

April 29, 2005
10077.007

Oregon Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue
Suite 400
Portland, Oregon 97201-4987

VIA Email/First Class

Attention: Anna Coates

**Subject: Technical Memorandum
Vapor Intrusion Pathway Assessment
Port of Astoria Office Building
Astoria Area-Wide Petroleum Site
Astoria, Oregon
DEQ ECSI File #2277**

Dear Ms. Coates:

This technical memorandum presents the results of the soil vapor sampling conducted to evaluate the vapor intrusion pathway evaluation at the Astoria Area-Wide Petroleum Site, Astoria, Oregon. Following completion of the Phase I Remedial Investigation/Feasibility Study (RI/FS) for the site, the vapor intrusion pathway was identified as a potentially complete pathway. Site data was reviewed and it was determined that the Port of Astoria (the Port) office building represented the most at-risk structure for vapor intrusion impacts because of the presence of free-phase petroleum hydrocarbons in ground-water monitoring wells near the building.

A vapor inhalation pathway assessment work plan (*EnviroLogic Resources & GeoSyntec, 2004*) was submitted to and approved by the Oregon Department of Environmental Quality (DEQ). Soil vapor samples were collected from four locations near the Port office building to assess the potential intrusion of subsurface hydrocarbon vapors into indoor air. Soil vapor sampling points were installed during September 2004 and soil vapor samples were collected in October 2004. An additional round of soil vapor samples was collected during December 2004 to evaluate the temporal variations in soil vapor concentrations.

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BACKGROUND

The Astoria Area-Wide site includes facilities and properties located at and near the Port of Astoria in Astoria, Oregon, as shown on Figure 1. The Astoria Area-Wide site includes property bounded by Portway to the northeast, the Columbia River to the northwest, Hamburg Street (including the former Chevron/McCall bulk plant) to the southwest, and Marine Drive to the southeast.

The area around the Port has been used for petroleum storage and distribution since the 1920s. Aboveground storage tanks (ASTs), underground storage tanks (USTs), and pipelines are present on several of the facilities subject to this investigation. Historically, the area was home to at least four bulk petroleum storage facilities and five vehicle fueling or service stations between West Marine Drive and the Columbia River in the RSA. Inactive pipelines associated with several of the former bulk fuel storage facilities extend onto Pier 2. A complete site history and a summary of remedial actions completed at the Astoria Area-Wide site are presented in the RI/FS and IRAM Development Work Plan, Phase 1 (RI/FS Work Plan) (*EnviroLogic Resources, 2002*). A site plan is presented on Figure 2.

The occurrence of free product or light non-aqueous phase liquids (LNAPL) has been documented at several locations within the Astoria Area-Wide site. LNAPL is known to be present in monitoring wells located near the Port office building in the vicinity of a 1993 diesel release from the McCall Oil pipeline. LNAPL has also been observed in monitoring wells associated with the former Mobil/Niemi Oil bulk plant and the Delphia Oil bulk plant. Historically, LNAPL was also present in two monitoring wells situated between the Niemi Oil Cardlock and the Harris/Van West properties in the vicinity of a 1990 release from Harris/Van West and in a trench between the Youngs Bay Texaco and Qwest properties in the vicinity of a 1997 gasoline release at Youngs Bay Texaco. LNAPL was not detected in RI explorations and

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monitoring wells completed on and near the Niemi Oil Cardlock, Harris/Van West and Youngs Bay Texaco properties.

Most of the Astoria Area-Wide site is underlain by grey and light brown sand fill, based on a review of the boring logs completed as part of the Phase 1 soil characterization activities. Lenses of silt and clay are present in the fill as well as gravel, wood, and other organics. In addition, two native materials were encountered beneath the site: native river deposits and the Astoria Formation. The native materials were encountered at depth, consistent with the conceptual hydrogeologic model presented in the RI/FS Work Plan.

Ground water is generally encountered between 7 and 11 feet below ground surface (bgs) at the site, except along West Marine Drive. The three sites along West Marine Drive have a ground surface elevation approximately 15 feet above the remainder of the site and the depth to ground-water is generally about 22 feet bgs. The depth to water varies seasonally. Boring logs and a summary of physical and engineering parameters of selected soil samples are presented in the technical memorandum Phase 1 Source/Soil Characterization (*EnviroLogic Resources*, 2003).

SOIL VAPOR MONITORING POINT INSTALLATION

EnviroLogic Resources and GeoSyntec Consultants, Inc. (GeoSyntec) of Santa Barbara, California supervised the installation of four soil vapor monitoring points. Drilling and monitoring point installation work was performed by Geo-Tech Explorations of Tualatin, Oregon. The soil vapor monitoring point locations are located within 10 feet or less of the Port of Astoria office building, as shown on Figure 3.

Using direct-push drilling equipment, each monitoring point was installed by advancing a 2-inch diameter steel casing approximately 6 feet in depth. In order to construct the monitoring point, the steel casing used to push through the soil was temporarily left in place. Inside the temporary

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casing, silica sand (10x20) was added to the bottom 6 inches of each boring. Each monitoring point consists of 2-inch diameter steel casing with a 6-inch long screened interval and an opening at the casing top for connection to tubing. Once the plastic tubing was attached to the monitoring point casing, the entire unit was lowered down inside the temporary 2-inch diameter casing to the top of the sand. The tip of each monitoring point was set approximately 5.5 feet bgs. Sand was then added around and on top of the screen as the temporary casing was pulled out of the hole. A bentonite seal, hydrated with water in one-foot intervals, was added above the sand. Approximately one foot of concrete was used to secure a steel monument set flush with the surrounding grade over top of each soil vapor monitoring point casing. The completed construction is shown on Figure 4.

Since the borings were drilled by pushing the casing through the soil and leaving the casing in place temporarily in order to construct the vapor monitoring point, soil boring logs were not created. Three of the four borings were drilled in areas with an asphalt surface. Below the asphalt in borings SVP-01(M), SVP-02(M), and SVP-03(M) there was brown (5YR 3/3) silt and gravel. Soils were not observed beyond the 1-foot depth. The upper one foot of soil in SVP-04(M) consisted of brownish-grey silty sand.

SOIL VAPOR SAMPLING AND ANALYSIS

Soil vapor sampling was conducted on October 8 and December 29, 2004. The DEQ was notified in advance of these activities and DEQ representative Paul Seidel was present to observe the soil vapor sampling in October. Prior to initiating field activities, a health and safety plan was prepared pursuant to 29 CFR 1910.120 and consistent with the RI/FS Work Plan. GeoSyntec personnel were briefed about job health and safety measures and the contents of the health and safety plan prior to commencing work each day. Vapor samples were collected using Summa® canisters, which are nearly chemically inert stainless steel containers.

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The sampling activities were done in accordance with the methods described in the California Department of Toxic Substances Control (DTSC) and California Regional Water Quality Control Board – Los Angeles Region (LARWQCB) active soil gas investigation advisory [DTSC/RWQCB, 2003]. The following steps were followed during sampling:

- Three casing volumes of soil vapor were purged from each soil vapor monitoring point prior to sample collection. The volumetric flow rate during purging did not exceed 200 cubic centimeters per minute (cm^3/min) and the vacuum within each monitoring point did not exceed 100 inches of water.
- A rag wetted with isopropyl alcohol was placed around each monitoring point at the ground surface to test for leaks during sampling.
- The initial vacuum of the Summa® canister was recorded.
- Soil vapor samples were collected into a cleaned and evacuated 1-liter Summa® canister. The volumetric flow rate of soil vapor during sample collection did not exceed 200 cm^3/min .
- The final vacuum of the Summa® canister was recorded. The canister vacuum following sample collection was 2 – 3 inches of mercury.
- Sample handling and documentation was conducted in accordance with procedures described in the RI/FS Work Plan.

