	950	4100

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: SV-6d 5

Lab ID#: 0901284-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Toluene	12	17	46	63
m,p-Xylene	12	20	52	85

Client Sample ID: QCSV-6d 11.5

Lab ID#: 0901284-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	53	32000 E	130	79000 E

Client Sample ID: SV-6d 11.5

Lab ID#: 0901284-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	12	14	39	44
Toluene	12	34	46	130
m,p-Xylene	12	19	52	83
TPH ref. to Gasoline (MW=100)	240	480	990	2000

Client Sample ID: SV-5d 5

Lab ID#: 0901284-12A

No Detections Were Found.

Client Sample ID: SV-5d 13

Lab ID#: 0901284-13A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	12	24	38	76
Toluene	12	32	45	120
m,p-Xylene	12	17	52	75

Client Sample ID: SV-4d 5

Lab ID#: 0901284-14A

No Detections Were Found.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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

Client Sample ID: SV-4d 14

Lab ID#: 0901284-15A

No Detections Were Found.

Client Sample ID: SV-3d 5

Lab ID#: 0901284-16A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
TPH ref. to Gasoline (MW=100)	230	1200	950	4900

Client Sample ID: SV-3d 13

Lab ID#: 0901284-17A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Benzene	12	12	37	40
Toluene	12	18	44	67
m,p-Xylene	12	14	50	60

Client Sample ID: QCSV-3d 13

Lab ID#: 0901284-18A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	44	44000 E	110	110000 E

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-8d 5

Lab ID#: 0901284-01A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012236**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.29**	**Date of Analysis: 1/22/09 10:26 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	46	Not Detected	110	Not Detected
Methyl tert-butyl ether	11	Not Detected	41	Not Detected
Benzene	11	Not Detected	36	Not Detected
Toluene	11	90	43	340
Ethyl Benzene	11	120	50	530
m,p-Xylene	11	410	50	1800
o-Xylene	11	68	50	290
TPH ref. to Gasoline (MW=100)	230	2100	940	8600

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	97	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-8d 5 Lab Duplicate

Lab ID#: 0901284-01AA

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012237**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.29**	**Date of Analysis: 1/22/09 10:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	46	Not Detected	110	Not Detected
Methyl tert-butyl ether	11	Not Detected	41	Not Detected
Benzene	11	Not Detected	36	Not Detected
Toluene	11	85	43	320
Ethyl Benzene	11	110	50	500
m,p-Xylene	11	370	50	1600
o-Xylene	11	63	50	270
TPH ref. to Gasoline (MW=100)	230	2300	940	9400

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-8d 13.5

Lab ID#: 0901284-02A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012238**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/22/09 11:05 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	Not Detected	37	Not Detected
Toluene	12	Not Detected	44	Not Detected
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	65	50	280
o-Xylene	12	58	50	250
TPH ref. to Gasoline (MW=100)	230	4200	950	17000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	94	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-1d 5.5

Lab ID#: 0901284-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012239**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/22/09 11:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	Not Detected	37	Not Detected
Toluene	12	21	44	78
Ethyl Benzene	12	52	50	230
m,p-Xylene	12	110	50	490
o-Xylene	12	92	50	400
TPH ref. to Gasoline (MW=100)	230	930	950	3800

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-1d 13

Lab ID#: 0901284-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012240**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/22/09 11:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	Not Detected	37	Not Detected
Toluene	12	Not Detected	44	Not Detected
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	Not Detected	50	Not Detected
o-Xylene	12	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	230	Not Detected	950	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-7d 5.5

Lab ID#: 0901284-05A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012241**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.29**	**Date of Analysis: 1/23/09 12:21 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	46	Not Detected	110	Not Detected
Methyl tert-butyl ether	11	Not Detected	41	Not Detected
Benzene	11	Not Detected	36	Not Detected
Toluene	11	73	43	280
Ethyl Benzene	11	63	50	270
m,p-Xylene	11	180	50	810
o-Xylene	11	33	50	140
TPH ref. to Gasoline (MW=100)	230	290	940	1200

