



ENVIRONMENTAL GROUP, INC.  
ENGINEERING, ARCHITECTURE AND SURVEYING, PC

May 17, 2013

Mr. James Drumm, Project Manager  
New York State Department of Environmental Conservation  
625 Broadway, 12<sup>th</sup> Floor  
Albany, New York 12233-7016

**Re: Dynamic Systems Inc. – Vapor Intrusion Report**

Dear Mr. Drumm:

On behalf of Dynamic Systems, Inc. (DSI) and in support of the approved Site Characterization Plan, Spectra Environmental Group, Inc. is pleased to submit this Vapor Intrusion (VI) Report for the DSI facility in Poestenkill, NY.

### **Background**

During a November 2010 Phase II investigation, Trichloroethylene (TCE) was discovered in the groundwater at the DSI facility. Five (5) permanent monitoring wells were installed at the site to monitor TCE in the subsurface. The monitoring well locations are shown on Figure 1.

The primary source of the TCE is believed to have come from an equipment degreasing unit inside the facility which used TCE as a solvent degreaser. The unit and all residual TCE supplies were removed from the facility in July 2011. The degreaser unit was located in a concrete pit. In February 2012, the concrete pit was removed and soil beneath the pit was excavated to groundwater level at a depth of seven feet. Ten gallons of HRX, a hydrogen release compound was poured into the pit at groundwater level. The HRX is a compound made specifically for chlorinated hydrocarbons to enhance biodegradation. The pit was filled in with clean fill, a plastic barrier placed over the top, and a temporary plywood cover was placed over the pit.

Since that time a groundwater monitoring program has been implemented to track the levels of TCE. Only two (2) wells, MW-2 and MW-3 have shown TCE levels in excess of groundwater standards. MW-2, the only indoor well, is adjacent to the former degreaser pit and MW-3 is outside and down gradient of the pit.

From December 2010, TCE in MW-2 has ranged from 160 ppb to the most recent in March 2013 at 808 ppb. MW-3 has ranged from 370 ppb to the most recent at 4,900ppb. Cis 1,2-DCE a daughter product has demonstrated a similar but lower level pattern. No VOCs were detected in the three other monitoring wells. Results from those groundwater sampling events are shown in Table 1.

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POUGHKEEPSIE, NY 12601  
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SYRACUSE, NY 13202  
(315) 471-2101  
FAX (315) 471-2111

### **Vapor Intrusion (VI) Sampling (November)**

A vapor intrusion plan was submitted to the New York State Department of Environmental Conservation (NYSDEC). Specific sampling locations (Figure 3) were identified and approved by the NYSDEC. On November 27, 2012, the ambient air and subslab sampling event was initiated. All samples were collected in Summa Canisters provided by Pace Analytical laboratories.

There were four (4) ambient air and two (2) subslab samples collected simultaneously. This was important because in the event there were vapors in the subslab, we would be able to observe any corresponding impacts to ambient air.

AMB-1 was located directly adjacent to the former degreaser pit. AMB-2 was located in the shipping area and approximately 60 feet down gradient of the pit. AMB-3 was located in another room, and approximately 100 feet cross-gradient from the pit and, at the request of NYSDEC, AMB-4 was located outdoors and approximately 220 feet upgradient of the pit.

The Subslab-1 vapor point was installed below the existing slab, adjacent to AMB-1, and within the excavation pit. The Subslab-2 vapor point was installed adjacent to AMB-2 below the slab in the shipping room.

To collect the sub-slab soil vapor samples, a five-eighths (5/8) inch hole was drilled into the concrete floor slab for each sample location. A self-sealing vapor pin was inserted into the hole. Tubing was then connected between the vapor pin and the intake of the Summa regulator. Eight (8) hour regulators were used for all air and vapor samples. The Summa canisters were opened and allowed to collect air for eight hours or until the vacuum reading on the canister's gauge reached 5 psi or less. This was done to ensure that the valve on the SUMMA did not fail and allow vapor to escape during sample shipment. All Summa canisters reached the laboratory with satisfactory vacuum values.

The ambient air and subsurface soil vapor samples were collected on November 27, 2012 and sent to PACE Analytical Laboratory for analysis of TO-15 shortlist regarding TCE. The vapor point locations and the results from the vapor intrusion testing are shown on Figure 2. The November Laboratory Report is attached in Appendix A.

### **Results (November)**

The results from November's air sampling event indicate there was no TCE detected in all four ambient air samples collected. The non-detect samples included:

- a) Ambient air near the excavated pit (AMB-1);
- b) Ambient air inside the shipping area near MW-3 (AMB-2);
- c) Ambient air in the break room (AMB-3); and
- d) Ambient air outside, north side parking lot (AMB-4).

The two sub-slab samples (Subslab-1 and Subslab-2) had positive readings which is consistent with the site characterization. Subslab-1 had the highest reading for TCE at 8700.2 ug/m<sup>3</sup> (1620

ppbv) and cis-1,2, Dichloroethene at  $622.1 \text{ ug/m}^3$  (157 ppbv). This sample is located directly below the suspected source (former grease trap). The second positive result for TCE ( $8.1 \text{ ug/m}^3$ ) was in the Subslab-2 location in the garage near MW-3. MW-3 has historically had the highest groundwater concentrations.

All tests were taken simultaneously. At locations where VOCs were detected in the subslab space (Subslab-1 and Subslab-2), none were detected in the workplace ambient air samples (AMB-1 and AMB-2). In addition, no VOCs were detected at the other two ambient air sample locations (AMB-3 and AMB-4).

### **Vapor Intrusion (VI) Sampling (March)**

Upon review of the results from the November air sampling event, it was determined that collection of a subslab sample directly within the excavation area was not a true representation of subslab vapor concentrations. The fill material used in the pit was permeable and was not consistent with the more impermeable native material throughout the rest of the subsurface. The permeable material created a "chimney-effect" pathway for vapors to move more easily than thru native material. After discussion with the NYSDEC project manager, it was determined that the results of the ambient samples and Subslab-2 were acceptable. However, given the high concentration reported in Subslab-1, the area near the excavation pit should be re-sampled at locations which represented the more typical subslab conditions.

Three (3) new sampling locations are shown in Figure 3. Each point was located 10 feet north (SVP-N), east (SVP-E), and west (SVP-W) of the excavation pit. As done previously, five-eighth (5/8) inch holes were drilled into the concrete floor slab. A self-sealing vapor pin was inserted into each hole and the intake tube from the Summa canister was then connected directly to the vapor pin.

On March 22, 2013 subslab soil vapor samples were collected using Summa canisters over an eight hour period. The canisters were sent to Spectrum Analytical Laboratories for analysis of TO-15 shortlist regarding TCE. The March Laboratory Report is provided in Appendix A. The sampling method was the same for the subslab vapor samples collected in November 2012. The results from these samples are shown in Figure 3.

### **Results (March)**

The TCE subslab vapor concentrations at SVP-E ( $18.6 \text{ ug/m}^3$ ) and SVP-W ( $46.4 \text{ ug/m}^3$ ) are within the New York State Department of Health (NYSDOH) criteria for "No Further Action" ( $0-50 \text{ ug/m}^3$ ).

SVP-N ( $2,853 \text{ ug/m}^3$ ) was 67% lower than the November results ( $8700 \text{ ug/m}^3$ ) demonstrating the affect the permeable fill material has on the subsurface vapors. The results however fall within the NYSDOH guideline criteria requiring mitigation ( $>250 \text{ ug/m}^3$ ) and indicate the vapors range from the pit and extend in a northerly direction.

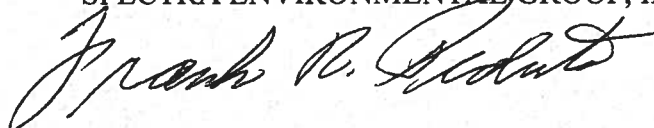
**Conclusions and Recommendations**

The subslab vapors are concentrated from within the pit area and depleting in a northerly direction in toward the factory. There is no subslab impact in any other direction. No vapors are entering the work place including the area over the temporary plywood pit cover; ambient conditions are not impacted by the localized subslab vapors. While the NYSDOH guidance recommends mitigation if subslab vapors exceed  $250 \text{ ug/m}^3$ , the absence of any impact to the workplace needs to be considered in any decision. The application of the biodegradation enhancer (HRX), probably stimulated bioactivity and increased vapor activity.

Given the absence of any workplace impacts; a periodic workplace monitoring program is a sufficient response to the data.

Sincerely,

SPECTRA ENVIRONMENTAL GROUP, INC.