Each of the four soil vapor monitoring points around the Port of Astoria office building was sampled following these procedures. Additionally, for quality assurance and quality control (QA/QC), a trip blank was included in the sampling plan. The laboratory provided a Summa® canister filled at the laboratory with lab-grade air. This trip blank was present during sampling and returned to laboratory for analysis.

The October and December 2004 soil vapor samples were sent to Calscience Environmental Laboratories, Inc., and analyzed for the following site constituents of concern: benzene, toluene, ethylbenzene, xylenes, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene by USEPA method TO-15 and TPH-g by USEPA method TO-3. The soil vapor samples were also analyzed for

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biodegradation indicators (oxygen, carbon dioxide, methane, and nitrogen) by method ASTM D-1946. The leak test compound, isopropyl alcohol, was analyzed by USEPA method TO-15.

A Level II validation was performed by GeoSyntec on Calscience Work Order Nos.: 04-10-0519 and 04-12-1834 for EPA TO-15, EPA TO-3 and ASTM D-1946 analytical methods. The data deliverable included: a case narrative, sample analytical results, laboratory duplicate and blank results, sample custody, and laboratory control samples, where applicable. Examination of the chain-of-custody and the analytical results forms indicated that all of the technical holding times were met. Laboratory quality assurance samples including method blanks, laboratory duplicates, and laboratory control samples were all within method specified acceptance criteria. No validation qualifiers were applied to any of the data and the data are suitable for use as reported.

DISCUSSION OF RESULTS

The analytical results are summarized in Table 1 and the complete laboratory reports are included in Appendix A. Standard chain-of-custody procedures along with standard laboratory Quality Assurance and Quality Control procedures were followed.

In the October 2004 samples, benzene was detected in SVP-01, SVP-02, and SVP-03 ranging from 4,000 to 31,000 parts per billion by volume (ppbv). Toluene was detected in SVP-01 and SVP-02 ranging from 210 to 1,100 ppbv. Ethylbenzene, o-xylene, and p/m-xylene were detected in SVP-01 at 320 ppbv, 210 ppbv, and 1,100 ppbv, respectively. The other individual volatile organic compounds analyzed in these samples were not detected. Gasoline range total petroleum hydrocarbons (TPH) was detected in all four soil vapor samples with reported concentrations ranging from 338 to 7,570 parts per million by volume (ppmv).

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In the December 2004 samples, benzene was detected in SVP-01, SVP-02, and SVP-03 ranging from 2,600 to 38,000 ppbv. Toluene was detected in SVP-01, SVP-02, and SVP-04 ranging from 53 to 6,600 ppbv. Ethylbenzene and p/m-xylene were detected in SVP-01 at 1,700 ppbv and 5,200 ppbv, respectively. The other individual volatile organic compounds analyzed in these samples were not detected. Gasoline range TPH was detected in all four samples with reported concentrations ranging from 409 to 6,720 ppmv.

In the October 2004 samples, depleted oxygen concentrations (2.6% – 3.6%) and elevated carbon dioxide concentrations (11.7% - 15.2%) were detected in all samples collected. Similar concentrations were detected in the December 2004 samples with oxygen concentrations ranging from 1.4% - 2.8% and carbon dioxide concentrations ranging from 8.1% - 12.3%. Aerobic biodegradation of petroleum compounds has been frequently reported at sites with these conditions (Rogemanns and others, 2001) indicating that biodegradation is occurring within the vadose zone of the Port's office building. Detected methane concentrations ranged from 6% to 26% in the October and December 2004 soil vapor samples.

The leak test compound, isopropyl alcohol, was not detected in any of the samples collected in October 2004. Isopropyl alcohol was detected at the reporting limit in one sample (SVP-01) in December 2004, but it was not detected in the duplicate sample collected at this location. This indicates that atmospheric air from the surface did not leak into the collected samples and the samples are representative of subsurface soil vapor conditions.

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FUTURE ACTIONS

A preliminary evaluation of these results indicates that concentrations of benzene measured in SVP-01 (38,000 ppbv) and SVP-02 (18,000 ppbv) may exceed site-specific soil vapor risk-based concentrations (RBCs) calculated for vapor intrusion into commercial buildings. Consequently, the following additional activities have been proposed:

- The heating ventilation and air conditioning (HVAC) system in the Port office building will be adjusted to maintain a positive pressure inside the building during working hours. The purpose of maintaining a positive pressure is to limit the potential for soil vapors to migrate through the foundation and enter the breathing zone of the workers inside the building. A local HVAC contractor will be retained to perform this adjustment.
- Sub-slab vapor monitoring probes will be installed to provide data for use in the risk assessment for the site. Results from these sub-slab probes will be more representative of potential vapor intrusion into the Port office building because the soil vapor monitoring points sampled in October and December 2004 are located outside the building and 5 feet beneath the foundation and may over-predict potential risks to human health. A work plan is in preparation that will guide the installation and sampling of sub-slab sampling probes inside the office building.
- Site-specific RBCs for vapor migration of soil vapor to indoor air will be developed for the site. Methods to calculate these RBCs will be consistent with the approach used by the DEQ in the state risk-based decision making guidance (DEQ, 2003).

CLOSING COMMENTS

The Astoria Area-Wide PRP Group is committed to protecting the health of those potentially exposed to releases from operations at the site. The proposed interim action of adjusting/upgrading the HVAC system in the Port office building will help mitigate potential

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exposures while data more directly applicable to risk analysis are collected. If you have any questions or comments, please call me at (503)768-5121.

Sincerely,
EnviroLogic Resources, Inc.

GeoSyntec Consultants

Thomas J. Calabrese, R.G.
Principal/Hydrogeologist

Robbie Ettinger
Senior Engineer

Attachments:

Table 1 Summary of Soil Vapor Analytical Results

Figure 1 Site Location

Figure 2 Site Plan

Figure 3 Soil Vapor Monitoring Point Locations

Figure 4 Soil Vapor Probe Completion Details

Appendix A Laboratory Analytical Reports

cc: Distribution list attached

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REFERENCES

DTSC & LARWQCB (Department of Toxic Substance Control & California Regional Water Quality Control Board – Los Angeles Region), 2003, Advisory – Active Soil Gas Investigations. http://www.grac.org/Soil_Gas_Advisory.pdf: January 13, 2003.

EnviroLogic Resources, 2002, RI/FS and IRAM Development Work Plan, Phase 1, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria Oregon: consultant report dated July 15, 2002.

EnviroLogic Resources, 2003, Technical Memorandum, Phase 1 Source/Soil Characterization, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria Oregon: consultant report dated January 31, 2003.

EnviroLogic Resources, 2004, Response to DEQ Review Comments Vapor Inhalation Pathway Assessment, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria Oregon, DEQ ECSI File #2277, Order ECSR-NWR-01-11: consultant report dated July 15, 2004.

EnviroLogic Resources and GeoSyntec Consultants, 2004, RI/FS Work Plan Addendum Vapor Inhalation Pathway Assessment, Remedial Investigation/Feasibility Study, Astoria Area-Wide Petroleum Site, Astoria Oregon: consultant report dated December 12, 2004.