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-7d 12.5

Lab ID#: 0901284-06A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012242**	**Date of Collection:**	**1/13/09**
Dil. Factor:	**2.33**	**Date of Analysis:**	**1/23/09 12:57 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	21	37	67
Toluene	12	46	44	170
Ethyl Benzene	12	100	50	440
m,p-Xylene	12	270	50	1200
o-Xylene	12	56	50	240
TPH ref. to Gasoline (MW=100)	230	81000	950	330000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-2d 5.5

Lab ID#: 0901284-07A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012243**	**Date of Collection: 1/13/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/23/09 01:21 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	84	37	270
Toluene	12	13	44	50
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	Not Detected	50	Not Detected
o-Xylene	12	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	230	930	950	3800

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-2d 12.5

Lab ID#: 0901284-08A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012244**	**Date of Collection:**	**1/13/09**
Dil. Factor:	**2.33**	**Date of Analysis:**	**1/23/09 01:40 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	Not Detected	37	Not Detected
Toluene	12	Not Detected	44	Not Detected
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	Not Detected	50	Not Detected
o-Xylene	12	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	230	1000	950	4100

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-6d 5

Lab ID#: 0901284-09A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012245**	**Date of Collection:**	**1/14/09**
Dil. Factor:	**2.42**	**Date of Analysis:**	**1/23/09 01:59 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	48	Not Detected	120	Not Detected
Methyl tert-butyl ether	12	Not Detected	44	Not Detected
Benzene	12	Not Detected	39	Not Detected
Toluene	12	17	46	63
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	20	52	85
o-Xylene	12	Not Detected	52	Not Detected
TPH ref. to Gasoline (MW=100)	240	Not Detected	990	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: QCSV-6d 11.5

Lab ID#: 0901284-10A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012246**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.64**	**Date of Analysis: 1/23/09 05:50 AM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**	**Rpt. Limit (uG/m3)**	**Amount (uG/m3)**
2-Propanol	53	32000 E	130	79000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-6d 11.5

Lab ID#: 0901284-11A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012247**	**Date of Collection:**	**1/14/09**
Dil. Factor:	**2.42**	**Date of Analysis:**	**1/23/09 06:11 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	48	Not Detected	120	Not Detected
Methyl tert-butyl ether	12	Not Detected	44	Not Detected
Benzene	12	14	39	44
Toluene	12	34	46	130
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	19	52	83
o-Xylene	12	Not Detected	52	Not Detected
TPH ref. to Gasoline (MW=100)	240	480	990	2000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-5d 5

Lab ID#: 0901284-12A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012248**	**Date of Collection:**	**1/14/09**
Dil. Factor:	**2.38**	**Date of Analysis:**	**1/23/09 06:30 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	48	Not Detected	120	Not Detected
Methyl tert-butyl ether	12	Not Detected	43	Not Detected
Benzene	12	Not Detected	38	Not Detected
Toluene	12	Not Detected	45	Not Detected
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	Not Detected	52	Not Detected
o-Xylene	12	Not Detected	52	Not Detected
TPH ref. to Gasoline (MW=100)	240	Not Detected	970	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-5d 13

Lab ID#: 0901284-13A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012249**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.38**	**Date of Analysis: 1/23/09 07:01 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	48	Not Detected	120	Not Detected
Methyl tert-butyl ether	12	Not Detected	43	Not Detected
Benzene	12	24	38	76
Toluene	12	32	45	120
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	17	52	75
o-Xylene	12	Not Detected	52	Not Detected
TPH ref. to Gasoline (MW=100)	240	Not Detected	970	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-4d 5

Lab ID#: 0901284-14A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012250**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.38**	**Date of Analysis: 1/23/09 07:19 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	48	Not Detected	120	Not Detected
Methyl tert-butyl ether	12	Not Detected	43	Not Detected
Benzene	12	Not Detected	38	Not Detected
Toluene	12	Not Detected	45	Not Detected
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	Not Detected	52	Not Detected
o-Xylene	12	Not Detected	52	Not Detected
TPH ref. to Gasoline (MW=100)	240	Not Detected	970	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-4d 14

Lab ID#: 0901284-15A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012251**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/23/09 07:40 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	Not Detected	37	Not Detected
Toluene	12	Not Detected	44	Not Detected
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	Not Detected	50	Not Detected
o-Xylene	12	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	230	Not Detected	950	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-3d 5