Frank R. Peduto, P.E.  
Project Manager

**Attachments**

cc w/ att., via e-mail: D. Ferguson, DSI  
J. Privitera, Esq.  
J. Brown, NYSDEC

FRP/akm

G:\2011\1124\Reports\Vapor Intrusion\Final Vapor Intrusion Report 5\_17\_2013.doc

## **TABLE**

Dynamic Systems, Inc.  
Groundwater Sampling Results  
Town of Poestenkill,  
Rensselaer County, New York

Dynamic Systems, Inc. Groundwater Sampling Results Town of Poestenkill, Rensselaer County, New York		1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	Acetone	Benzene	cis 1,2-Dichloroethene	trans 1,2-Dichloroethene	Ethyl Benzene	4-methyl, 2-pentanone	MTBE	Tetrachloroethene	Toluene	Trichloroethene	Vinyl chloride	Xylenes, total
Division of Water Technical and Operational Guidance Series (1.1) (PPB)		1	5	5	50	1	5	5	5	50	5	50	5	5	2	-
MW-1	December 2010*	ND	ND	ND	31	0.21 J	ND	ND	ND	1.6 J	ND	ND	0.55 J	0.27 J	ND	0.48 J
	February 14, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	March 23, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	September 20, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	December 20, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	March 22, 2013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2	December 2010*	ND	ND	ND	ND	ND	28	0.56 J	ND	ND	ND	ND	0.30 J	160	ND	ND
	February 14, 2012	ND	ND	ND	ND	ND	86	ND	ND	ND	ND	ND	ND	840	ND	ND
	March 23, 2012	ND	ND	0.84 J	ND	ND	47	2.6	ND	ND	ND	0.63 J	ND	280 D	ND	ND
	September 20, 2012	ND	ND	ND	ND	ND	73	ND	ND	ND	ND	0.55 J	ND	690	ND	ND
	December 20, 2012	ND	ND	ND	ND	ND	115	ND	ND	ND	ND	ND	ND	834	ND	ND
	March 22, 2013	ND	ND	ND	ND	ND	115	ND	ND	ND	ND	ND	ND	808	ND	ND
MW-3	December 2010*	ND	ND	0.35 J	21	0.44 J	28	0.41 J	ND	ND	1.2	0.39 J	0.58 J	370	1.9	0.62 J
	February 14, 2012	ND	ND	ND	ND	ND	210	ND	ND	ND	ND	ND	ND	300	ND	ND
	March 23, 2012	ND	ND	1.3	ND	ND	280 D	ND	ND	ND	ND	0.51 J	ND	1600 D	24	ND
	September 20, 2012	ND	ND	1.7	ND	ND	240	ND	ND	ND	ND	ND	ND	1100	29	ND
	December 20, 2012	ND	ND	ND	ND	ND	280	ND	ND	ND	ND	ND	ND	3630	ND	ND
	March 22, 2013	ND	ND	ND	ND	ND	154	ND	ND	ND	ND	ND	ND	4460	ND	ND
	March 22, 2013 (duplicate)	ND	ND	ND	ND	ND	165	ND	ND	ND	ND	ND	ND	4900	ND	ND
MW-4	December 2010*	ND	ND	ND	ND	ND	0.98 J	ND	ND	ND	0.20 J	0.41 J	0.57 J	17	ND	0.78 J
	February 14, 2012	Not Sampled														
	March 23, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	September 20, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	December 20, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	March 22, 2013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	December 2010*	ND	ND	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	0.47 J	ND	ND	ND
	February 14, 2012	Not Sampled														
	March 23, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	September 20, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND
	December 20, 2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	March 22, 2013	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Dynamic Systems, Inc.  
Groundwater Sampling Results  
Town of Poestenkill,  
Rensselaer County, New York

**Notes:**

**Bold** and yellow shaded values indicate values that Exceed Title 6 NYCRR 703 Water Quality Standards or TOGS Series 1.1.1

ND - Analyte was not detected.

Data Qualifiers:

J - Indicates an estimated value less than the practical quantization limit (PQL).

D - This flag identifies all compounds identified in an analysis at secondary dilution factor.

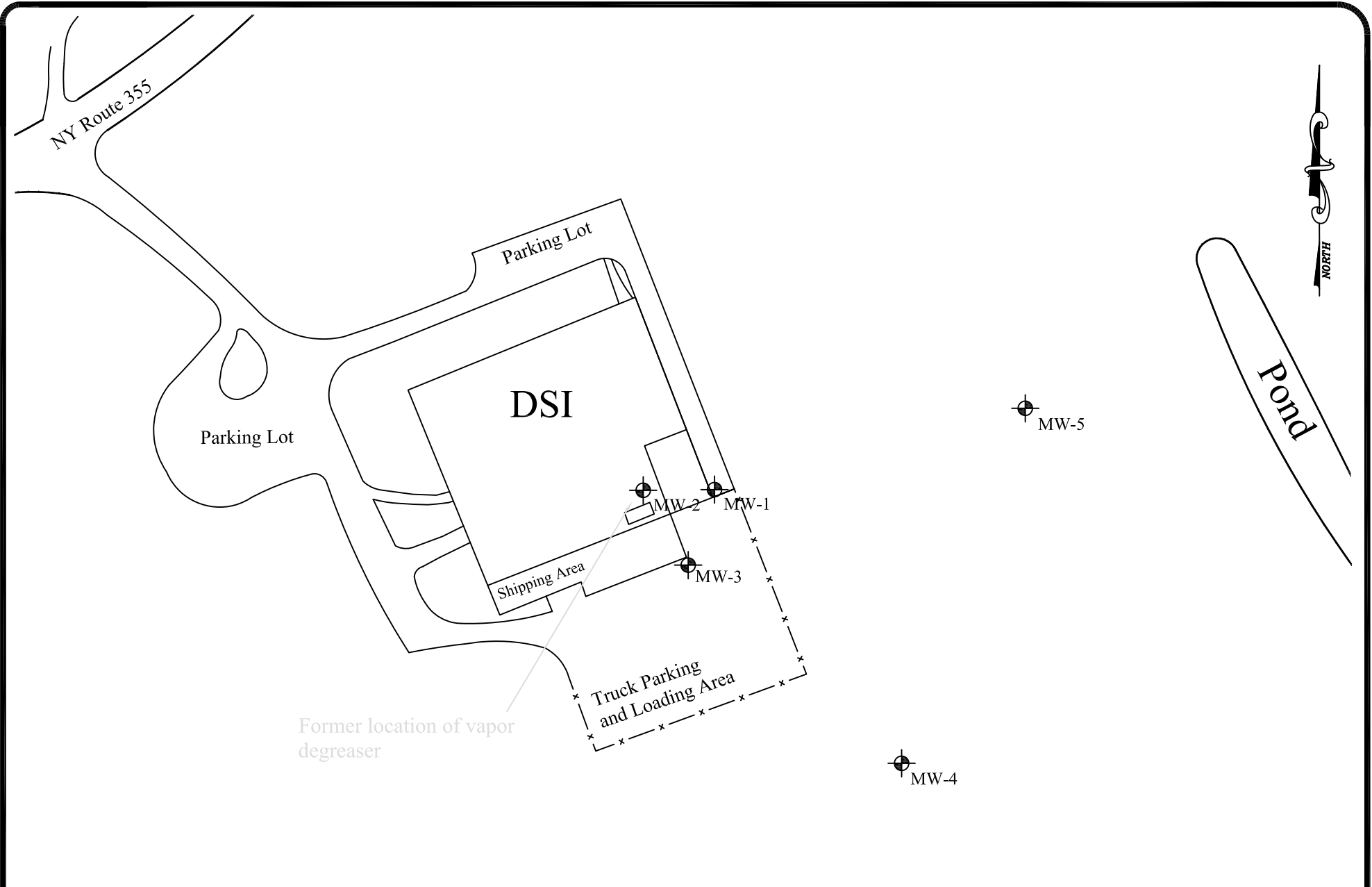
\* Samples collected on December 3, 4, and 5, 2010 by GaiaTech