Oregon Department of Environmental Quality, 2003, Risk-based decision-making for petroleum-contaminated sites: Oregon Department of Environmental Quality, Portland, OR, September 22, 2003.
<http://www.deq.state.or.us/wmc/tank/documents/RBDM03Final.pdf>

Roggemans, S., C.L. Bruce, P.C. Johnson, R.L. Johnson, 2001. Vadose Zone Natural Attenuation of Hydrocarbon Vapors: An Empirical Assessment of Soil Gas Vertical Profile Data, API Technical Bulletin No. 15, December 2001.

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**ASTORIA AREA-WIDE PETROLEUM SITE
Distribution List**

- 1 Anna Coates, DEQ Project Manager, Site Response
 - 1 Mike Lilly, Attorney for Port of Astoria
 - 1 Peter Gearin, Port of Astoria
 - 1 Tom Calabrese, *EnviroLogic Resources, Inc.*, Consultant for PoA and AAW PRP Group
 - 1 Max Miller, Tonkon Torp, Attorney for McCall Oil and Chemical Corporation
 - 1 Ted McCall, McCall Oil and Chemical Corporation
 - 1 John Edwards, Anchor Environmental, LLC, Consultant for McCall Oil and Chemical Corp
 - 1 Cary E. Bechtolt, Niemi Oil Company
 - 1 Jeff B. Kray, Marten Law Group, PLLC, Attorney for Niemi Oil Company
 - 1 Kurt Harrington, AMEC, Inc., Consultant for Niemi Oil Company
 - 1 Ed Platt, Shell Oil Company
 - 1 Rick Glick, Davis Wright Tremaine, Attorney for Shell Oil Company
 - 1 Leon Lahiere, Hart Crowser, Consultant for Shell Oil Company
 - 1 Brian Harris, Harris Enterprises
 - 1 Larry Vandermay, Flying Dutchman
 - 1 David Bartz & Laura Maffei, Schwabe Williamson & Wyatt, Attorney for Flying Dutchman
 - 1 Jerry Hodson, Miller Nash, Attorney for Harris Enterprises
 - 1 Lon Yandell, Kleinfelder, Consultant for Harris Enterprises
 - 1 Richard Delphia, Delphia Oil Company
 - 1 Chuck Smith, Attorney for Delphia Oil Company
 - 1 Alistaire Clary, Maul Foster Alongi, Consultant for Delphia Oil Company
 - 1 Darin Rouse, ChevronTexaco Products Company
 - 1 Jon Robbins, Attorney for ChevronTexaco Products Company
 - 1 Gerry Koschal, SAIC, Consultant for ChevronTexaco Products Company
 - 1 Brian Jacobson, Qwest Communications International, Inc.
 - 1 David Bledsoe, Perkins Coie LLP, Attorney for Qwest Communications International, Inc.
 - 1 Donna LaCombe, Tetra Tech EM, Inc., Consultant for Qwest Communications International
 - 1 Anita W. Lovely, Lovely Consulting, Inc., Consultant for Exxon Mobil Corporation
 - 1 Information Repository
-

TABLE

TABLE 1

SOIL VAPOR ANALYTICAL RESULTS

Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon

Constituent	Sample Date	Petroleum Volatile Organic Compounds														
		Benzene		Toluene		Ethylbenzene		o-Xylene		p/m-Xylene		1,3,5-Trimethyl benzene		1,2,4-Trimethyl benzene		TPH-g ¹
		ppbv	ug/m ³	ppbv	ug/m ³	ppbv	ug/m ³	ppbv	ug/m ³	ppbv	ug/m ³	ppbv	ug/m ³	ppbv	ug/m ³	ppmv
SVP-01	10/8/2004	31000	98900	1100	4150	320	1390	210	912	360	1564	<180	<885	<360	<1770	7570/7510
	12/29/2004	19000	60700	6600	24900	<1600	<6950	<1600	<6950	4000	17400	<1600	<7870	<3200	<15700	6650
	12/29/2004	38000	121000	5800	21900	1700	7380	<1600	<6950	5200	22600	<1600	<7870	<3200	<15700	6720/6620
SVP-02	10/8/2004	18000	57400	210	792	<180	<782	<180	<782	<360	<1560	<180	<885	<360	<1770	1160
	12/29/2004	13000	41500	1100	4150	<280	<1220	<280	<1220	590	2560	<280	<1380	<560	<2760	1750
SVP-03	10/8/2004	4000	12800	<350	<1320	<350	<1520	<350	<1520	<700	<3040	<350	<1720	<700	<3440	977
	12/29/2004	2600	8310	<260	<980	<260	<1130	<260	<1130	<530	<2300	<260	<1280	<530	<2610	888
SVP-04	10/8/2004	<45	<144	<45	<170	<45	<195	<45	<195	<91	<395	<45	<221	<91	<447	338
	12/29/2004	<46	<147	53	200	<46	<200	<46	<200	<91	<395	<46	<226	<91	<447	409
Trip Blank	10/8/2004	<0.50	<1.60	<0.50	<1.88	<0.50	<2.17	<0.50	<2.17	<1.0	<3.14	<0.50	<2.46	<1.0	<4.92	<10
	12/29/2004	<0.50	<1.60	<0.50	<1.88	<0.50	<2.17	<0.50	<2.17	<1.0	<3.14	<0.50	<2.46	<1.0	<4.92	<10

¹ A laboratory duplicate analysis was conducted for TPH-g in sample SVP-01 and BSVP-01. Both results are reported here.