Lab ID#: 0901284-16A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012252**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/23/09 08:02 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	Not Detected	37	Not Detected
Toluene	12	Not Detected	44	Not Detected
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	Not Detected	50	Not Detected
o-Xylene	12	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	230	1200	950	4900

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: SV-3d 13

Lab ID#: 0901284-17A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012253**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.33**	**Date of Analysis: 1/23/09 08:22 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	47	Not Detected	110	Not Detected
Methyl tert-butyl ether	12	Not Detected	42	Not Detected
Benzene	12	12	37	40
Toluene	12	18	44	67
Ethyl Benzene	12	Not Detected	50	Not Detected
m,p-Xylene	12	14	50	60
o-Xylene	12	Not Detected	50	Not Detected
TPH ref. to Gasoline (MW=100)	230	Not Detected	950	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: QCSV-3d 13

Lab ID#: 0901284-18A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012254**	**Date of Collection: 1/14/09**	
Dil. Factor:	**2.20**	**Date of Analysis: 1/23/09 08:42 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	44	44000 E	110	110000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0901284-19A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012234**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/22/09 09:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
2-Propanol	20	Not Detected	49	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
TPH ref. to Gasoline (MW=100)	100	Not Detected	410	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0901284-20A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012231**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/22/09 08:15 PM**	

Compound	**%Recovery**
2-Propanol	96
Methyl tert-butyl ether	73
Benzene	94
Toluene	97
Ethyl Benzene	96
m,p-Xylene	96
o-Xylene	96
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0901284-21A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w012233**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/22/09 09:11 PM**	

Compound	**%Recovery**
2-Propanol	90
Methyl tert-butyl ether	60
Benzene	84
Toluene	88
Ethyl Benzene	92
m,p-Xylene	91
o-Xylene	92
TPH ref. to Gasoline (MW=100)	Not Spiked

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Groundwater Cleaners 347 Frederick Street San Francisco, CA 94117	Client Project ID: German Autocraft	Date Sampled: 01/06/09-01/12/09
		Date Received: 01/12/09
	Client Contact: Glenn Reierstad	Date Reported: 01/15/09
	Client P.O.:	Date Completed: 01/14/09

WorkOrder: 0901160

January 15, 2009

Dear Glenn:

Enclosed within are:

1) The results of the **8** analyzed samples from your project: **German Autocraft,**
2) A QC report for the above samples,
3) A copy of the chain of custody, and
4) An invoice for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions or concerns, please feel free to give me a call. Thank you for choosing

McCampbell Analytical Laboratories for your analytical needs.

Best regards,

Angela Rydelius
Laboratory Manager
McCampbell Analytical, Inc.

0901160

McCAMPBELL ANALYTICAL, INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☑ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To: Glenn Reierstad	**Bill To:** Same
Company: Groundwater Cleaners	
347 Frederick Street	
San Francisco, CA 94117	**E-Mail:** reierstad@msn.com
Tele: (415) 665-6181	**Fax:** (415) 566-3556
Project #:	**Project Name:**
Project Location: Germany Autocraft, 301 E 4th St. San Leandro	
Sampler Signature: Reierstad	

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX: Water	Soil	Air	Sludge	Other	METHOD PRESERVED: ICE	HCL	HNO_3	Other
+20 SV-7		1/6/09	1510	4	VOA	X					X	X		
+30 SV-6		1/7/09	10:50	3	VOA	X								
+10 SV-5		1/7/09	1500	3	VOA	X								
+20 SV-4		1/8/09	0935	3	VOA	X								
+40 SV-2		1/8/09	1015	3	VOA	X								
+30 SV-3		1/8/09	1145	3	VOA	X								
+ SV-8		1/12/09	0735	3	V	X								
+ SV-1		1/12/09	0742	3	V	X								