All data is reported in ppb (ug/L) - parts per billion -micrograms/Liter

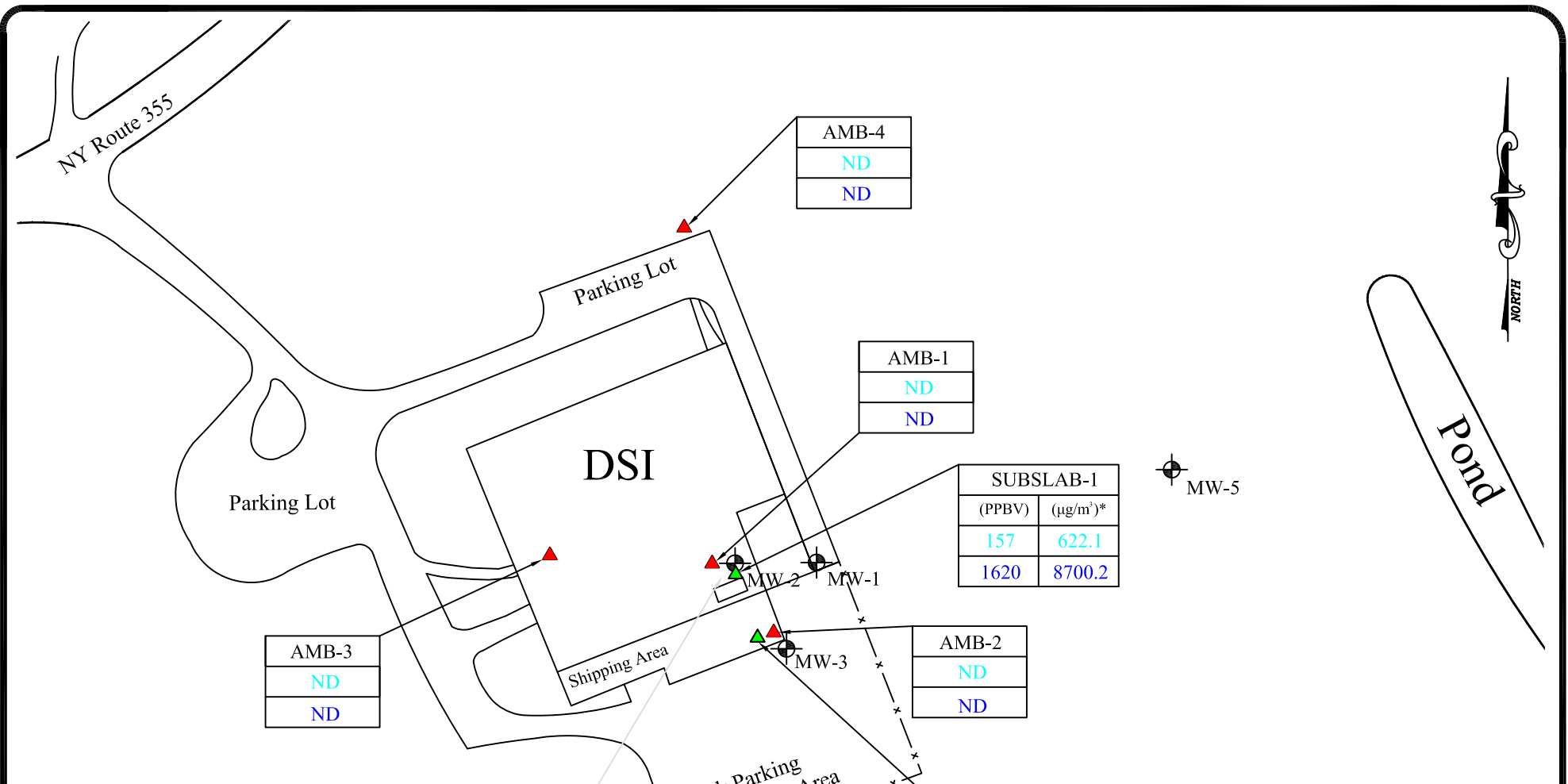
All other parameters analyzed were non-detect, or were detected during the first sampling event only and were well below Title 6 Water Quality Standards or TOGS Series 1.1.1.

## **FIGURES**





 <p><b>SPECTRA</b> ENGINEERING, ARCHITECTURE, &amp; SURVEYING, P.C. SPECTRA ENVIRONMENTAL GROUP, INC. 19 British American Blvd. Latham, N.Y. 12110</p>	<p><b>MONITORING WELL LOCATIONS</b> <b>DYNAMIC SYSTEMS, INC.</b> POESTENKILL, NEW YORK</p>		
	<p>TOWN OF POESTENKILL</p>	<p>RENSSELAER CO., NY</p>	
<p>PROJ. NO.: 11124</p>	<p>DATE: 05/17/13</p>	<p>SCALE: 1"=100'</p>	<p>DWG. NO.: SAMPLING... FIGURE: 1</p>



**LEGEND**

SUBSLAB-2	SAMPLE ID
ND	cis-1,2-dichloroethene
1.5	trichloroethene

- ▲ Air Sample Location
- ▲ Sub-Slab Soil Vapor Sample Location

Soil vapor samples were collected on Nov. 27, 2012 from 9 am to 5 pm.

\* value converted from ppb to  $\mu\text{g}/\text{m}^3$  using EPA online calculator assuming 1 atm and 25 degrees Celsius.

Former location of vapor degreaser

SUBSLAB-1	
(PPBV)	( $\mu\text{g}/\text{m}^3$ )*
157	622.1
1620	8700.2

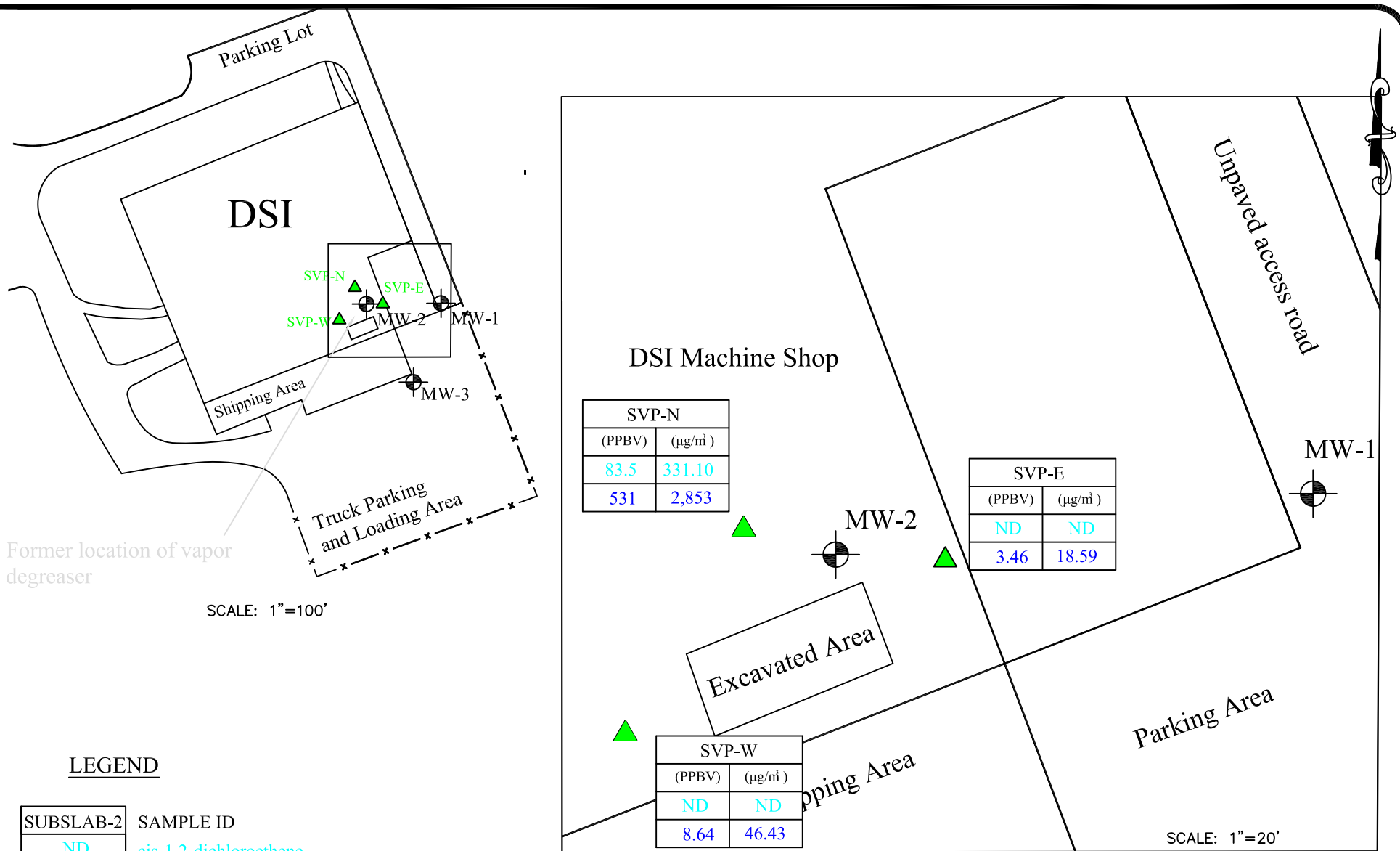
SUBSLAB-2	
(PPBV)	( $\mu\text{g}/\text{m}^3$ )*
ND	ND
1.5	8.1



**SPECTRA**  
 ENGINEERING, ARCHITECTURE, & SURVEYING, P.C.  
 SPECTRA ENVIRONMENTAL GROUP, INC.  
 19 British American Blvd.  
 Latham, N.Y. 12110

**VI RESULTS NOVEMBER 2012**  
**DYNAMIC SYSTEMS, INC.**  
 POESTENKILL, NEW YORK

TOWN OF POESTENKILL RENSSELAER CO., NY




**LEGEND**

SUBSLAB-2	SAMPLE ID
ND	cis-1,2-dichloroethene
1.5	trichloroethene

**Notes:**

Soil vapor samples were collected on March 22, 2013 from 9 am to 5 pm.