TABLE 1

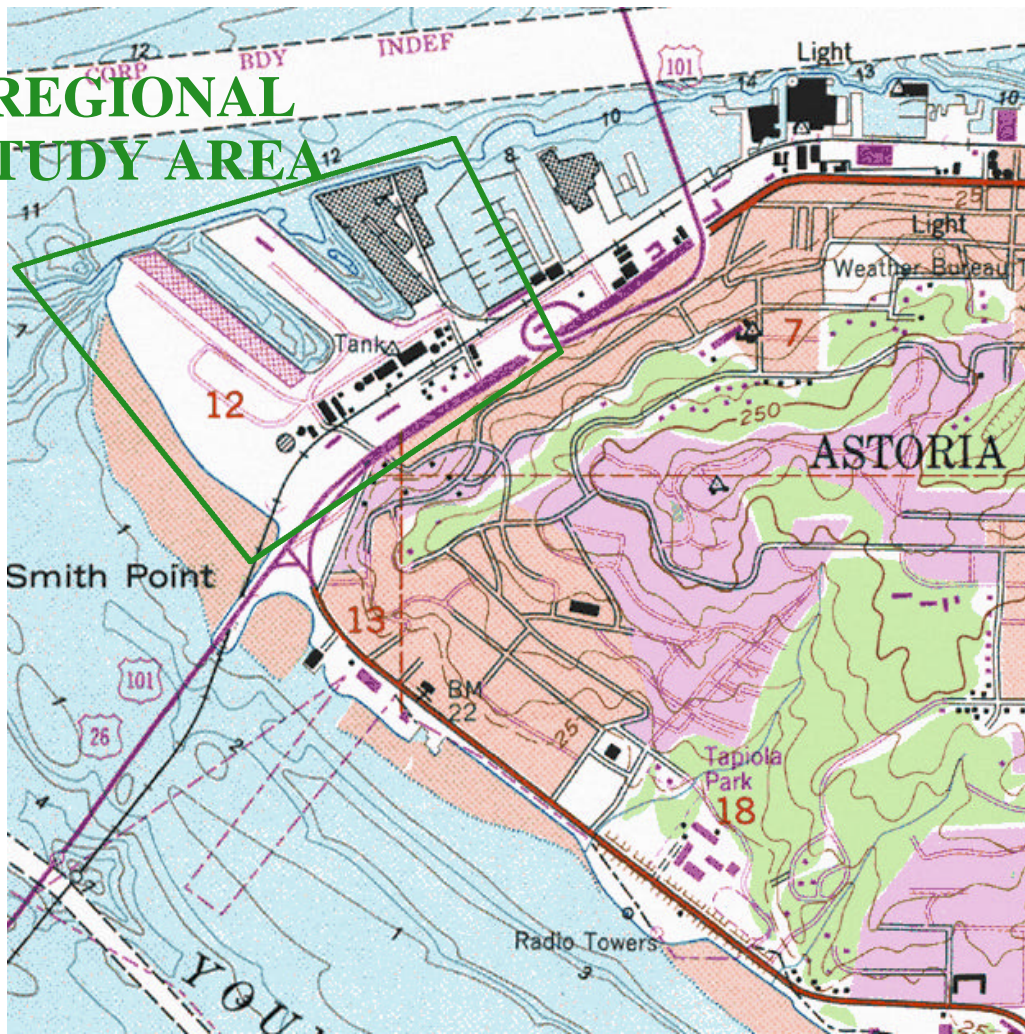
SOIL VAPOR ANALYTICAL RESULTS

Remedial Investigation/Feasibility Study
 Astoria Area-Wide Petroleum Site
 Astoria, Oregon

Constituent	Sample Date	Biodegradation Indicators					Leak Check
		Oxygen	Nitrogen	Methane	Carbon Monoxide	Carbon Dioxide	Isopropyl Alcohol
Units		%	%	%	%	%	ppbv
SVP-01	10/8/2004	3.6	69.3	14.3	<0.1	12.8	<1800
	12/29/2004	1.8	70.0	17.0	NA	11.1	16000
	12/29/2004	2.1	70.1	16.8	NA	11.0	<16000
SVP-02	10/8/2004	2.9	76.0	6.0	<0.1	15.2	<1800
	12/29/2004	2.8	73.4	11.5	NA	12.3	<2800
SVP-03	10/8/2004	2.7	67.0	16.4	<0.1	14.0	<3500
	12/29/2004	2.3	70.1	16	NA	11.6	<2600
SVP-04	10/8/2004	2.6	59.8	26.0	<0.2	11.7	<450
	12/29/2004	1.4	61.9	28.6	NA	8.1	<460
Trip Blank	10/8/2004						<5.0
	12/29/2004	23.0	77.0	<0.10	NA	<0.1	<5.0

FIGURES

REGIONAL STUDY AREA



(from USGS, Astoria {1984}, OR 7.5' Quadrangles)

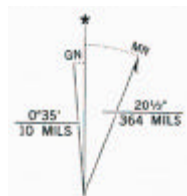
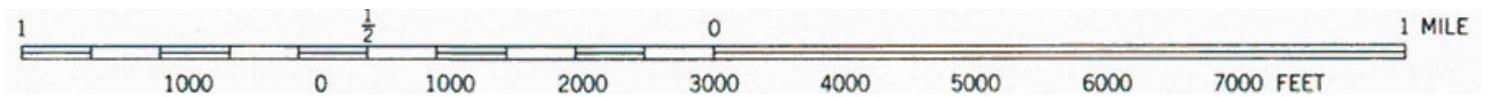


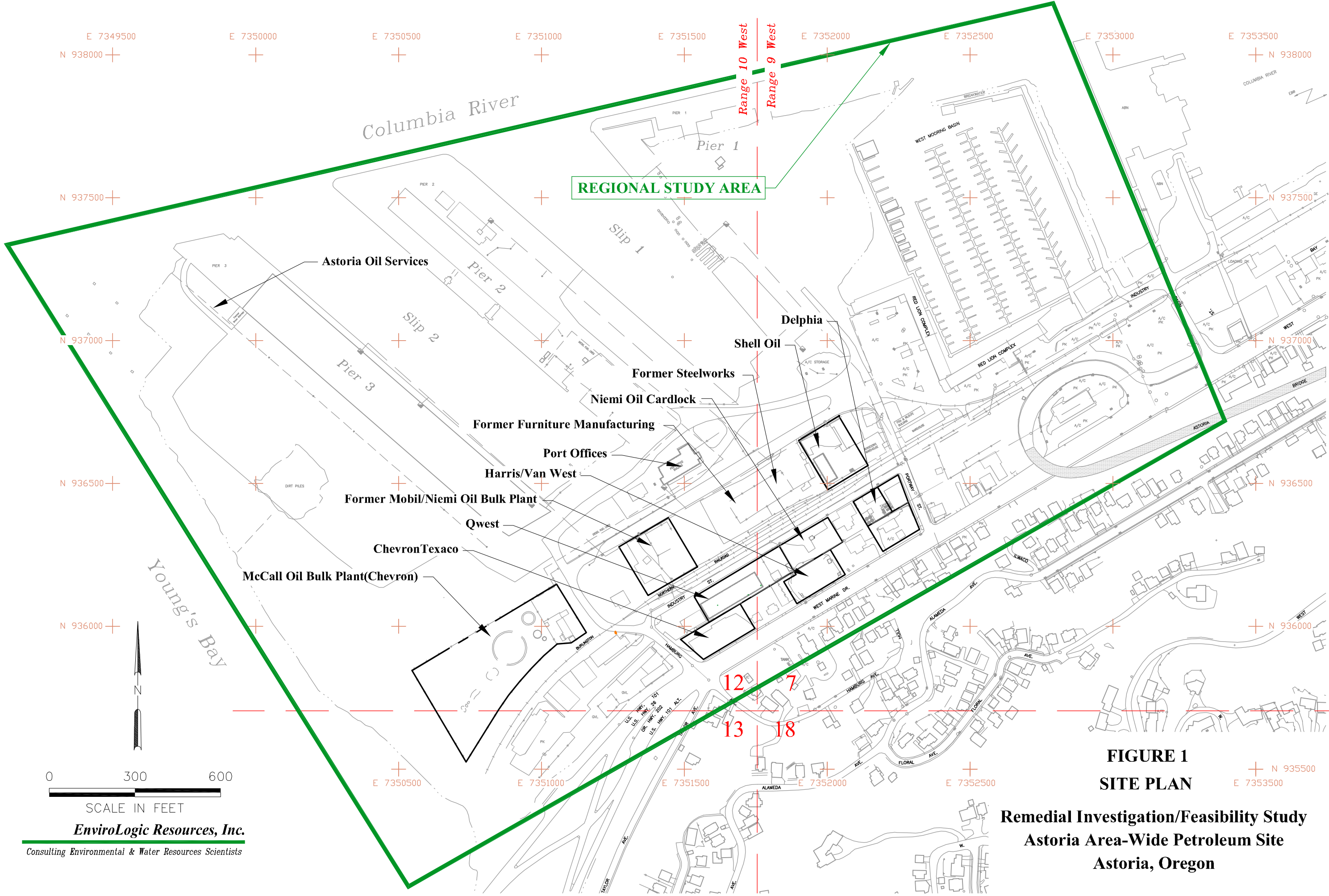
FIGURE 1

SITE LOCATION

**Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

EnviroLogic Resources, Inc.