Analysis Request	Other	Comments
MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)		Filter Samples for Metals analysis: Yes / No
MTBE / BTEX ONLY (EPA 602 / 8021)		
TPH as Diesel / Motor Oil (8015)		
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)		
Total Petroleum Hydrocarbons (418.1)		
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)		
EPA 505/ 608 / 8081 (Cl Pesticides)		
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners		
EPA 507 / 8141 (NP Pesticides)		
EPA 515 / 8151 (Acidic Cl Herbicides)		
EPA 524.2 / 624 / 8260 (VOCs)		
EPA 525.2 / 625 / 8270 (SVOCs)		
EPA 8270 SIM / 8310 (PAHs / PNAs)		
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)		
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)		
Lead (200.7 / 200.8 / 6010 / 6020)		

Relinquished By:	Date:	Time:	Received By:
Reierstad	1/12/09	2:50	
Relinquished By:	Date:	Time:	Received By:
	1/12/09	200	Mc Valle
Relinquished By:	Date:	Time:	Received By:

ICE/t° 6.8 i, wet ice ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB

PRESERVATION: VOAS ✓ | O&G | METALS pH<2 | OTHER

COMMENTS:

Do you need this report emailed? Yes ____ No ____

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0901160 **ClientCode: GCF**

☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Glenn Reierstad
Groundwater Cleaners
347 Frederick Street
San Francisco, CA 94117
415-577-9383 FAX 415-566-3556

Email: reierstad@msn.com
cc:
PO:
ProjectNo: German Autocraft

Bill to:
Glenn Reirstad
Groundwater Cleaners
347 Frederick Street
San Francisco, CA 94117

Requested TAT: 5 days

Date Received: **01/12/2009**
Date Printed: **01/12/2009**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
0901160-001	SV-7	Water	1/6/2009 15:10	☐	A											
0901160-002	SV-6	Water	1/7/2009 10:50	☐	A											
0901160-003	SV-5	Water	1/7/2009 15:00	☐	A											
0901160-004	SV-4	Water	1/8/2009 9:35	☐	A											
0901160-005	SV-2	Water	1/8/2009 10:15	☐	A											
0901160-006	SV-3	Water	1/8/2009 11:45	☐	A											
0901160-007	SV-8	Water	1/12/2009 7:35	☐	A											
0901160-008	SV-1	Water	1/12/2009 7:42	☐	A											

Test Legend:

1	G-MBTEX_W	2		3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Melissa Valles

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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Telephone: 877-252-9262 Fax: 925-252-9269

Sample Receipt Checklist

Client Name: **Groundwater Cleaners**

Date and Time Received: **1/12/09 1:50:20 PM**

Project Name: **German Autocraft**

Checklist completed and reviewed by: Melissa Valles

WorkOrder N°: **0901160** Matrix Water

Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 6.8°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	No VOA vials submitted ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
TTLC Metal - pH acceptable upon receipt (pH<2)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Client contacted: Date contacted: Contacted by:

Comments:

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Groundwater Cleaners	Client Project ID: German Autocraft	Date Sampled: 01/06/09-01/12/09
		Date Received: 01/12/09
347 Frederick Street	Client Contact: Glenn Reierstad	Date Extracted: 01/13/09
San Francisco, CA 94117	Client P.O.:	Date Analyzed 01/13/09

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0901160

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	SV-7	W	700,d1,b1	ND	1.5	9.3	1.1	4.2	1	106
002A	SV-6	W	4200,d1,b1	ND	11	24	31	19	1	104
003A	SV-5	W	44,000,d1,b6,b1	ND<500	480	470	1700	7100	100	116
004A	SV-4	W	3900,d1,b1	ND<120	550	49	140	83	10	120
005A	SV-2	W	82,000,d1,b6,b1	ND<1000	490	3000	4600	24,000	200	121
006A	SV-3	W	15,000,d1,b6,b1	ND<500	24	77	54	28	20	108
007A	SV-8	W	860,d1	ND	0.58	15	5.6	18	1	98
008A	SV-1	W	15,000,d1	ND<90	1600	23	890	680	10	119

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	5	0.5	0.5	0.5	0.5	µg/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	mg/Kg

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation:

b1) aqueous sample that contains greater than ~1 vol. % sediment
b6) lighter than water immiscible sheen/product is present
d1) weakly modified or unmodified gasoline is significant

DHS ELAP Certification 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 40738 WorkOrder: 0901160