▲ Sub-Slab Soil Vapor Sample Location

 <p><b>SPECTRA</b> ENGINEERING, ARCHITECTURE, &amp; SURVEYING, P.C. SPECTRA ENVIRONMENTAL GROUP, INC. 19 British American Blvd. Latham, N.Y. 12110</p>	<p><b>VI RESULTS MARCH 2013</b> <b>DYNAMIC SYSTEMS, INC.</b> POESTENKILL, NEW YORK</p>
	<p>TOWN OF POESTENKILL RENSSELAER CO.,NY</p>
<p>PROJ. NO.: 11124   DATE: 5/17/13   SCALE: AS MARKED   DWG. NO.: SAMPLING...   FIGURE: 3</p>	

## **APPENDIX A**

## **NOVEMBER LABORATORY REPORT**



***Pace Analytical e-Report***

**Report prepared for:**  
SPECTRA ENVIRONMENTAL GROUP, INC.  
19 BRITISH AMERICAN BLVD  
LATHAM, NY 12110  
CONTACT: CHRIS KEEFE

-----  
**Project ID:** DYNAMIC SYSTEMS INC.  
**Sampling Date(s):** November 27, 2012  
**Lab Report ID:** 12110395  
**Client Service Contact:** James Wickham (518) 346-4592

-----  
**Analysis Included:**  
TO-15 VOA - Pace MN

Test results meet all National Environmental Laboratory Accreditation Conference (NELAC) requirements unless noted in the case narrative. The results contained within this document relate only to the samples included in this report. Pace Analytical is responsible only for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

A handwritten signature in black ink that reads "Dan Pflzer". The signature is fluid and cursive.

Dan Pflzer  
Laboratory Director



Certifications: NYS (EPA: NY00906, ELAP: 11078), NJ (NY026), CT (PH-0337), MA(M-NY906), VA (1884)

Pace Analytical Services, Inc. | 2190 Technology Drive | Schenectady, NY 12308  
Phone: 518.346.4592 | internet: [www.pacelabs.com](http://www.pacelabs.com)

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# CASE NARRATIVE

December 10, 2012

CASE NARRATIVE

This data package (SDG ID: 12110395) consists of 6 filter samples received on 11/27/2012. The samples are from Project Name: DYNAMIC SYSTEMS INC.

This sample delivery group consists of the following samples:

<u>Lab Sample ID</u>	<u>Client ID</u>	<u>Collection Date</u>
AP38090	AMB-1	11/27/2012 16:54
AP38091	AMB-2	11/27/2012 16:04
AP38092	AMB-3	11/27/2012 16:07
AP38093	AMB-4	11/27/2012 16:35
AP38094	SUBSLAB-1	11/27/2012 16:36
AP38095	SUBSLAB-2	11/27/2012 16:04

Sample Delivery and Receipt Conditions

- (1.) All samples were delivered to the laboratory via DROP OFF delivery service on 11/27/2012.
- (2.) All samples were received at the laboratory intact and within holding times.
- (3.) The following sample temperature was recorded at sample receipt (Control limits are between 0-6 Degrees Celsius): N/A degrees Celsius. Please see Chain of Custody for details. Control limits do not apply for air media.

Volatiles Analysis

Analysis for Volatiles was performed by EPA Method TO-15A. The following technical and administrative items were noted for the analysis:

- (1.) Please see the Pace-MN Lab report for Quality Assurance details.

Respectfully submitted,



James T. Wickham  
Client Services Manager

# QUALIFIERS

### **Organic Laboratory Qualifiers Defined**

B - Denotes analyte observed in associated method blank or extraction blank. Analyte concentration should be considered as estimated.

D - Surrogate was diluted out. The analysis of the sample required a dilution such that the surrogate concentration was diluted below the laboratory acceptance criteria.

E - Denotes analyte concentration exceeded calibration range of instrument. Sample could not be re-analyzed at secondary dilution due to insufficient sample amount, quick turn-around request, sample matrix interference or hold time excursion. Concentration result should be considered as estimated.

J - Denotes an estimated concentration. The concentration result is greater than or equal to the Method Detection Limit (MDL) but less than the Reporting Limit (RL).

P - Indicates relative percent difference (RPD) between primary and secondary GC column analysis exceeds 40 % or indicates percent difference (PD) between primary and secondary GC column analysis exceeds 25 %.

U - Denotes analyte not detected at concentration greater than or equal to the RL. RL's are adjusted for sample weight/volume and dilution factors.

Z - Chromatographic interference due to PCB co-elution.

\* - Value not within control limits.

### **Inorganic Laboratory Qualifiers Defined**

B - Denotes analyte observed in associated method blank or digestion blank. Analyte concentration should be considered as estimated.

E - Denotes analyte concentration exceeded calibration range of instrument. Sample could not be re-analyzed at secondary dilution due to insufficient sample amount, quick turn-around request, sample matrix interference or hold time excursion. Concentration result should be considered as estimated.

J - Denotes an estimated concentration. The concentration result is greater than or equal to the Method Detection Limit (MDL) but less than the Reporting Limit (RL).

U - Denotes analyte not detected at concentration greater than or equal to the RL. RL's are adjusted for sample weight/volume and dilution factors.

\* - Value not within control limits.

# SAMPLE CHAIN OF CUSTODY



# AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<12110395P1>



17074

Page: 1 of 1

**Section A**

Required Client Information:

**Section B**

Required Project Information:

**Section C**

Invoice Information:

Company: <b>SPECTRA ENV.GROUP</b>	Report To: <b>FRANK PEDITO</b>	Attention: <b>TONI CHERKO</b>	Program
Address: <b>19 British American Blvd. Latham, NY 12110</b>	Copy To: <b>ckeefer@spectraenv.com</b>	Company Name: <b>SPECTRA ENVIRONMENTAL</b>	UST <input type="checkbox"/> Superfund <input type="checkbox"/> Emissions <input type="checkbox"/> Clean Air Act <input type="checkbox"/>
Email To: <b>FPEDITO@SpectraEnv.com</b>	Purchase Order No.:	Address: <b>19 BRITISH AMERICAN BLVD</b>	Voluntary Clean Up <input type="checkbox"/> Dry Clean <input type="checkbox"/> RCRA <input type="checkbox"/> Other <input type="checkbox"/>
Phone: <b>518 782 0889</b>	Project Name: <b>Dynamic Systems Inc.</b>	Pace Quote Reference:	Location of Sampling by State: <b>NY</b>
Requested Due Date/TAT: <b>STANDARD</b>	Project Number: <b>11124</b>	Pace Project Manager/Sales Rep: <b>JIM NELLIGAN/Kardynne Trout</b>	Reporting Units: ug/m <sup>3</sup> mg/m <sup>3</sup> PPBV PPMV Other
		Pace Profile #:	Report Level: II. ___ III. ___ IV. ___ Other ___

ITEM #	Section D Required Client Information		Valid Media Codes MEDIA CODE	COLLECTED	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method:							Pace Lab ID				
	AIR SAMPLE ID								COMPOSITE START		COMPOSITE -		Method:							
	Sample IDs MUST BE UNIQUE								DATE	TIME	DATE	TIME	PM10	3C-Fixed Gas (%)	TO-3		TO-3M (Methane)	TO-11 (PCBs)	TO-13 (PAH)	TO-14
1	AMB-1	AP38090	6LC	11/27	0855	11/27	1654	-29	-10	1952	FC0222							✓	+TCE	
2	AMB-2	AP38091	6LC	11/27	0848	11/27	1604	-24	-5	1221	FC0130							✓	+TCE	
3	AMB-3	AP38092	6LC	11/27	0853	11/27	1607	-29	-5	2048	FC0342							✓	+TCE	
4	AMB-4	AP38093	6LC	11/27	0859	11/27	1635	-28	-5	1245	FC0096							✓	+TCE	
5	SUBSLAB-1	AP38094	6LC	11/27	0855	11/27	1636	-29	-3	1188	FC0250							✓	+TCE	
6	SUBSLAB-2	AP38095	6LC	11/27	0848	11/27	1604	-28	-3	1041	FC0102							✓	+TCE *	
7																				
8																			* SEE ATTACHED COMPOUNDS	
9																			U.C.F.	
10																				
11																				
12																				

Comments :	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
		Christopher Keefer (Spectra)	11/27	1815	Angela Coulter	11/27/12	18:15	Temp in °C	Received on Ice	Custody Sealed Cooler
								Y/N	Y/N	Y/N
								Y/N	Y/N	Y/N
								Y/N	Y/N	Y/N
								Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **Christopher Keefer**

SIGNATURE of SAMPLER: *Christopher Keefer*

DATE Signed (MM/DD/YY): **11/27/12**

ORIGINAL



<12110395P2>



121103952

Pace Analytical Services, Inc.  
Method Detection Limits and Reporting Limits  
for EPA TO15 ALL

Analyte	CAS #	MDL (ppbv)	PRL (ppbv)	MDL (ug/m <sup>3</sup> )	PRL (ug/m <sup>3</sup> )	LCS		DUP
						Lower	Upper	RPD
cis-1,2-Dichloroethene	156-59-2	0.038	0.2	0.153	0.81	73	130	25
Tetrachloroethene	127-18-4	0.050	0.1	0.345	0.69	70	130	25
trans-1,2-dichloroethene	156-60-5	0.100	0.2	0.405	0.81	72	128	25
Trichloroethene	79-01-6	0.050	0.1	0.275	0.55	72	131	25
Vinyl chloride	75-01-4	0.050	0.1	0.130	0.26	70	131	25