Consulting Environmental & Water Resources Scientists



REGIONAL STUDY AREA

**FIGURE 1
SITE PLAN**

**Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

Technemo - Fig1.dwg 10-13-03

EnviroLogic Resources, Inc.
Consulting Environmental & Water Resources Scientists

EXPLANATION

SVP-04 ⊕ Soil Vapor Sample Location

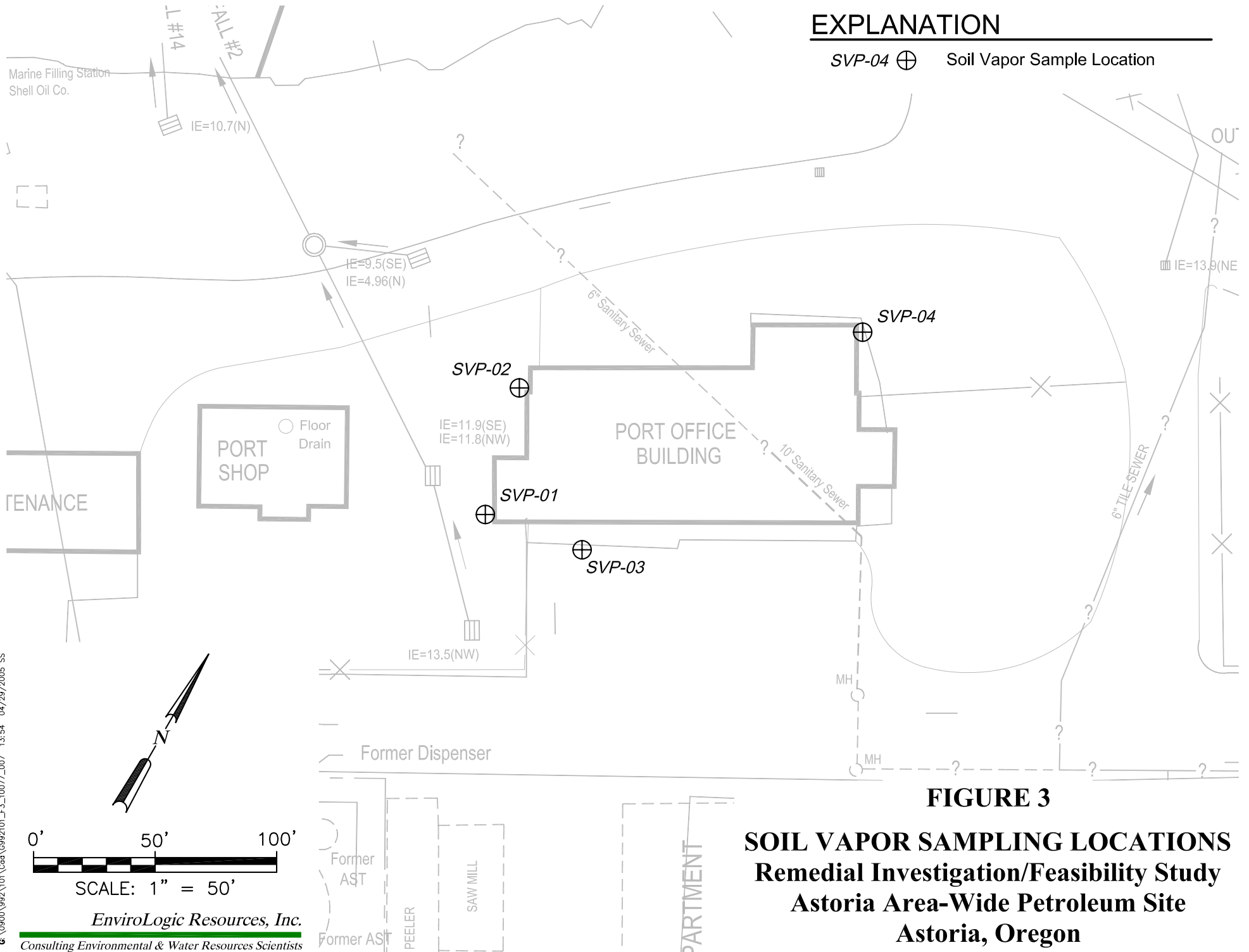
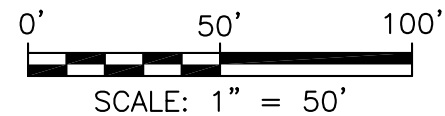


FIGURE 3

SOIL VAPOR SAMPLING LOCATIONS Remedial Investigation/Feasibility Study Astoria Area-Wide Petroleum Site Astoria, Oregon