EPA Method SW8021B/8015Bm **Extraction SW5030B** **Spiked Sample ID: 0901149-001B**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	95.3	90.3	5.47	109	94.1	14.7	70 - 130	20	70 - 130	20
MTBE	ND	10	106	110	3.80	95.3	89.5	6.25	70 - 130	20	70 - 130	20
Benzene	ND	10	95.7	98	2.40	89.7	82	9.00	70 - 130	20	70 - 130	20
Toluene	ND	10	87.9	89.2	1.45	94.5	87.2	8.05	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	97.5	99	1.54	92	80	14.0	70 - 130	20	70 - 130	20
Xylenes	ND	30	94	94.9	0.932	105	93.3	12.1	70 - 130	20	70 - 130	20
%SS:	96	10	99	101	2.71	107	98	8.30	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 40738 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901160-001A	01/06/09 3:10 PM	01/13/09	01/13/09 8:32 AM	0901160-002A	01/07/09 10:50 AM	01/13/09	01/13/09 6:09 PM
0901160-003A	01/07/09 3:00 PM	01/13/09	01/13/09 5:07 AM	0901160-004A	01/08/09 9:35 AM	01/13/09	01/13/09 6:39 PM
0901160-005A	01/08/09 10:15 AM	01/13/09	01/13/09 6:07 AM	0901160-006A	01/08/09 11:45 AM	01/13/09	01/13/09 7:10 PM
0901160-007A	01/12/09 7:35 AM	01/13/09	01/13/09 2:35 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

DHS ELAP Certification 1644

QA/QC Officer

McCampbell Analytical, Inc.
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Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water BatchID: 40743 WorkOrder: 0901160

EPA Method SW8021B/8015Bm **Extraction SW5030B** **Spiked Sample ID: 0901155-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	101	93.4	7.53	97.7	95.9	1.86	70 - 130	20	70 - 130	20
MTBE	ND	10	98	87.8	11.0	95.6	92	3.84	70 - 130	20	70 - 130	20
Benzene	ND	10	89.9	85.6	4.86	90.9	87.4	3.99	70 - 130	20	70 - 130	20
Toluene	ND	10	90.1	85.5	5.20	90.2	86.8	3.88	70 - 130	20	70 - 130	20
Ethylbenzene	ND	10	93.4	89.3	4.56	93.7	90.5	3.40	70 - 130	20	70 - 130	20
Xylenes	ND	30	103	98.6	4.60	104	99.7	3.79	70 - 130	20	70 - 130	20
%SS:	98	10	93	92	0.904	92	92	0	70 - 130	20	70 - 130	20

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 40743 SUMMARY

Lab ID	Date Sampled	Date Extracted	Date Analyzed	Lab ID	Date Sampled	Date Extracted	Date Analyzed
0901160-008A	01/12/09 7:42 AM	01/13/09	01/13/09 2:04 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = matrix interference and/or analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content, or inconsistency in sample containers.

APPENDIX B

Temporary Soil Vapor Well Installation
and
Sampling Procedures

Temporary Multi-Completion Well Installation

A California Professional Geologist (PG) supervised the drilling of the soil borings. The eight borings were completed utilizing hydraulic push (Geoprobe®) equipment with continuous soil sampling capabilities at the locations on Figure 2. The Geoprobe® equipment set-up uses a 2.25-inch diameter Macrocore® sampler to recover continuous cores. The core sampler was driven into the soil to beneath first encountered groundwater to a depth of approximately 30 to 35 feet bgs. Soil cores recovered from the sampler were inspected and field screened with a photoionization detector (PID).

To collect grab groundwater samples, polyvinyl chloride (PVC) well casing of approximately 0.75-inch diameter was inserted in the boreholes with 0.010-inch slotted screens extending above static groundwater (or alternatively a stainless steel screened hydropunch was driven to approximately 35 feet bgs and retracted 4-feet). Grab groundwater samples were collected immediately after drilling and casing installation using dedicated polyethylene tubing and a check valve. However, some locations required up to 48 hours before sufficient groundwater was present for sampling. The laboratory provided containers were labeled and placed in a cooler and submitted to the designated laboratory under chain of custody. Upon completion of the grab groundwater sampling activities, the temporary PVC casing was removed and borehole backfilled by tremie with neat cement grout.