# Subcontract Analysis



December 07, 2012

Jamie Wickham  
PASI-NY

RE: Project: 12110395 Spectra Environmental  
Pace Project No.: 10213722

Dear Jamie Wickham:

Enclosed are the analytical results for sample(s) received by the laboratory on November 29, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Norman C. Hoffa

norm.hoffa@pacelabs.com  
Project Manager

Enclosures

cc: Ms. Ann C. Casey, Pace Analytical New York  
William Kotas, Pace Analytical New York



## REPORT OF LABORATORY ANALYSIS

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Page 1 of 13

## CERTIFICATIONS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

---

### Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nebraska Certification #: Pace

Nevada Certification #: MN\_00064

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

## REPORT OF LABORATORY ANALYSIS

Page 2 of 13

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### SAMPLE SUMMARY

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10213722001	Amb-1 AP38090	Air	11/27/12 16:54	11/29/12 09:28
10213722002	Amb-2 AP38091	Air	11/27/12 16:04	11/29/12 09:28
10213722003	Amb-3 AP38092	Air	11/27/12 16:07	11/29/12 09:28
10213722004	Amb-4 AP38093	Air	11/27/12 16:35	11/29/12 09:28
10213722005	Subslab-1 AP38094	Air	11/27/12 16:36	11/29/12 09:28
10213722006	Subslab-2 AP38095	Air	11/27/12 16:04	11/29/12 09:28

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10213722001	Amb-1 AP38090	TO-15	DR1	5
10213722002	Amb-2 AP38091	TO-15	DR1	5
10213722003	Amb-3 AP38092	TO-15	DR1	5
10213722004	Amb-4 AP38093	TO-15	DR1	5
10213722005	Subslab-1 AP38094	TO-15	CJR, DR1	5
10213722006	Subslab-2 AP38095	TO-15	DR1	5

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: Amb-1 AP38090</b>		<b>Lab ID: 10213722001</b>		Collected: 11/27/12 16:54	Received: 11/29/12 09:28	Matrix: Air		
<b>TO15 MSV AIR</b>								
		Analytical Method: TO-15						
cis-1,2-Dichloroethene	ND	ppbv	1.0	2.01		12/06/12 18:29	156-59-2	
trans-1,2-Dichloroethene	ND	ppbv	1.0	2.01		12/06/12 18:29	156-60-5	
Tetrachloroethene	ND	ppbv	1.0	2.01		12/06/12 18:29	127-18-4	
Trichloroethene	ND	ppbv	1.0	2.01		12/06/12 18:29	79-01-6	
Vinyl chloride	ND	ppbv	1.0	2.01		12/06/12 18:29	75-01-4	

## ANALYTICAL RESULTS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: Amb-2 AP38091</b>		<b>Lab ID: 10213722002</b>		Collected: 11/27/12 16:04	Received: 11/29/12 09:28	Matrix: Air		
<b>TO15 MSV AIR</b> Analytical Method: TO-15								
cis-1,2-Dichloroethene	ND	ppbv	0.74	1.49		12/06/12 18:00	156-59-2	
trans-1,2-Dichloroethene	ND	ppbv	0.74	1.49		12/06/12 18:00	156-60-5	
Tetrachloroethene	ND	ppbv	0.74	1.49		12/06/12 18:00	127-18-4	
Trichloroethene	ND	ppbv	0.74	1.49		12/06/12 18:00	79-01-6	
Vinyl chloride	ND	ppbv	0.74	1.49		12/06/12 18:00	75-01-4	

## ANALYTICAL RESULTS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

<b>Sample: Amb-3 AP38092</b>		<b>Lab ID: 10213722003</b>		Collected: 11/27/12 16:07	Received: 11/29/12 09:28	Matrix: Air		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
cis-1,2-Dichloroethene	ND	ppbv	0.78	1.55		12/06/12 18:59	156-59-2	
trans-1,2-Dichloroethene	ND	ppbv	0.78	1.55		12/06/12 18:59	156-60-5	
Tetrachloroethene	ND	ppbv	0.78	1.55		12/06/12 18:59	127-18-4	
Trichloroethene	ND	ppbv	0.78	1.55		12/06/12 18:59	79-01-6	
Vinyl chloride	ND	ppbv	0.78	1.55		12/06/12 18:59	75-01-4	

## ANALYTICAL RESULTS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

<b>Sample: Amb-4 AP38093</b>		<b>Lab ID: 10213722004</b>		Collected: 11/27/12 16:35	Received: 11/29/12 09:28	Matrix: Air		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
cis-1,2-Dichloroethene	ND	ppbv	0.72	1.44		12/06/12 17:30	156-59-2	
trans-1,2-Dichloroethene	ND	ppbv	0.72	1.44		12/06/12 17:30	156-60-5	
Tetrachloroethene	ND	ppbv	0.72	1.44		12/06/12 17:30	127-18-4	
Trichloroethene	ND	ppbv	0.72	1.44		12/06/12 17:30	79-01-6	
Vinyl chloride	ND	ppbv	0.72	1.44		12/06/12 17:30	75-01-4	



## ANALYTICAL RESULTS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

<b>Sample: Subslab-1 AP38094</b>		<b>Lab ID: 10213722005</b>	Collected: 11/27/12 16:36	Received: 11/29/12 09:28	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
cis-1,2-Dichloroethene	<b>157</b>	ppbv	15.5	31		12/06/12 19:58	156-59-2	
trans-1,2-Dichloroethene	ND	ppbv	15.5	31		12/06/12 19:58	156-60-5	
Tetrachloroethene	ND	ppbv	15.5	31		12/06/12 19:58	127-18-4	
Trichloroethene	<b>1620</b>	ppbv	62.0	124		12/07/12 12:15	79-01-6	A3
Vinyl chloride	ND	ppbv	15.5	31		12/06/12 19:58	75-01-4	

### ANALYTICAL RESULTS

Project: 12110395 Spectra Environmental  
Pace Project No.: 10213722

<b>Sample: Subslab-2 AP38095</b>		<b>Lab ID: 10213722006</b>	Collected: 11/27/12 16:04	Received: 11/29/12 09:28	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>TO15 MSV AIR</b>		Analytical Method: TO-15						
cis-1,2-Dichloroethene	ND	ppbv	0.72	1.44		12/06/12 16:10	156-59-2	
trans-1,2-Dichloroethene	ND	ppbv	0.72	1.44		12/06/12 16:10	156-60-5	
Tetrachloroethene	ND	ppbv	0.72	1.44		12/06/12 16:10	127-18-4	
Trichloroethene	<b>1.5</b>	ppbv	0.72	1.44		12/06/12 16:10	79-01-6	
Vinyl chloride	ND	ppbv	0.72	1.44		12/06/12 16:10	75-01-4	

### QUALITY CONTROL DATA

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

QC Batch: AIR/16336

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR

Associated Lab Samples: 10213722001, 10213722002, 10213722003, 10213722004, 10213722005, 10213722006

METHOD BLANK: 1346069

Matrix: Air

Associated Lab Samples: 10213722001, 10213722002, 10213722003, 10213722004, 10213722005, 10213722006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ppbv	ND	0.50	12/06/12 11:10	
Tetrachloroethene	ppbv	ND	0.50	12/06/12 11:10	
trans-1,2-Dichloroethene	ppbv	ND	0.50	12/06/12 11:10	
Trichloroethene	ppbv	ND	0.50	12/06/12 11:10	
Vinyl chloride	ppbv	ND	0.50	12/06/12 11:10	

LABORATORY CONTROL SAMPLE: 1346070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ppbv	10	9.4	94	73-130	
Tetrachloroethene	ppbv	10	8.1	81	70-130	
trans-1,2-Dichloroethene	ppbv	10	8.4	84	72-128	
Trichloroethene	ppbv	10	8.4	84	72-131	
Vinyl chloride	ppbv	10	8.1	81	70-131	

## QUALIFIERS

Project: 12110395 Spectra Environmental

Pace Project No.: 10213722

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

A3 The sample was analyzed by serial dilution.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 12110395 Spectra Environmental  
Pace Project No.: 10213722

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10213722001	Amb-1 AP38090	TO-15	AIR/16336		
10213722002	Amb-2 AP38091	TO-15	AIR/16336		
10213722003	Amb-3 AP38092	TO-15	AIR/16336		
10213722004	Amb-4 AP38093	TO-15	AIR/16336		
10213722005	Subslab-1 AP38094	TO-15	AIR/16336		
10213722006	Subslab-2 AP38095	TO-15	AIR/16336		

## **MARCH LABORATORY REPORT**

Report Date:  
08-Apr-13 12:12



- Final Report
- Re-Issued Report
- Revised Report

**SPECTRUM ANALYTICAL, INC.**  
*Featuring*  
**HANIBAL TECHNOLOGY**  
**Laboratory Report**

Spectra Environmental  
19 British American Blvd  
Latham, NY 12110  
Attn: Frank Peduto

Project: Dynamic Systems Inc. - Poestenkill, NY  
Project #: 11124

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Container</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB66666-01	SVP-E	Summa canister 6 liter	Soil Gas	22-Mar-13 16:28	26-Mar-13 21:00
SB66666-02	SVP-W	Summa canister 6 liter	Soil Gas	22-Mar-13 16:51	26-Mar-13 21:00
SB66666-03	SVP-N	Summa canister 6 liter	Soil Gas	22-Mar-13 16:46	26-Mar-13 21:00

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.  
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110  
Connecticut # PH-0777  
Florida # E87600/E87936  
Maine # MA138  
New Hampshire # 2538  
New Jersey # MA011/MA012  
New York # 11393/11840  
Pennsylvania # 68-04426/68-02924  
Rhode Island # 98  
USDA # S-51435



Authorized by:

Nicole Leja  
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

*Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at [www.spectrum-analytical.com](http://www.spectrum-analytical.com) for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).*

*Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.*

**CASE NARRATIVE:**

Samples are received and the pressure is recorded from the gauge on the canister. If a canister does not have a gauge, a vacuum gauge is attached to the valve and pressure is recorded. If the canister is below -10 psig, the can must be pressurized to 0 psig. Tedlar bags do not have the pressure recorded. The can pressure can be located within this report in the sample header information.

If a Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

**See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.**

**EPA TO-15**

**Samples:**

SB66666-01                    *SVP-E*

---

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

SB66666-02                    *SVP-W*

---

Elevated Reporting Limits due to the presence of high levels of non-target analytes.

SB66666-03                    *SVP-N*

---

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.



## Sample Acceptance Check Form

Client: Spectra Environmental - Latham  
 Project: Dynamic Systems Inc. - Poestenkill, NY / 11124  
 Work Order: SB66666  
 Sample(s) received on: 3/26/2013  
 Received by: Katy Wilkinson

*The following outlines the condition of samples for the attached Chain of Custody upon receipt.*

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1. Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Were samples received at a temperature of $\leq 6^{\circ}\text{C}$ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Were samples cooled on ice upon transfer to laboratory representative?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Were samples refrigerated upon transfer to laboratory representative?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample Identification

SVP-E

SB66666-01

Client Project #

11124

Matrix

Soil Gas

Collection Date/Time

22-Mar-13 16:28

Received

26-Mar-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result/Units</i>	<i>*RDL</i>	<i>Result ug/m<sup>3</sup></i>	<i>*RDL</i>	<i>Flag</i>	<i>Method Ref.</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Air Quality Analyses**

Chlorinated VOCs in Air

ppbv

Prepared 02-Apr-13

R05

Can pressure: -1

Can ID: 4615

75-01-4	Vinyl chloride	< 0.788	1.00	< 2.01	2.56	U, D	EPA TO-15	03-Apr-13	KRL	1307320	X
156-60-5	trans-1,2-Dichloroethene	< 0.426	1.00	< 1.69	3.97	U, D	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	< 0.326	1.00	< 1.29	3.97	U, D	"	"	"	"	X
79-01-6	Trichloroethene	<b>3.46</b>	1.00	<b>18.59</b>	5.37	D	"	"	"	"	X
127-18-4	Tetrachloroethene	< 0.402	1.00	< 2.73	6.78	U, D	"	"	"	"	X

Surrogate recoveries:

460-00-4	4-Bromofluorobenzene	104		70-130 %			"	"	"	"	
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*This laboratory report is not valid without an authorized signature on the cover page.*

Sample Identification

SVP-W  
SB66666-02

Client Project #  
11124

Matrix  
Soil Gas

Collection Date/Time  
22-Mar-13 16:51

Received  
26-Mar-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result/Units</i>	<i>*RDL</i>	<i>Result ug/m<sup>3</sup></i>	<i>*RDL</i>	<i>Flag</i>	<i>Method Ref.</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Air Quality Analyses**

<u>Chlorinated VOCs in Air</u>		ppbv	<u>Prepared 02-Apr-13</u>			R05	<u>Can pressure: -14</u>				
			<u>Dilution: 4</u>				<u>Can ID: 0272</u>				
75-01-4	Vinyl chloride	< 1.58	2.00	< 4.04	5.11	U, D	EPA TO-15	03-Apr-13	KRL	1307320	X
156-60-5	trans-1,2-Dichloroethene	< 0.852	2.00	< 3.38	7.93	U, D	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	< 0.652	2.00	< 2.59	7.93	U, D	"	"	"	"	X
79-01-6	Trichloroethene	<b>8.64</b>	2.00	<b>46.43</b>	10.75	D	"	"	"	"	X
127-18-4	Tetrachloroethene	< 0.804	2.00	< 5.45	13.56	U, D	"	"	"	"	X

*Surrogate recoveries:*

460-00-4	4-Bromofluorobenzene	105		70-130 %			"	"	"	"	
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Sample Identification

<b>SVP-N</b>	<u>Client Project #</u>	<u>Matrix</u>	<u>Collection Date/Time</u>	<u>Received</u>
SB66666-03	11124	Soil Gas	22-Mar-13 16:46	26-Mar-13

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result/Units</i>	<i>*RDL</i>	<i>Result ug/m<sup>3</sup></i>	<i>*RDL</i>	<i>Flag</i>	<i>Method Ref.</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
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**Air Quality Analyses**

<u>Chlorinated VOCs in Air</u>		<u>ppbv</u>	<u>Prepared 03-Apr-13</u>			<u>GS1</u>	<u>Can pressure: -5</u>				
			<u>Dilution: 10</u>				<u>Can ID: 1345</u>				
75-01-4	Vinyl chloride	< 3.94	5.00	< 10.07	12.78	U, D	EPA TO-15	03-Apr-13	KRL	1307459	X
156-60-5	trans-1,2-Dichloroethene	< 2.13	5.00	< 8.45	19.83	U, D	"	"	"	"	X
156-59-2	cis-1,2-Dichloroethene	<b>83.5</b>	5.00	<b>331.10</b>	19.83	D	"	"	"	"	X
79-01-6	Trichloroethene	<b>531</b>	5.00	<b>2853.72</b>	26.87	D	"	"	"	"	X
127-18-4	Tetrachloroethene	< 2.01	5.00	< 13.63	33.91	U, D	"	"	"	"	X

*Surrogate recoveries:*

460-00-4	4-Bromofluorobenzene	97		70-130 %			"	"	"	"	
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**Air Quality Analyses - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1307320 - General Air Prep</b>										
<b>Blank (1307320-BLK1)</b>	<u>Prepared &amp; Analyzed: 02-Apr-13</u>									
Chloromethane	< 0.375	U	ppbv	0.375						
Vinyl chloride	< 0.394	U	ppbv	0.394						
Chloroethane	< 0.448	U	ppbv	0.448						
1,1-Dichloroethene	< 0.373	U	ppbv	0.373						
Methylene chloride	< 0.443	U	ppbv	0.443						
trans-1,2-Dichloroethene	< 0.213	U	ppbv	0.213						
1,1-Dichloroethane	< 0.200	U	ppbv	0.200						
cis-1,2-Dichloroethene	< 0.163	U	ppbv	0.163						
Chloroform	< 0.284	U	ppbv	0.284						
1,2-Dichloroethane	< 0.254	U	ppbv	0.254						
1,1,1-Trichloroethane	< 0.196	U	ppbv	0.196						
Carbon tetrachloride	< 0.208	U	ppbv	0.208						
1,2-Dichloropropane	< 0.196	U	ppbv	0.196						
Trichloroethene	< 0.178	U	ppbv	0.178						
cis-1,3-Dichloropropene	< 0.170	U	ppbv	0.170						
trans-1,3-Dichloropropene	< 0.149	U	ppbv	0.149						
1,1,2-Trichloroethane	< 0.262	U	ppbv	0.262						
Tetrachloroethene	< 0.201	U	ppbv	0.201						
Chlorobenzene	< 0.290	U	ppbv	0.290						
1,1,2,2-Tetrachloroethane	< 0.273	U	ppbv	0.273						
1,3-Dichlorobenzene	< 0.273	U	ppbv	0.273						
1,4-Dichlorobenzene	< 0.215	U	ppbv	0.215						
1,2-Dichlorobenzene	< 0.232	U	ppbv	0.232						
Hexachlorobutadiene	< 0.234	U	ppbv	0.234						
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>8.96</i>		<i>ppbv</i>		<i>10.0</i>		<i>90</i>	<i>70-130</i>		
<b>LCS (1307320-BS1)</b>	<u>Prepared &amp; Analyzed: 02-Apr-13</u>									
Chloromethane	<b>8.51</b>		ppbv		10.0		85	70-130		
Vinyl chloride	<b>9.90</b>		ppbv		10.0		99	70-130		
Chloroethane	<b>10.4</b>		ppbv		10.0		104	70-130		
1,1-Dichloroethene	<b>10.4</b>		ppbv		10.0		104	70-130		
Methylene chloride	<b>10.1</b>		ppbv		10.0		101	70-130		
trans-1,2-Dichloroethene	<b>9.79</b>		ppbv		10.0		98	70-130		
1,1-Dichloroethane	<b>9.37</b>		ppbv		10.0		94	70-130		
cis-1,2-Dichloroethene	<b>9.20</b>		ppbv		10.0		92	70-130		
Chloroform	<b>9.64</b>		ppbv		10.0		96	70-130		
1,2-Dichloroethane	<b>9.90</b>		ppbv		10.0		99	70-130		
1,1,1-Trichloroethane	<b>9.72</b>		ppbv		10.0		97	70-130		
Carbon tetrachloride	<b>10.1</b>		ppbv		10.0		101	70-130		
1,2-Dichloropropane	<b>9.06</b>		ppbv		10.0		91	70-130		
Trichloroethene	<b>9.23</b>		ppbv		10.0		92	70-130		
cis-1,3-Dichloropropene	<b>9.37</b>		ppbv		10.0		94	70-130		
trans-1,3-Dichloropropene	<b>8.29</b>		ppbv		10.0		83	70-130		
1,1,2-Trichloroethane	<b>8.97</b>		ppbv		10.0		90	70-130		
Tetrachloroethene	<b>8.84</b>		ppbv		10.0		88	70-130		
Chlorobenzene	<b>10.0</b>		ppbv		10.0		100	70-130		
1,1,2,2-Tetrachloroethane	<b>10.5</b>		ppbv		10.0		105	70-130		
1,3-Dichlorobenzene	<b>10.2</b>		ppbv		10.0		102	70-130		
1,4-Dichlorobenzene	<b>10.3</b>		ppbv		10.0		103	70-130		
1,2-Dichlorobenzene	<b>10.4</b>		ppbv		10.0		104	70-130		
Hexachlorobutadiene	<b>10.3</b>		ppbv		10.0		103	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>10.0</i>		<i>ppbv</i>		<i>10.0</i>		<i>100</i>	<i>70-130</i>		

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**Air Quality Analyses - Quality Control**

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1307459 - General Air Prep</b>										
<b>Blank (1307459-BLK1)</b>	<u>Prepared &amp; Analyzed: 03-Apr-13</u>									
Chloromethane	< 0.375	U	ppbv	0.375						
Vinyl chloride	< 0.394	U	ppbv	0.394						
Chloroethane	< 0.448	U	ppbv	0.448						
1,1-Dichloroethene	< 0.373	U	ppbv	0.373						
Methylene chloride	< 0.443	U	ppbv	0.443						
trans-1,2-Dichloroethene	< 0.213	U	ppbv	0.213						
1,1-Dichloroethane	< 0.200	U	ppbv	0.200						
cis-1,2-Dichloroethene	< 0.163	U	ppbv	0.163						
Chloroform	< 0.284	U	ppbv	0.284						
1,2-Dichloroethane	< 0.254	U	ppbv	0.254						
1,1,1-Trichloroethane	< 0.196	U	ppbv	0.196						
Carbon tetrachloride	< 0.208	U	ppbv	0.208						
1,2-Dichloropropane	< 0.196	U	ppbv	0.196						
Trichloroethene	< 0.178	U	ppbv	0.178						
cis-1,3-Dichloropropene	< 0.170	U	ppbv	0.170						
trans-1,3-Dichloropropene	< 0.149	U	ppbv	0.149						
1,1,2-Trichloroethane	< 0.262	U	ppbv	0.262						
Tetrachloroethene	< 0.201	U	ppbv	0.201						
Chlorobenzene	< 0.290	U	ppbv	0.290						
1,1,2,2-Tetrachloroethane	< 0.273	U	ppbv	0.273						
1,3-Dichlorobenzene	< 0.273	U	ppbv	0.273						
1,4-Dichlorobenzene	< 0.215	U	ppbv	0.215						
1,2-Dichlorobenzene	< 0.232	U	ppbv	0.232						
Hexachlorobutadiene	< 0.234	U	ppbv	0.234						
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>8.73</i>		<i>ppbv</i>		<i>10.0</i>		<i>87</i>	<i>70-130</i>		
<b>LCS (1307459-BS1)</b>	<u>Prepared &amp; Analyzed: 03-Apr-13</u>									
Chloromethane	<b>7.87</b>		ppbv		10.0		79	70-130		
Vinyl chloride	<b>9.75</b>		ppbv		10.0		98	70-130		
Chloroethane	<b>10.6</b>		ppbv		10.0		106	70-130		
1,1-Dichloroethene	<b>10.2</b>		ppbv		10.0		102	70-130		
Methylene chloride	<b>9.91</b>		ppbv		10.0		99	70-130		
trans-1,2-Dichloroethene	<b>9.73</b>		ppbv		10.0		97	70-130		
1,1-Dichloroethane	<b>9.13</b>		ppbv		10.0		91	70-130		
cis-1,2-Dichloroethene	<b>9.02</b>		ppbv		10.0		90	70-130		
Chloroform	<b>9.42</b>		ppbv		10.0		94	70-130		
1,2-Dichloroethane	<b>9.86</b>		ppbv		10.0		99	70-130		
1,1,1-Trichloroethane	<b>9.62</b>		ppbv		10.0		96	70-130		
Carbon tetrachloride	<b>9.98</b>		ppbv		10.0		100	70-130		
1,2-Dichloropropane	<b>8.90</b>		ppbv		10.0		89	70-130		
Trichloroethene	<b>9.05</b>		ppbv		10.0		90	70-130		
cis-1,3-Dichloropropene	<b>9.13</b>		ppbv		10.0		91	70-130		
trans-1,3-Dichloropropene	<b>8.07</b>		ppbv		10.0		81	70-130		
1,1,2-Trichloroethane	<b>8.71</b>		ppbv		10.0		87	70-130		
Tetrachloroethene	<b>8.49</b>		ppbv		10.0		85	70-130		
Chlorobenzene	<b>10.1</b>		ppbv		10.0		101	70-130		
1,1,2,2-Tetrachloroethane	<b>10.4</b>		ppbv		10.0		104	70-130		
1,3-Dichlorobenzene	<b>9.68</b>		ppbv		10.0		97	70-130		
1,4-Dichlorobenzene	<b>9.67</b>		ppbv		10.0		97	70-130		
1,2-Dichlorobenzene	<b>9.96</b>		ppbv		10.0		100	70-130		
Hexachlorobutadiene	<b>9.56</b>		ppbv		10.0		96	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>8.95</i>		<i>ppbv</i>		<i>10.0</i>		<i>90</i>	<i>70-130</i>		

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## Certificate of Analysis

**Container Type:** Summa canister 6 liter

**Date of Analysis:** 3/5/2013

**Canister ID:** 495

**Analyst's Initials:** KG

**The sampling device detailed above has been tested and is certified to the limits for the target compounds as listed below.**

<i>Analyte</i>	<i>Quantitation Limit (ppbv)</i>	<i>Analyte</i>	<i>Quantitation Limit (ppbv)</i>
Acetone	<0.2	Ethanol	<0.2
Acrylonitrile	<0.2	4-Isopropyl Toluene	<0.2
Benzene	<0.2	Ethyl acetate	<0.2
Benzyl chloride	<0.2	Ethylbenzene	<0.2
Bromodichloromethane	<0.2	4-Ethyltoluene	<0.2
Bromoform	<0.2	n-Heptane	<0.2
Bromomethane	<0.2	Hexachlorobutadiene	<0.2
1,3-Butadiene	<0.2	Hexane	<0.2
2-Butanone (MEK)	<0.2	2-Hexanone (MBK)	<0.2
Carbon disulfide	<0.2	Isopropyl alcohol	<0.2
Carbon tetrachloride	<0.2	4-Methyl-2-pentanone (MIBK)	<0.2
Chlorobenzene	<0.2	Methyl tert-butyl ether	<0.2
Chloroethane	<0.2	Methylene chloride	<0.2
1,4-Dioxane	<0.2	Naphthalene	<0.2
n-Butylbenzene	<0.2	1,1,1,2-Tetrachloroethane	<0.2
Chloroform	<0.2	Propene	<0.2
Chloromethane	<0.2	Styrene	<0.2
Cyclohexane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
Dibromochloromethane	<0.2	Tetrachloroethene	<0.2
1,2-Dibromoethane (EDB)	<0.2	Tetrahydrofuran	<0.2
1,2-Dichlorobenzene	<0.2	Toluene	<0.2
1,3-Dichlorobenzene	<0.2	1,2,4-Trichlorobenzene	<0.2
1,4-Dichlorobenzene	<0.2	1,1,1-Trichloroethane	<0.2
Dichlorodifluoromethane (Freon12)	<0.2	1,1,2-Trichloroethane	<0.2
1,1-Dichloroethane	<0.2	Trichloroethene	<0.2
1,2-Dichloroethane	<0.2	1,1,2-Trichlorotrifluoroethane (Freon 113)	<0.2
1,1-Dichloroethene	<0.2	Trichlorofluoromethane (Freon 11)	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,4-Trimethylbenzene	<0.2
trans-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<0.2
1,2-Dichloropropane	<0.2	Vinyl chloride	<0.2
cis-1,3-Dichloropropene	<0.2	m,p-Xylene	<0.2
trans-1,3-Dichloropropene	<0.2	o-Xylene	<0.2
1,2-Dichlorotetrafluoroethane (Freon 114)	<0.2	sec-Butylbenzene	<0.2
Isopropylbenzene	<0.2		