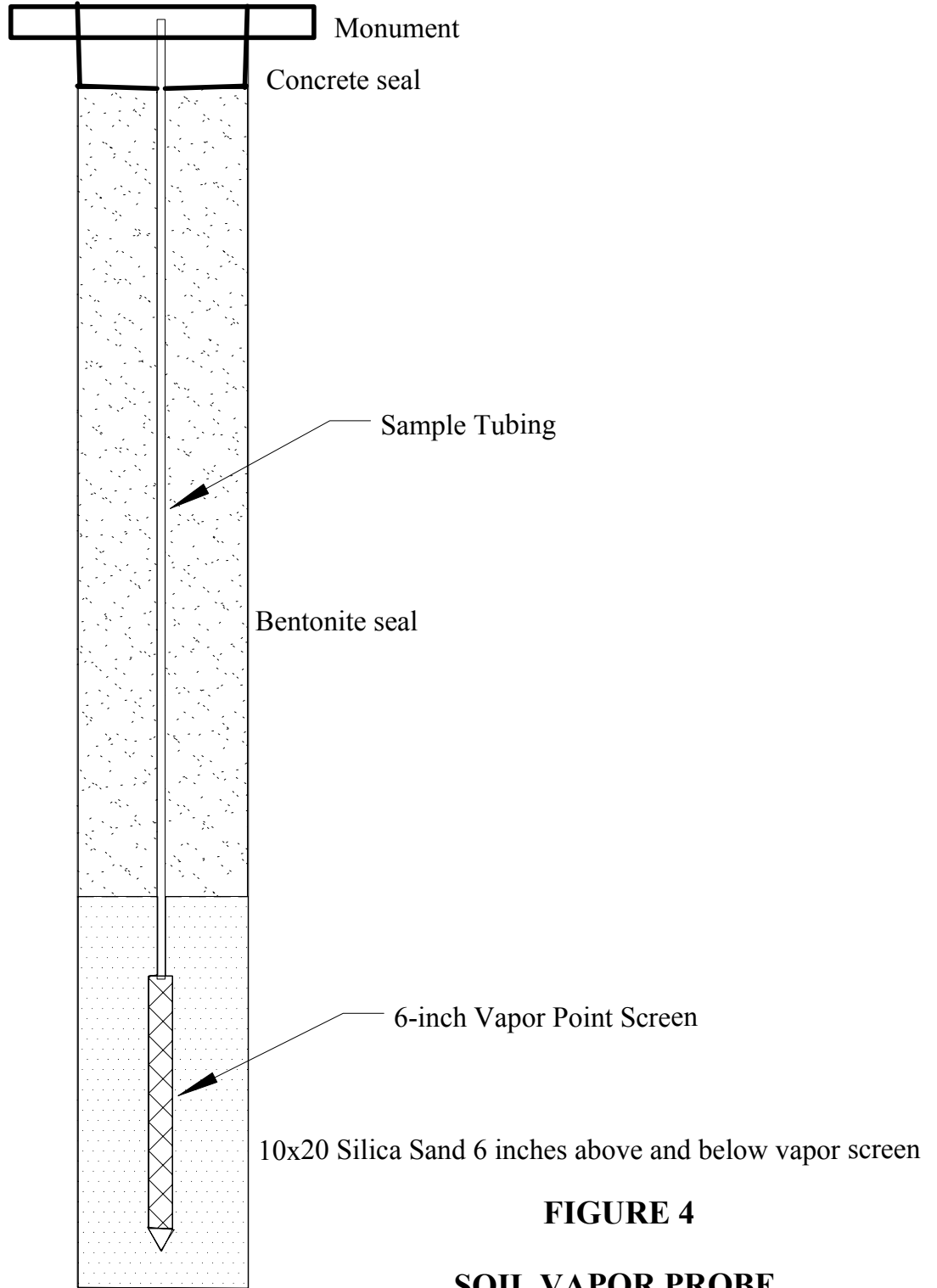


FIGURE 4

**SOIL VAPOR PROBE
COMPLETION DETAILS**

**Remedial Investigation/Feasibility Study
Astoria Area-Wide Petroleum Site
Astoria, Oregon**

APPENDIX A

LABORATORY ANALYTICAL RESULTS

April 29, 2005

Robert Ettinger
GeoSyntec Consultants
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Subject: **Calscience Work Order No.: 04-10-0519**
Client Reference: HX0186

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 10/11/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,



Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager

GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Received: 10/11/04
 Work Order No: 04-10-0519
 Preparation: N/A
 Method: EPA TO-15
 Units: ppb (v/v)

Project: HX0186

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Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
SVP-04	04-10-0519-1	10/08/04	Air	N/A	10/17/04	041017L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	45	90.6		Toluene	ND	45	90.6	
Ethylbenzene	ND	45	90.6		1,3,5-Trimethylbenzene	ND	45	90.6	
o-Xylene	ND	45	90.6		1,2,4-Trimethylbenzene	ND	91	90.6	
p/m-Xylene	ND	91	90.6		Isopropanol	ND	450	90.6	

SVP-02	04-10-0519-2	10/08/04	Air	N/A	10/17/04	041017L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	18000	1800	3600		Toluene	210	180	360	
Ethylbenzene	ND	180	360		1,3,5-Trimethylbenzene	ND	180	360	
o-Xylene	ND	180	360		1,2,4-Trimethylbenzene	ND	360	360	
p/m-Xylene	ND	360	360		Isopropanol	ND	1800	360	

SVP-01	04-10-0519-3	10/08/04	Air	N/A	10/17/04	041017L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	31000	1800	3620		Toluene	1100	180	362	
Ethylbenzene	320	180	362		1,3,5-Trimethylbenzene	ND	180	362	
o-Xylene	210	180	362		1,2,4-Trimethylbenzene	ND	360	362	
p/m-Xylene	1100	360	362		Isopropanol	ND	1800	362	

SVP-03	04-10-0519-4	10/08/04	Air	N/A	10/17/04	041017L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	4000	350	695		Toluene	ND	350	695	
Ethylbenzene	ND	350	695		1,3,5-Trimethylbenzene	ND	350	695	
o-Xylene	ND	350	695		1,2,4-Trimethylbenzene	ND	700	695	
p/m-Xylene	ND	700	695		Isopropanol	ND	3500	695	

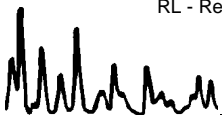
TB-01	04-10-0519-5	10/08/04	Air	N/A	10/17/04	041017L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	0.50	1	
Ethylbenzene	ND	0.50	1		1,3,5-Trimethylbenzene	ND	0.50	1	
o-Xylene	ND	0.50	1		1,2,4-Trimethylbenzene	ND	1.0	1	
p/m-Xylene	ND	1.0	1		Isopropanol	ND	5.0	1	

Method Blank	095-01-021-2,760	N/A	Air	N/A	10/17/04	041017L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	0.50	1	
Ethylbenzene	ND	0.50	1		1,3,5-Trimethylbenzene	ND	0.50	1	
o-Xylene	ND	0.50	1		1,2,4-Trimethylbenzene	ND	1.0	1	
p/m-Xylene	ND	1.0	1		Isopropanol	ND	2.0	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



ANALYTICAL REPORT

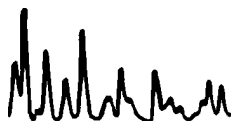
GeoSyntec Consultants	Date Sampled:	10/08/04
924 Anacapa Street	Date Received:	10/11/04
Suite 4A	Date Analyzed:	10/12/04
Santa Barbara, CA 93101-2177		
Attn: Robert Ettinger	Work Order No.:	04-10-0519
RE: HX0186	Method:	EPA TO-3(M)
	Page 1 of 1	

All concentrations are reported in ppm (v/v).

<u>Sample Number</u>	<u>C6 - C12 Concentration</u>	<u>Reporting Limit</u>
SVP-04	338	16
SVP-02	1160	72
SVP-01	7570	725
SVP-03	977	139
TB-01	ND	10
Method Blank	ND	10

QA/QC

<u>Sample Number</u>	<u>Sample Conc.</u>	<u>Duplicate Conc.</u>	<u>%RPD</u>	<u>Control Limits (%)</u>
SVP-01 (Duplicate)	7570	7510	1	0 - 30



ANALYTICAL REPORT

GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Sampled: 10/08/04
 Date Received: 10/11/04
 Date Analyzed: 10/11/04

Attn: Robert Ettinger
 RE: HX0186

Work Order No.: 04-10-0519
 Method: ASTM D-1946
 Page 1 of 2

All concentrations are reported in percent (%) by volume.

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: SVP-04		
Oxygen (O ₂) + Argon (Ar)	2.6	0.2
Nitrogen (N ₂)	59.8	0.2
Methane (CH ₄)	26.0	0.2
Carbon Monoxide (CO)	ND	0.2
Carbon Dioxide (CO ₂)	11.7	0.2
Sample Number: SVP-02		
Oxygen (O ₂) + Argon (Ar)	2.9	0.1
Nitrogen (N ₂)	76.0	0.1
Methane (CH ₄)	6.0	0.1
Carbon Monoxide (CO)	ND	0.1
Carbon Dioxide (CO ₂)	15.2	0.1
Sample Number: SVP-01		
Oxygen (O ₂) + Argon (Ar)	3.6	0.1
Nitrogen (N ₂)	69.3	0.1
Methane (CH ₄)	14.3	0.1
Carbon Monoxide (CO)	ND	0.1
Carbon Dioxide (CO ₂)	12.8	0.1
Sample Number: SVP-03		
Oxygen (O ₂) + Argon (Ar)	2.7	0.1
Nitrogen (N ₂)	67.0	0.1
Methane (CH ₄)	16.4	0.1
Carbon Monoxide (CO)	ND	0.1
Carbon Dioxide (CO ₂)	14.0	0.1



ANALYTICAL REPORT

GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Sampled: 10/08/04
 Date Received: 10/11/04
 Date Analyzed: 10/11/04

Attn: Robert Ettinger
 RE: HX0186

Work Order No.: 04-10-0519
 Method: ASTM D-1946
 Page 2 of 2

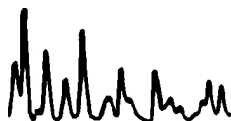
All concentrations are reported in percent (%) by volume.