The temporary dual-completion soil vapor wells were installed in a second adjacent boring advanced with the same direct push equipment as follows:
The vapor points were installed by placing approximately 2 inches of sand via tremie pipe then; utilizing a tremie, place the stainless steel expendable vapor tip affixed to Teflon™ tubing on the sand. Additional sand was then placed via tremie to create approximately a 1-foot sand pack interval around the vapor tip as the tremie hosting the Teflon™ tubing is withdrawn. The two vapor points were installed within each boring utilizing these methods (at approximately 13 feet bgs and 5 feet bgs) with the interval between and the surface seal of tremied hydrated granular bentonite. The Teflon™ tubing was labeled with depth of placement and capped utilizing a Swagelok valve. Typical well completion details are presented on the enclosed figure of this Appendix. The off-site wells were protected from tampering during equilibration by the installation of surface-mount 6-inch diameter vault boxes within the sidewalk.

Vapor Sampling Procedure

The enclosed diagram shows the sample train for soil vapor sample collection. The soil vapor sampling will be completed as follows:

The tubing emanating from the vapor points were affixed to a sample shut-off valve in the off position during the time needed to reach equilibrium (48 hours). A 167 milliliters-per-minute flow regulator inclusive of particulate filter was then fitted to the shut-off valve and the other end to a “T” fitting. One end of the “T” was connected to the sampling summa canister. The other end of the “T” was affixed to a digital vacuum gauge and a 1-liter summa canister utilized for purging. A sketch of the setup is presented as Figure 4.

A ten (10)-minute minimum vacuum tightness test was performed on the manifold and connections by opening and closing the 1-liter purge canister valve and applying and monitoring a vacuum on the vacuum gauge. The sample shut-off valve on the downhole side of the sampling manifold remained in the closed position. When gauge vacuum was maintained for ten (10) minutes without any noticeable decrease (less than 0.1 inches of mercury (Hg) for properly connected fittings) and the time to reach equilibrium has elapsed (at 48-hours for temporary wells) since the boring was sealed, then purging began. The down-hole shut off valve was opened and three pore volumes removed utilizing the purging summa. Purge volumes of vapor were removed and verified by the calculated pressure drop in the 1-liter summa canister utilized for purging.

Isopropyl alcohol was utilized as a leak detection compound during sampling by applying between 10 and 20 drops to cotton gauze and placing near the bore-hole. Sampling began by opening the summa canister valve. Immediately upon opening the sampling valve, a shroud was placed over and enclose the atmosphere of the borehole and entire sampling train including all connections. Sampling continued until the vacuum gauge indicated approximately five (5) inches of Hg remaining (approximately five [5] minutes for a 1-liter canister equipped with a 167 milliliter-per-minute flow regulator). A flow controller was utilized in the sample train to control the flow of soil gas into the Summa canisters for sample collection. Limiting the purging and sampling rate to between 100 and 200 milliliters per minute limits stripping and aids in preventing ambient air from diluting the soil gas samples. During sampling, a datalogging photoionization detector (PID) was utilized to monitor the atmosphere inside the shroud through a bulk-head fitting. The logged data (at minimum thirty [30] second intervals) was corrected to parts per million by volume isopropyl alcohol concentrations and utilized to evaluate the integrity of the sampling train.

Two confirmation samples (at minimum 20% of the total number of samples collected) were collected of the shroud atmosphere by utilizing a summa and flow controller within the shroud allowing the collection of the shroud atmosphere sample at the same time of collection as the sample itself (at SV-3d13 and SV-6d11.5). All field data, including equilibrium time, purge volume calculations and leak check measurements are included herein.

Laboratory Analysis

The soil vapor samples were shipped under chain-of-custody to Air Toxics Ltd. in Folsom, California. The soil vapor samples were analyzed by EPA Method TO15 for VOCs including BTEX compounds MtBE and TPHg. Sampling train effectiveness (short-circuiting) was evaluated by including the leak check gas in the analysis (TO-15 for isopropyl alcohol). The grab groundwater samples were analyzed for TPH-g, BTEX and MTBE by EPA Method 8260B.