**This certification applies to the following sampling devices:**

1345

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## Certificate of Analysis

**Container Type:** Summa canister 6 liter

**Date of Analysis:** 3/20/2013

**Canister ID:** 5563

**Analyst's Initials:** KG

**The sampling device detailed above has been tested and is certified to the limits for the target compounds as listed below.**

<i>Analyte</i>	<i>Quantitation Limit (ppbv)</i>	<i>Analyte</i>	<i>Quantitation Limit (ppbv)</i>
Acetone	<0.2	Ethanol	<0.2
Acrylonitrile	<0.2	4-Isopropyl Toluene	<0.2
Benzene	<0.2	Ethyl acetate	<0.2
Benzyl chloride	<0.2	Ethylbenzene	<0.2
Bromodichloromethane	<0.2	4-Ethyltoluene	<0.2
Bromoform	<0.2	n-Heptane	<0.2
Bromomethane	<0.2	Hexachlorobutadiene	<0.2
1,3-Butadiene	<0.2	Hexane	<0.2
2-Butanone (MEK)	<0.2	2-Hexanone (MBK)	<0.2
Carbon disulfide	<0.2	Isopropyl alcohol	<0.2
Carbon tetrachloride	<0.2	4-Methyl-2-pentanone (MIBK)	<0.2
Chlorobenzene	<0.2	Methyl tert-butyl ether	<0.2
Chloroethane	<0.2	Methylene chloride	<0.2
1,4-Dioxane	<0.2	Naphthalene	<0.2
n-Butylbenzene	<0.2	1,1,1,2-Tetrachloroethane	<0.2
Chloroform	<0.2	Propene	<0.2
Chloromethane	<0.2	Styrene	<0.2
Cyclohexane	<0.2	1,1,2,2-Tetrachloroethane	<0.2
Dibromochloromethane	<0.2	Tetrachloroethene	<0.2
1,2-Dibromoethane (EDB)	<0.2	Tetrahydrofuran	<0.2
1,2-Dichlorobenzene	<0.2	Toluene	<0.2
1,3-Dichlorobenzene	<0.2	1,2,4-Trichlorobenzene	<0.2
1,4-Dichlorobenzene	<0.2	1,1,1-Trichloroethane	<0.2
Dichlorodifluoromethane (Freon12)	<0.2	1,1,2-Trichloroethane	<0.2
1,1-Dichloroethane	<0.2	Trichloroethene	<0.2
1,2-Dichloroethane	<0.2	1,1,2-Trichlorotrifluoroethane (Freon 113)	<0.2
1,1-Dichloroethene	<0.2	Trichlorofluoromethane (Freon 11)	<0.2
cis-1,2-Dichloroethene	<0.2	1,2,4-Trimethylbenzene	<0.2
trans-1,2-Dichloroethene	<0.2	1,3,5-Trimethylbenzene	<0.2
1,2-Dichloropropane	<0.2	Vinyl chloride	<0.2
cis-1,3-Dichloropropene	<0.2	m,p-Xylene	<0.2
trans-1,3-Dichloropropene	<0.2	o-Xylene	<0.2
1,2-Dichlorotetrafluoroethane (Freon 114)	<0.2	sec-Butylbenzene	<0.2
Isopropylbenzene	<0.2		

**This certification applies to the following sampling devices:**

4615



## Notes and Definitions

D	Data reported from a dilution
GS1	Sample dilution required for high concentration of target analytes to be within the instrument calibration range.
R05	Elevated Reporting Limits due to the presence of high levels of non-target analytes.
U	Analyte included in the analysis, but not detected at or above the MDL.
dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

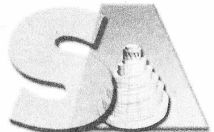
Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Validated by:  
Nicole Leja



SPECTRUM ANALYTICAL, INC.  
Featuring  
HANIBAL TECHNOLOGY

# Chain of Custody Record/Field Test Data Sheets for Air Analyses

Page 1 of 1

SR 666666 ✓  
Special Handling:  
 Standard TAT - 7 to 10 business days  
 Rush TAT - Date Needed: \_\_\_\_\_

· All TATs subject to laboratory approval.  
· Min. 24-hour notification needed for rushes.

Report To: <b>SPECTRA ENVIRONMENTAL</b>				Invoice To: <b>Frank Peduto</b>				Project No.: <b>11124</b>				Analysis		Matrix		Check box if canister is returned unused	
19 BRITISH AMERICAN BLVD				Spectra Environmental Corp				Site Name: <b>Dynamic Systems Inc.</b>				TO-15 Shortlist		Indoor/Ambient Air			
LATHAM, NY 12110				19 British American Blvd.				Location: <b>Poestenkill</b> State: <b>NY</b>									
Tel #: <b>(518) 782-0882</b>				Attn:				Sampler(s): <b>Chris Keefe</b>									
Project Manager: <b>FRANK PEDUTO</b>				P.O. No.: <b>11124</b> RQN:													
Can ID	Can Size (L)	Outgoing Canister Pressure ("Hg) (Lab)	Incoming Canister Pressure ("Hg) (Lab)	Flow Reg. ID	Flow Controller Readout (ml/min)	Lab Id:	Sample Id:	Sample Date(s)	Time Start (24 hr clock)	Time Stop (24 hr clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)			
4615	6	-30		2997	9.9	666666-01	SVP-E	3/22/13	0854	1629	29"	3"	70	70			
0272	6	-30		11	10.0	-02	SVP-W		0851	1651	28"	10"	70	70			
1345	6	-30		2977	10.3	-03	SVP-N		0853	1646	28.5"	5"	70	70			
Date of Request: <b>3/19/13</b>				Total # Canisters: <b>3</b>				QA/QC Reporting Level:				Client Use		Ambient Temperature (Fahrenheit)		Ambient Pressure (inches of Hg)	
Requested by: <b>Chris Keefe</b>				# LL Canisters: <b>-</b>				<input type="checkbox"/> Standard <input type="checkbox"/> NY ASP A* <input type="checkbox"/> TIER II* <input type="checkbox"/> MA DEP CAM				Start		70			
Company: <b>Spectra</b>				# Flow Controllers: <b>3</b>				<input type="checkbox"/> NO QC <input checked="" type="checkbox"/> NY ASP B* <input type="checkbox"/> TIER IV* <input type="checkbox"/> CT DPH RCP				Stop		70			
Location: <b>Latham NY</b>				Flow Rate/Setting: <b>8hrs</b>				<input type="checkbox"/> DQA* * additional charges may apply contact SA's QA Department for further info.									
Date Needed: <b>3/20/13</b>				Order #: <b>25788</b>				Special Instructions/QC Requirements & Comments:									
I attest that all media relinquished from Spectrum Analytical, Inc. have been received in good working condition, based on visual observation, and agree to the terms and conditions as listed on the back of this document.							Please see TO-15 shortlist (Attached). (TO-15 Chlorinated (Low Level)).										
Signed: <b>Chris Keefe</b>				Date: <b>3/20/13</b>				Please contact SA's Air Department immediately at (800) 789-9115 if you experience any technical difficulties or suspect any QC issue(s) with air media.									
Printed:																	
Relinquished by:				Received by:				Date:		Time:		<input checked="" type="checkbox"/> EDD Format		NYSDEC			
								3/26/13		6:30pm		<input checked="" type="checkbox"/> E-mail Results to		FPEDUTO@SPECTRAENV.COM			
								3/26/13		2:00							
										19.3							

**A**

3042

11 Almgren Drive • Agawam, MA 01001 • 413-789-9018 • FAX 413-789-4076 • www.spectrum-analytical.com

Revised 06/10

Analyte	CAS #	MDL (ppbv)	PRL (ppbv)	MDL ( $\mu\text{g}/\text{m}^3$ )	PRL ( $\mu\text{g}/\text{m}^3$ )	LCS		DUP
						Lower	Upper	RPD
cis-1,2-Dichloroethene	156-59-2	0.038	0.2	0.153	0.81	73	130	25
Tetrachloroethene	127-18-4	0.050	0.1	0.345	0.69	70	130	25
trans-1,2-dichloroethene	156-60-5	0.100	0.2	0.405	0.81	72	128	25
Trichloroethene	79-01-6	0.050	0.1	0.275	0.55	72	131	25
Vinyl chloride	75-01-4	0.050	0.1	0.130	0.26	70	131	25