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: Method Blank		
Oxygen (O ₂) + Argon (Ar)	ND	0.1
Nitrogen (N ₂)	ND	0.1
Methane (CH ₄)	ND	0.1
Carbon Monoxide (CO)	ND	0.1
Carbon Dioxide (CO ₂)	ND	0.1

QA/QC

Sample Number: Laboratory Control Sample

<u>Analyte</u>	<u>Sample Conc.</u>	<u>Duplicate Conc.</u>	<u>%RPD</u>	<u>Control Limits (%)</u>
Oxygen (O ₂) + Argon (Ar)	19.4	19.5	1	0 - 30
Nitrogen (N ₂)	69.4	69.5	0	0 - 30
Carbon Dioxide (CO ₂)	5.03	5.04	0	0 - 30



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 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

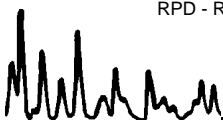
Date Received: N/A
 Work Order No: 04-10-0519
 Preparation: N/A
 Method: EPA TO-15

Project: HX0186

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-021-2,760	Air	GC/MS AA	N/A	10/17/04	041017L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	109	109	61-121	0	0-37	
Bromoform	98	95	62-134	3	0-38	
Carbon Tetrachloride	97	94	56-128	3	0-42	
1,2-Dibromoethane	105	103	63-123	2	0-38	
1,2-Dichlorobenzene	96	92	41-149	4	0-62	
1,2-Dichloroethane	123	116	63-123	5	0-37	
1,2-Dichloropropane	109	107	61-121	2	0-37	
1,4-Dichlorobenzene	97	93	51-147	4	0-49	
c-1,3-Dichloropropene	113	109	62-128	3	0-37	
Ethylbenzene	108	105	61-127	3	0-38	
o-Xylene	104	100	58-130	4	0-38	
p/m-Xylene	105	101	57-129	3	0-39	
Tetrachloroethene	103	102	59-119	1	0-40	
Toluene	111	109	60-120	2	0-39	
Trichloroethene	112	110	65-119	2	0-38	
1,1,2-Trichloroethane	108	104	64-124	3	0-37	
Vinyl Chloride	99	101	58-124	2	0-37	

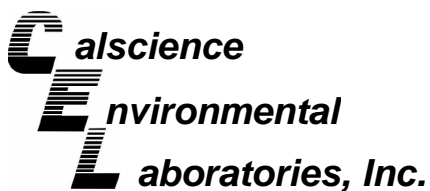
RPD - Relative Percent Difference , CL - Control Limit



Work Order Number: 04-10-0519

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.





January 04, 2005

Robert Ettinger
GeoSyntec Consultants
924 Anacapa Street
Suite 4A
Santa Barbara, CA 93101-2177

Subject: **Calscience Work Order No.: 04-12-1834**
Client Reference: Not Listed

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/30/2004 and analyzed in accordance with the attached chain-of-custody.

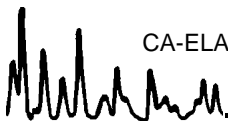
Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Nowak".

Calscience Environmental
Laboratories, Inc.
Stephen Nowak
Project Manager



GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Received: 12/30/04
 Work Order No: 04-12-1834
 Preparation: N/A
 Method: EPA TO-15
 Units: ppb (v/v)

Project: Not Listed

Page 1 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
SVP-04	04-12-1834-1	12/29/04	Air	N/A	12/30/04	041230L01

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	46	91		Toluene	53	46	91	
Ethylbenzene	ND	46	91		1,3,5-Trimethylbenzene	ND	46	91	
o-Xylene	ND	46	91		1,2,4-Trimethylbenzene	ND	91	91	
p/m-Xylene	ND	91	91		Isopropanol	ND	460	91	

SVP-03	04-12-1834-2	12/29/04	Air	N/A	12/30/04	041230L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	2600	260	529		Toluene	ND	260	529	
Ethylbenzene	ND	260	529		1,3,5-Trimethylbenzene	ND	260	529	
o-Xylene	ND	260	529		1,2,4-Trimethylbenzene	ND	530	529	
p/m-Xylene	ND	530	529		Isopropanol	ND	2600	529	

SVP-02	04-12-1834-3	12/29/04	Air	N/A	12/30/04	041230L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	13000	280	555		Toluene	1100	280	555	
Ethylbenzene	ND	280	555		1,3,5-Trimethylbenzene	ND	280	555	
o-Xylene	ND	280	555		1,2,4-Trimethylbenzene	ND	560	555	
p/m-Xylene	590	560	555		Isopropanol	ND	2800	555	

SVP-01	04-12-1834-4	12/29/04	Air	N/A	12/30/04	041230L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	19000	1600	3200		Toluene	6600	1600	3200	
Ethylbenzene	ND	1600	3200		1,3,5-Trimethylbenzene	ND	1600	3200	
o-Xylene	ND	1600	3200		1,2,4-Trimethylbenzene	ND	3200	3200	
p/m-Xylene	4000	3200	3200		Isopropanol	16000	16000	3200	

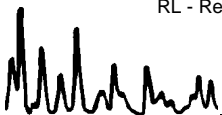
BSVP-01	04-12-1834-5	12/29/04	Air	N/A	12/30/04	041230L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	38000	1600	3220		Toluene	5800	1600	3220	
Ethylbenzene	1700	1600	3220		1,3,5-Trimethylbenzene	ND	1600	3220	
o-Xylene	ND	1600	3220		1,2,4-Trimethylbenzene	ND	3200	3220	
p/m-Xylene	5200	3200	3220		Isopropanol	ND	16000	3220	

TRIP BLANK	04-12-1834-6	12/29/04	Air	N/A	12/30/04	041230L01
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Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Benzene	ND	0.50	1		Toluene	ND	0.50	1	
Ethylbenzene	ND	0.50	1		1,3,5-Trimethylbenzene	ND	0.50	1	
o-Xylene	ND	0.50	1		1,2,4-Trimethylbenzene	ND	1.0	1	
p/m-Xylene	ND	1.0	1		Isopropanol	ND	5.0	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Received: 12/30/04
 Work Order No: 04-12-1834
 Preparation: N/A
 Method: EPA TO-15
 Units: ppb (v/v)

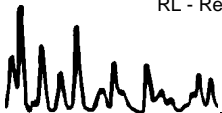
Project: Not Listed

Page 2 of 2

Client Sample Number	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank	095-01-021-2,883	N/A	Air	N/A	12/30/04	041230L01

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>
Benzene	ND	0.50	1		Toluene	ND	0.50	1	
Ethylbenzene	ND	0.50	1		1,3,5-Trimethylbenzene	ND	0.50	1	
o-Xylene	ND	0.50	1		1,2,4-Trimethylbenzene	ND	1.0	1	
p/m-Xylene	ND	1.0	1		Isopropanol	ND	5.0	1	

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



ANALYTICAL REPORT

GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Sampled: 12/29/04
 Date Received: 12/30/04
 Date Analyzed: 12/30/04

Attn: Robert Ettinger
 RE: Not Listed

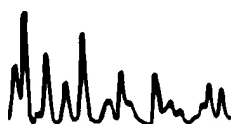
Work Order No.: 04-12-1834
 Method: EPA TO-3(M)
 Page 1 of 1

All concentrations are reported in ppm (v/v).

<u>Sample Number</u>	<u>C6 - C12 Concentration</u>	<u>Reporting Limit</u>
SVP-04	409	14
SVP-03	888	70
SVP-02	1750	74
SVP-01	6650	284
BSVP-01	6720	286
TRIP BLANK	ND	10
Method Blank	ND	10

QA/QC

<u>Sample Number</u>	<u>Sample Conc.</u>	<u>Duplicate Conc.</u>	<u>%RPD</u>	<u>Control Limits (%)</u>
BSVP-01 (Duplicate)	6720	6620	1	0 - 30



ANALYTICAL REPORT

GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Sampled: 12/29/04
 Date Received: 12/30/04
 Date Analyzed: 12/30/04

Attn: Robert Ettinger
 RE: Not Listed

Work Order No.: 04-12-1834
 Method: ASTM D-1946
 Page 1 of 2

All concentrations are reported in percent (%) by volume.

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: SVP-04		
Oxygen (O ₂) + Argon (Ar)	1.4	0.14
Nitrogen (N ₂)	61.9	0.14
Methane (CH ₄)	28.6	0.14
Carbon Dioxide (CO ₂)	8.1	0.14
Sample Number: SVP-03		
Oxygen (O ₂) + Argon (Ar)	2.3	0.14
Nitrogen (N ₂)	70.1	0.14
Methane (CH ₄)	16.0	0.14
Carbon Dioxide (CO ₂)	11.6	0.14
Sample Number: SVP-02		
Oxygen (O ₂) + Argon (Ar)	2.8	0.15
Nitrogen (N ₂)	73.4	0.15
Methane (CH ₄)	11.5	0.15
Carbon Dioxide (CO ₂)	12.3	0.15
Sample Number: SVP-01		
Oxygen (O ₂) + Argon (Ar)	1.8	0.14
Nitrogen (N ₂)	70.0	0.14
Methane (CH ₄)	17.0	0.14
Carbon Dioxide (CO ₂)	11.1	0.14



ANALYTICAL REPORT

GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Sampled: 12/29/04
 Date Received: 12/30/04
 Date Analyzed: 12/30/04

Attn: Robert Ettinger
 RE: Not Listed

Work Order No.: 04-12-1834
 Method: ASTM D-1946
 Page 2 of 2

All concentrations are reported in percent (%) by volume.

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: BSVP-01		
Oxygen (O ₂) + Argon (Ar)	2.1	0.14
Nitrogen (N ₂)	70.1	0.14
Methane (CH ₄)	16.8	0.14
Carbon Dioxide (CO ₂)	11.0	0.14

Sample Number: TRIP BLANK

Oxygen (O ₂) + Argon (Ar)	23.0	0.10
Nitrogen (N ₂)	77.0	0.10
Methane (CH ₄)	ND	0.10
Carbon Dioxide (CO ₂)	ND	0.10

Sample Number: Method Blank

Oxygen (O ₂) + Argon (Ar)	ND	0.1
Nitrogen (N ₂)	ND	0.1
Methane (CH ₄)	ND	0.1
Carbon Dioxide (CO ₂)	ND	0.1

QA/QC

Sample Number: Laboratory Control Sample

<u>Analyte</u>	<u>Sample Conc.</u>	<u>Duplicate Conc.</u>	<u>%RPD</u>	<u>Control Limits (%)</u>
Oxygen (O ₂) + Argon (Ar)	19.2	19.3	1	0 - 30
Nitrogen (N ₂)	66.4	66.7	0	0 - 30
Carbon Dioxide (CO ₂)	5.00	5.08	2	0 - 30



GeoSyntec Consultants
 924 Anacapa Street
 Suite 4A
 Santa Barbara, CA 93101-2177

Date Received: N/A
 Work Order No: 04-12-1834
 Preparation: N/A
 Method: EPA TO-15

Project: Not Listed

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-021-2,883	Air	GC/MS AA	N/A	12/30/04	041230L01

Parameter	LCS %REC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Benzene	104	104	61-121	0	0-37	
Bromoform	95	91	62-134	4	0-38	
Carbon Tetrachloride	99	95	56-128	4	0-42	
1,2-Dibromoethane	102	99	63-123	3	0-38	
1,2-Dichlorobenzene	100	96	41-149	4	0-62	
1,2-Dichloroethane	109	105	63-123	4	0-37	
1,2-Dichloropropane	103	102	61-121	1	0-37	
1,4-Dichlorobenzene	98	94	51-147	4	0-49	
c-1,3-Dichloropropene	112	110	62-128	1	0-37	
Ethylbenzene	107	103	61-127	4	0-38	
o-Xylene	103	99	58-130	4	0-38	
p/m-Xylene	103	99	57-129	4	0-39	
Tetrachloroethene	103	99	59-119	3	0-40	
Toluene	106	104	60-120	2	0-39	
Trichloroethene	106	105	65-119	1	0-38	
1,1,2-Trichloroethane	102	101	64-124	2	0-37	
Vinyl Chloride	88	92	58-124	5	0-37	

RPD - Relative Percent Difference , CL - Control Limit

Work Order Number: 04-12-1834

<u>Qualifier</u>	<u>Definition</u>
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike or Matrix Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.





AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

CHAIN-OF-CUSTODY RECORD

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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

Page 1 of 1

Contact Person Robert Ettinger
 Company Geo Syntec Consultants
 Address 924 Anacapa St. #4A Santa Barbara CA 93101
 City State Zip
 Phone (805) 897-3800 FAX (805) 899-8689
 Collected By: Signature Robert Ettinger

Project Info:

P.O. # _____
 Project # _____
 Project Name _____

Turn Around Time:

Normal
 Rush 48 h
 Specify _____

1834

Lab ID	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum	
				Initial	Final
	SUP-01	12/29/04 11:40	TO-15, TO-3 ASTM D 1946	30"	4"
	SUP-03	12/29/04 12:11		30"	3"
	SUP-02	12/29/04 12:44		30"	3"
	SUP-01	12/29/04 13:19		30"	2"
	BSUP-01	12/29/04 13:29		30"	3"
	Trip Blank		TO-15 TO-3 ASTM D 1946	+5"	

Relinquished By: (Signature) Robert Ettinger Date/Time 12/29/04 17:25
 Received By: (Signature) FedEx Date/Time 548362120730
 Relinquished By: (Signature) _____ Date/Time _____
 Received By: (Signature) _____ Date/Time _____
 Relinquished By: (Signature) FedEx Date/Time _____
 Received By: (Signature) WOWAT OR Date/Time 12-30-04 9:45

Notes:
 TO-15 - Benzene, Toluene, Ethylbenzene, Xylenes
 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
 Isopropyl Alcohol
 TO-3 - CO, CO₂, TPH
 ASTM-D1946 O₂, CO₂, N₂, CH₄

Slipper Name _____ All Bill # _____ Temp. (°C) _____
 Condition _____ Custody Seals Intact? _____
 Yes No None

Work Order # _____



WORK ORDER #:

04 - 12 - 1834

Cooler 0 of 0

SAMPLE RECEIPT FORM

CLIENT: Air Toxics LTD.

DATE: 12-30-04

TEMPERATURE - SAMPLES RECEIVED BY:

CALSCIENCE COURIER:

- Chilled, cooler with temperature blank provided.
- Chilled, cooler without temperature blank.
- Chilled and placed in cooler with wet ice.
- Ambient and placed in cooler with wet ice.
- Ambient temperature.
- °C Temperature blank.

LABORATORY (Other than Calscience Courier):

- °C Temperature blank.
- °C IR thermometer.
- Ambient temperature.

Initial: WB

CUSTODY SEAL INTACT:

Sample(s): _____ Cooler: _____ No (Not Intact) : _____ Not Applicable (N/A):

Initial: WB

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with custody papers.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct containers for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper preservation noted on sample label(s).....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
VOA vial(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initial: WB

COMMENTS:
