THE SIGMA GROUP
Single Source. Sound Solutions.

October 31, 2017

Project #15227

Mr. Doug Cieslak
c/o Mr. Chue Yee Yang, RR Program Assistant
Wisconsin Department of Natural Resources
Remediation & Redevelopment Program
2300 N. Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Subject: **Vapor Intrusion Assessment Results**
Former Crane Manufacturing - 6000 Buckhorn Ave, Cudahy, WI 53110
BRRTS #02-41-000908
VPLE #06-41-472389
FID #241079410

Dear Mr. Cieslak:

On behalf of TBM Seven, LLC, The Sigma Group, Inc. (Sigma) has prepared this letter report to document vapor intrusion assessment activities completed at the above-referenced property (the "Site") in September 2017. The vapor intrusion assessment was requested in a July 2016 Wisconsin Department of Natural Resources (WDNR) letter[1]. After discussions between Sigma and the WDNR, preparation of a Vapor Intrusion Assessment Work Plan[2], and multiple email correspondences between Sigma and the WDNR, it was ultimately agreed upon in August 2017 that the best vapor intrusion assessment strategy would be to perform high purge volume (HPV) subslab testing at two locations in the center of each of the four buildings.

Based on the results of the vapor intrusion assessment as presented below, subslab vapor concentrations are below Vapor Risk Screening Levels and no further vapor intrusion testing or mitigation is warranted. After TBM Seven, LLC and Sigma receive written concurrence from the WDNR that no additional vapor intrusion testing and mitigation is needed for the Site, we will complete the updates to the Cap Maintenance Plan as required in the WDNR's July 2016 letter with the understanding that all the requirements for regulatory case closure should then be satisfied.

VAPOR INTRUSION INVESTIGATION ACTIVITIES & RESULTS

HPV Subslab Vapor Sampling Activities. On September 27, 2017, Sigma performed HPV subslab testing in the buildings to determine the concentrations of volatile organic

[1] *Comments to Case Closure Addendum, Crane Manufacturing, 6000 Buckhorn Ave, Cudahy Wisconsin, DNR BRRTS Activity # 02-41-000908 VPLE 06-41-472389* letter by WDNR (dated July 19, 2016)

[2] *Vapor Intrusion Assessment Work Plan, Former Crane Manufacturing - 6000 Buckhorn Ave, Cudahy, WI 53110, BRRTS #02-41-000908, VPLE #06-41-472389, FID #241079410* by Sigma (dated September 7, 2016)

compounds (VOCs) in the subslab vapors. Each sample was located in spatially representative areas of the buildings - one sample was collected in the east half and one sample was collected in the west half - as shown in **Figure 1**.

The HPV vapor testing activities were performed in general accordance with recommendations provided in a WDNR vapor intrusion seminar presentation[3] and technical article[4]. The subslab vapor extraction points and corresponding vacuum test points (vacuum test points were not installed in the southern two buildings as the vacuum results from the northern two buildings were very consistent and indicated radii of influence of approximately 30 to 35 feet) were constructed in the following manner:

- Subslab vapor extraction points
  - Drill an approximately 3-inch diameter hole through the concrete floor slabs;
  - Remove the concrete core and several additional inches of subslab gravel / soil;
  - Place several inches of filter pack sand in bottom of void;
  - Install 2-inch diameter PVC extraction assembly in core hole (open end of PVC at bottom of hole wrapped with fine gauge stainless steel wire mesh to prevent suction of filter pack sand) and connect rest of PVC sampling train to shop vacuum (which is vented to outdoors);
  - Place modeling clay plug in annulus between the 3-inch core hole and the 2-inch PVC extraction point;
  - Connect shop vacuum and perform shut-in test on PVC extraction assembly (all shut-in tests passed based on stable vacuum gauge readings over a 1-minute period);
  - Smoke test floor seal (all tests passed);
  - Turn on shop vacuum for duration of test;
  - Initiate Summa canister sample collection by opening flow control valve and allow canister vacuum to drop from starting vacuum (-28 to -30 inches of mercury) to finish vacuum (-3 to -4 inches of mercury);
  - Disconnect the Summa canisters from the sampling port after approximately 1 to 1.5 hours of sample collection time;
  - Install vacuum test points to check radius of influence after HPV sample collection is complete; and
  - Complete the chain of custody with information for each Summa canister and submit the samples to Pace Analytical Services, LLC for analysis of VOCs by EPA Method TO-15.

- Vacuum test points (three to four at varying distances from HPV extraction points as shown in **Figure 1**)
  - Drill a 3/8-inch diameter hole through the concrete floor slab at each test location;

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[3] *High Purge Volume Sub-Slab Sampling, Former Paragon Electric Case Study* presentation by Annette Weissbach, WDNR (March 2011 FET seminar)

[4] *High Purge Volume Sampling - A New Paradigm for Subslab Soil Gas Monitoring* by Todd McAlary, et. al. (Ground Water Monitoring & Remediation, Vol. 30, No. 2, Spring 2010, pages 73 - 85)

- Insert a section of 3/8-inch diameter polyethylene tubing into each hole and seal the tubing with modeling clay;
- Measure vacuum pressure at the communication test ports with a micromanometer; and
- Upon the completion of the testing, abandon each vapor extraction point and vacuum test point by removing the testing equipment and seal the floor with concrete flush with the ground surface.

Subslab Vapor Quality Results. Subslab vapor quality data are summarized in **Table 1** and the laboratory analytical report is included in **Attachment 1.** Vapor Risk Screening Levels are based on Vapor Action Levels modified with a 0.03 subslab vapor-to-ambient air attenuation factor as referenced in the WDNR's document PUB-RR-800. Although multiple VOCs were detected in each of the vapor samples, all concentrations were reported below the Vapor Risk Screening Levels.

The measured vacuum readings at the communication test points indicate that the HPV tests had a radius of influence (to a vacuum pressure of 0.01 inches of water) of approximately 30 to 35 feet as shown in **Figures 2** through **5.** The radius of influence results indicate that vapors extracted during the HPV testing covered a large area, but were from beneath the building areas and would not have short-circuited from outside the building footprints.

RECOMMENDATIONS

Subslab vapor concentrations are below Vapor Risk Screening Levels and no further vapor intrusion testing or mitigation is warranted. After TBM Seven, LLC and Sigma receive written concurrence from the WDNR that no additional vapor intrusion testing and mitigation is needed for the Site, we will complete the updates to the Cap Maintenance Plan as required in the WDNR's July 2016 letter with the understanding that all the requirements for regulatory case closure should then be satisfied.

Please contact Sigma at (414) 643-4200 with any questions about this submittal or the project in general.

Sincerely,

THE SIGMA GROUP, INC.

Adam J. Roder

Adam J. Roder, P.E.
Senior Engineer

Enclosures:

Table 1 - Subslab Vapor Analytical Data
Figure 1 - Vapor Intrusion Testing Site Map
Figure 2 - Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-1
Figure 3 - Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-2
Figure 4 - Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-3

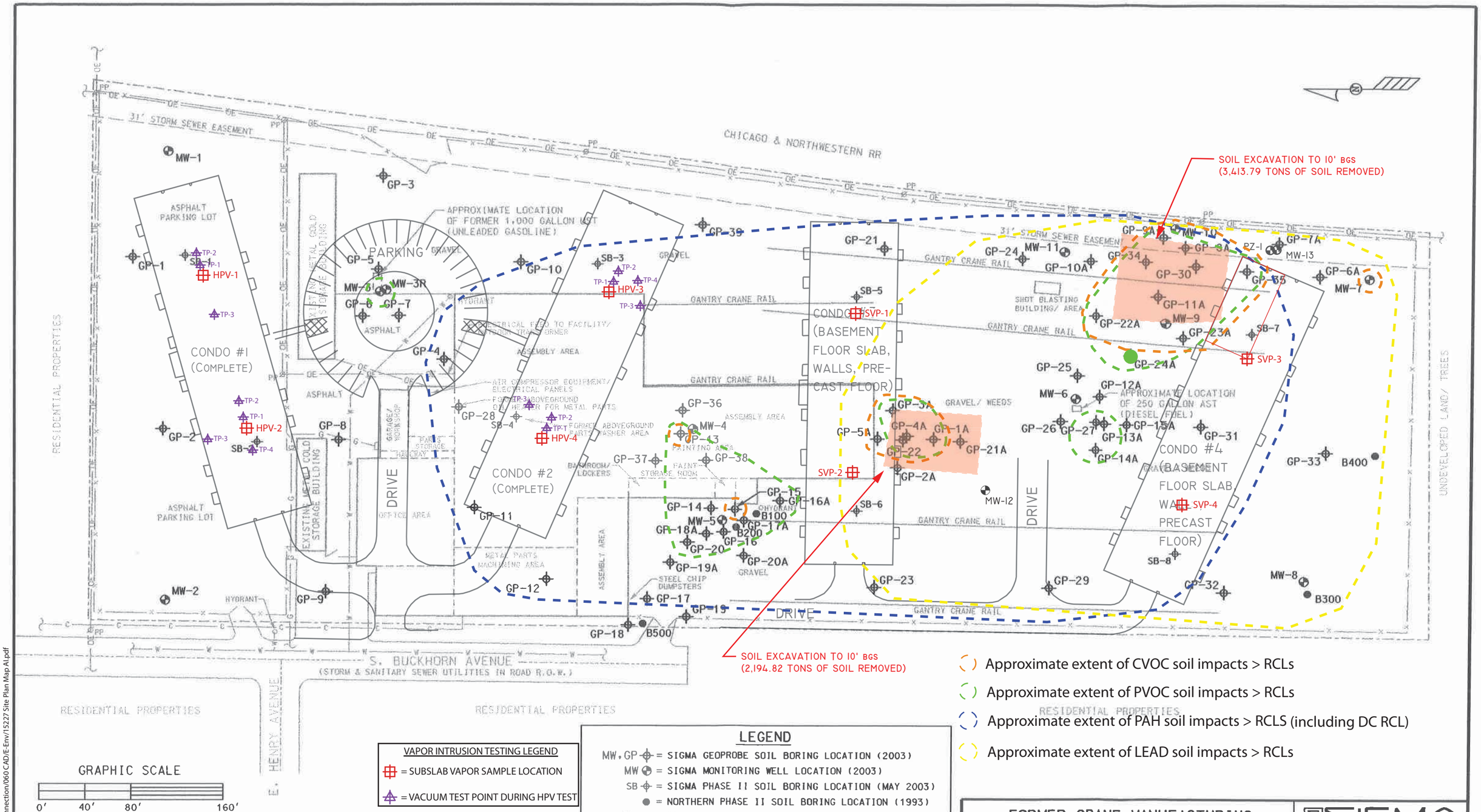
Figure 5 - Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-4
Attachment 1 - Subslab Vapor Laboratory Analytical Report

cc: Mike Dilworth - TBM Seven, LLC (via email: mdilworth@ener-con.com)
Bob Hoormann - TBM Seven, LLC (via email: bobtown7@aol.com)
Tom Beaudry - TBM Seven, LLC (via email: tbeaudry@corporatedesigninteriors.com)

Table 1
Subslab Vapor Analytical Data
Former Crane Manufacturing - 6000 Buckhorn Avenue, Cudahy, Wisconsin
Sigma Project No. 15227

Building Location:		Condo #1		Condo #2		Condo #3		Condo #4		Vapor Risk Screening Level for Subslab Vapor to Indoor Air[2]
Sample Identification:		**HPV-1**	**HPV-2**	**HPV-3**	**HPV-4**	**SVP-1**	**SVP-2**	**SVP-3**	**SVP-4**	
Sample Depth (feet bgs):		0.5 (below slab)	0.5 (below slab)	0.5 (below slab)	0.5 (below slab)	2.5 - 3	2.5 - 3	2.5 - 3	2.5 - 3	
Sample Date:		9/27/17	9/27/17	9/28/17	9/28/17	9/28/17	9/28/17	9/28/17	9/28/17	
Duration (hr:min):		1:23	1:12	1:11	1:21	1:20	1:10	1:07	1:06	
Detected VOCs										
Acetone	µg/m^3	21.9	17.7	18.2	27.5	12.3	29.0	17.8	9.0	1,066,667
Benzene	µg/m^3	42.1	27.7	19.0	12.7	1.2	5.3	1.7	0.98	120
Benzyl Chloride	µg/m^3	<0.33	<0.37	<0.34	1.0 "J"	<0.34	<0.34	<0.37	<0.35	19
Bromodichloromethane	µg/m^3	2.8	<0.55	<0.51	<0.51	<0.51	19.0	<0.55	<0.53	25.3
Bromomethane	µg/m^3	<0.29	<0.32	<0.30	1.1 "J"	<0.30	<0.30	<0.32	<0.31	173
Carbon Disulfide	µg/m^3	1.1	14.8	3.8	2.2	<0.26	7.5	0.77 "J"	0.55 "J"	24,333
Carbon Tetrachloride	µg/m^3	0.51 "J"	<0.49	<0.46	0.49 "J"	<0.46	0.49 "J"	<0.49	<0.47	160
Chloroethane	µg/m^3	<0.28	<0.32	<0.29	1.7	<0.29	<0.29	<0.32	<0.30	333,333
Chloroform	µg/m^3	6.3	0.69 "J"	0.51 "J"	0.55 "J"	0.45 "J"	31.9	0.59 "J"	0.37 "J"	40
Chloromethane	µg/m^3	<0.19	<0.21	<0.19	11.6	0.73	0.63	1.4	0.68	3,100
Cyclohexane	µg/m^3	4.3	1.9	1.4	1.8	1.9	3.6	4.8	1.8	33,333
Dibromochloromethane	µg/m^3	1.3 "J"	<0.69	<0.64	<0.64	<0.64	5.3	<0.69	<0.66	NS
1,2-Dichlorobenzene	µg/m^3	0.87 "J"	<0.51	<0.47	<0.47	<0.47	<0.47	<0.51	<0.49	7,000
Dichlorodifluoromethane	µg/m^3	1.9	1.9	2.0	1.8	2.0	1.8	2.1	2.0	3,300
Ethanol	µg/m^3	16.0	17.0	23.5	14.0	14.0	14.9	12.6	8.3	NS
Ethyl Acetate	µg/m^3	<0.27	<0.30	<0.28	<0.28	<0.28	1.6	1.4	<0.29	2,433
Ethylbenzene	µg/m^3	2.4	1.9	3.3	3.2	3.4	7.7	3.6	2.1	370
4-Ethyltoluene	µg/m^3	1.1 "J"	1.1 "J"	<0.31	0.73 "J"	1.2 "J"	1.8	1.7	0.98 "J"	NS
n-Heptane	µg/m^3	2.0	2.7	2.0	2.7	2.3	6.0	3.9	2.2	14,000
n-Hexane	µg/m^3	4.1	1.9	1.8	1.5	2.2	9.2	17.0	1.7	24,333
2-Hexanone	µg/m^3	<0.85	<0.95	<0.88	<0.88	<0.88	1.4 "J"	<0.95	<0.91	1,033
Methylene Chloride	µg/m^3	<2.1	<2.4	<2.2	<2.2	3.0 "J"	2.2 "J"	137	<2.3	21,000
Methyl Ethyl Ketone (MEK)	µg/m^3	8.5	8.4	26.8	11.8	5.1	17.5	8.4	3.2 "J"	173,333
4-Methyl-2-Pentanone (MIBK)	µg/m^3	<0.49	<0.55	<0.51	3.0 "J"	3.0 "J"	12.6	1.7 "J"	0.86 "J"	103,333
Naphthalene	µg/m^3	1.8 "J"	1.9 "J"	2.1 "J"	2.3 "J"	1.4 "J"	1.3 "J"	1.4 "J"	1.3 "J"	28
2-Propanol	µg/m^3	<1.7	1.9 "J"	4.2	<1.8	<1.8	<1.8	<1.9	<1.9	NS
Propylene	µg/m^3	4.1	1.4	2.0	2.7	1.1	<0.23	1.7	<0.23	103,333
Styrene	µg/m^3	1.4	1.1 "J"	0.94 "J"	2.0	1.2 "J"	1.4	1.3	0.83 "J"	33,333
Tetrachloroethene (PCE)	µg/m^3	<0.40	4.3	1.4	0.82 "J"	<0.41	16.7	<0.44	<0.43	1,400
Tetrahydrofuran	µg/m^3	2.2	1.8	1.6	2.7	2.5	6.7	3.2	1.2	NS
Toluene	µg/m^3	30.0	44.6	26.9	31.6	32.4	50.6	52.6	34.2	170,000
Trichloroethene (TCE)	µg/m^3	1.5	1.1	0.71 "J"	0.44 "J"	<0.39	<0.39	<0.42	<0.40	70
Trichlorofluoromethane	µg/m^3	1.6 "J"	1.4 "J"	1.9	1.7	1.2 "J"	1.4 "J"	1.4 "J"	1.2 "J"	NS
1,1,2-Trichlorotrifluoroethane	µg/m^3	<0.51	<0.57	<0.53	<0.53	<0.53	0.60 "J"	<0.57	<0.55	173,333
1,2,4-Trimethylbenzene	µg/m^3	5.4	4.5	3.5	5.5	4.2	4.9	4.7	3.3	2,100
1,3,5-Trimethylbenzene	µg/m^3	1.3 "J"	1.1 "J"	0.81 "J"	1.4 "J"	1.1 "J"	2.0	1.4 "J"	0.89 "J"	2,100
Vinyl Acetate	µg/m^3	1.7	1.6	2.0	28.0	0.81 "J"	1.6	1.2	<0.23	7,000
Xylenes, total	µg/m^3	14.7	11.5	15.3	16.9	16.8	35.6	18.4	11.4	3,300

Notes:
1. Analytical units: µg/m^3 = micrograms per cubic meter
2. Vapor Risk Screening Level = Based on Vapor Action Levels (VALs) described in WDNR publication PUB-RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (updated draft dated August 2017), which in turn references EPA Region 3 Risk-Based Concentrations for Residential air (Regional Screening Level Master Table - June 2017 [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm]), and WDNR June 2017 "WI Vapor Quick Look-Up Table". Vapor Risk Screening Level adjusted to 1-in-100,000 increase in lifetime cancer risk for carcinogens per WDNR publication PUB-RR-800; VAL is not adjusted for non-carcinogens (i.e., harzard index = 1). Furthermore, Vapor Risk Screening Level has been adjusted with an **Attenuation Factor of 0.03** for the subslab to ambient air pathway as provided in WDNR publication PUB-RR-
3 NS = no standard
4. Laboratory flags: "J" = Estimated concentration at or above the Limit of Detection and below the Limit of Quantitation
5. Exceedances: **BOLD** = concentration exceeds Vapor Risk Screening Level



Approximate extent of CVOC soil impacts > RCLs

Approximate extent of PVOC soil impacts > RCLs

Approximate extent of PAH soil impacts > RCLS (including DC RCL)

Approximate extent of LEAD soil impacts > RCLs

GRAPHIC SCALE

0' 40' 80' 160'

VAPOR INTRUSION TESTING LEGEND

= SUBSLAB VAPOR SAMPLE LOCATION

= VACUUM TEST POINT DURING HPV TEST

LEGEND

MW, GP = SIGMA GEOPROBE SOIL BORING LOCATION (2003)

MW = SIGMA MONITORING WELL LOCATION (2003)

SB = SIGMA PHASE II SOIL BORING LOCATION (MAY 2003)

= NORTHERN PHASE II SOIL BORING LOCATION (1993)

= FENCE

= UNDERGROUND WATER LINE

= UNDERGROUND COMMUNICATION LINE

= UNDERGROUND NATURAL GAS LINE

= OVERHEAD ELECTRIC LINE

= PROPERTY LINE

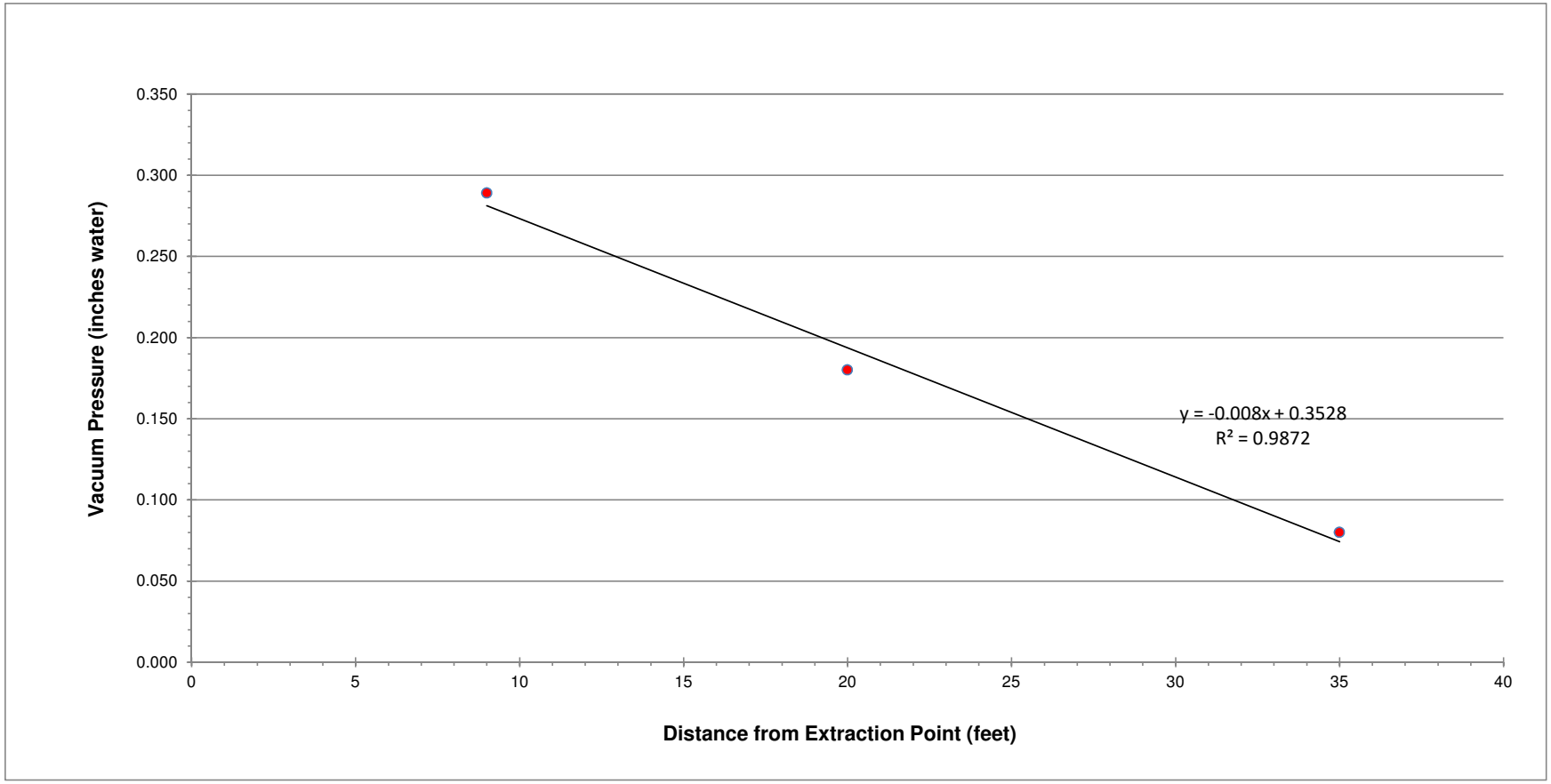
NOTES:

1. MAP BASED ON ENGINEERING DRAWING (DATED 5-18-94) PROVIDED BY CRANE MANUFACTURING & SERVICE CORP.; INTERIOR BUILDING NOTES BASED ON INFORMATION PROVIDED TO SIGMA BY BUILDING OWNER AND FIELD OBSERVATIONS.
2. NO INTERIOR FLOOR DRAINS OR EXTERIOR STORM SEWERS WERE OBSERVED ON SITE.
3. LOCATIONS OF SOIL BORINGS AND MONITORING WELLS BASED ON FIELD MEASUREMENTS.

FORMER CRANE MANUFACTURING 6000 S. BUCKHORN AVE., CUDAHY, WI			SIGMA ENVIRONMENTAL SERVICES INC.
DATE: 10-27-17	DR. BY: BEB	DR.# 8069-017	SCALE: 1" = 80'
VAPOR INTRUSION TESTING SITE MAP			FIGURE 1

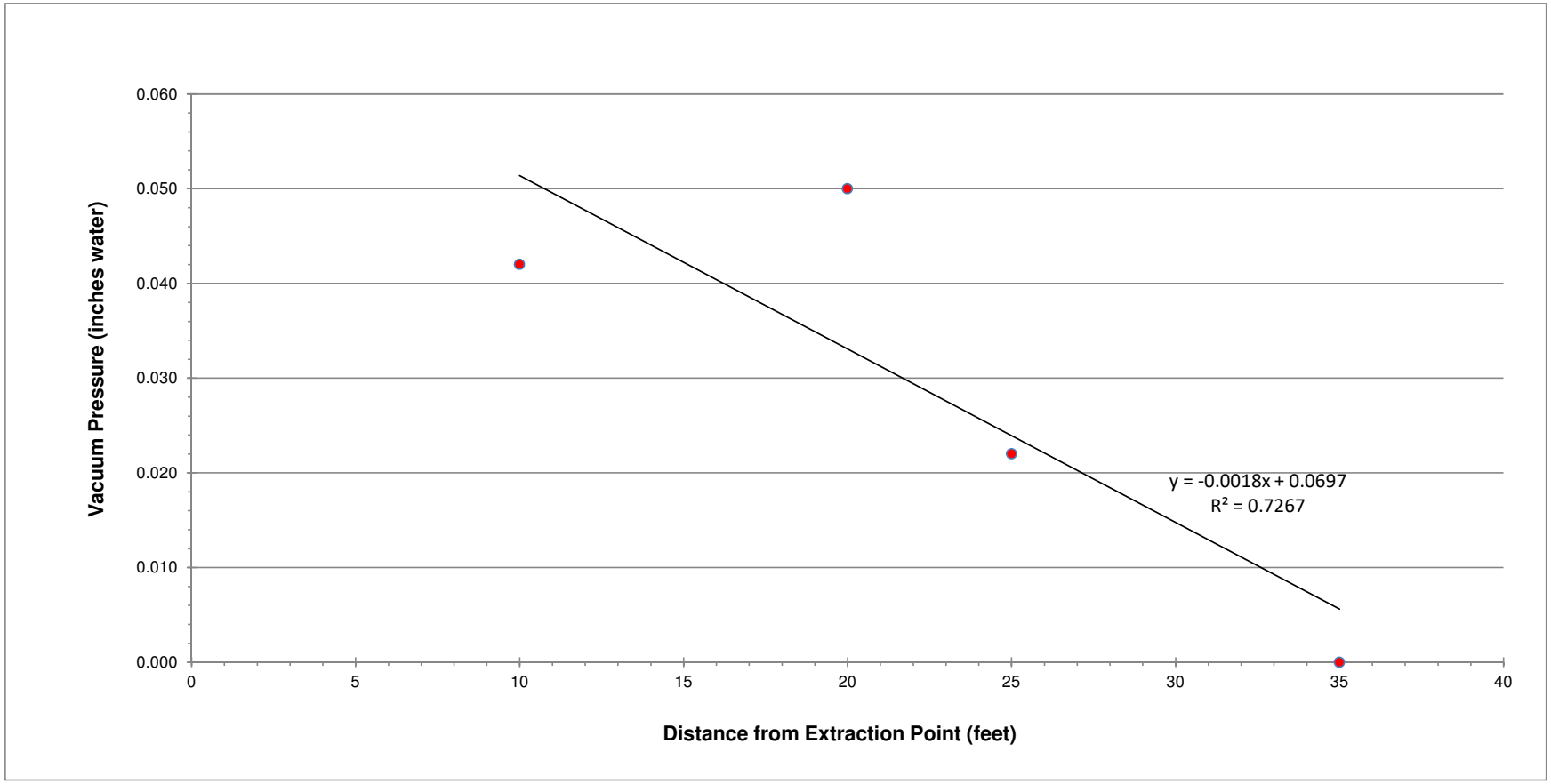
i:/TBM Seven/15227 Cudahy Connection/060 CAD/E-Env/15227 Site Plan Map A1.pdf

Figure 2
Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-1 in Building #1



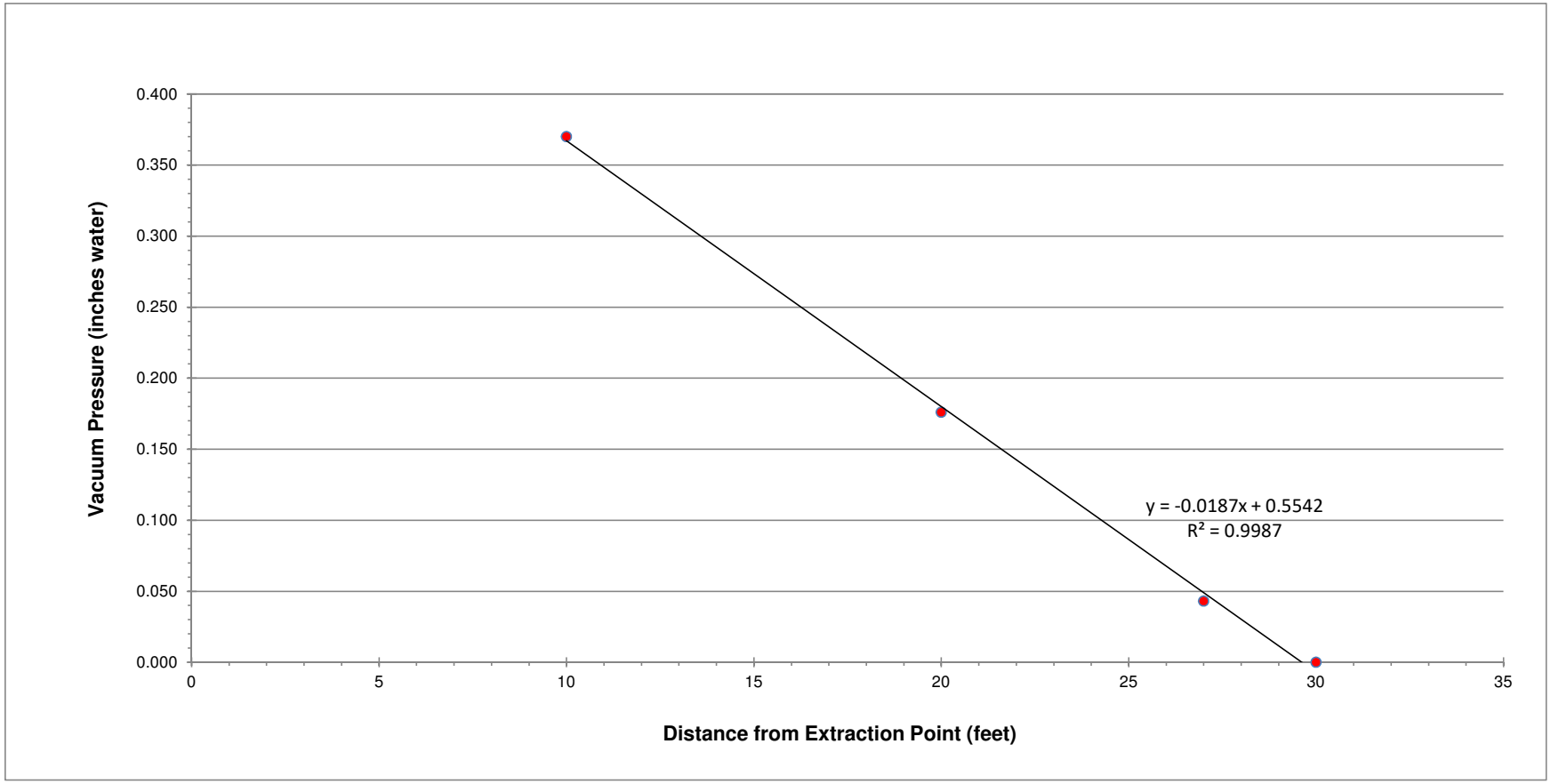
	Location	Distance from Extraction Point (feet)	Vacuum (in. water)
HPV-1 Test	TP-1	9	0.289
	TP-2	20	0.180
	TP-3	35	0.080

Figure 3
Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-2 in Building #1



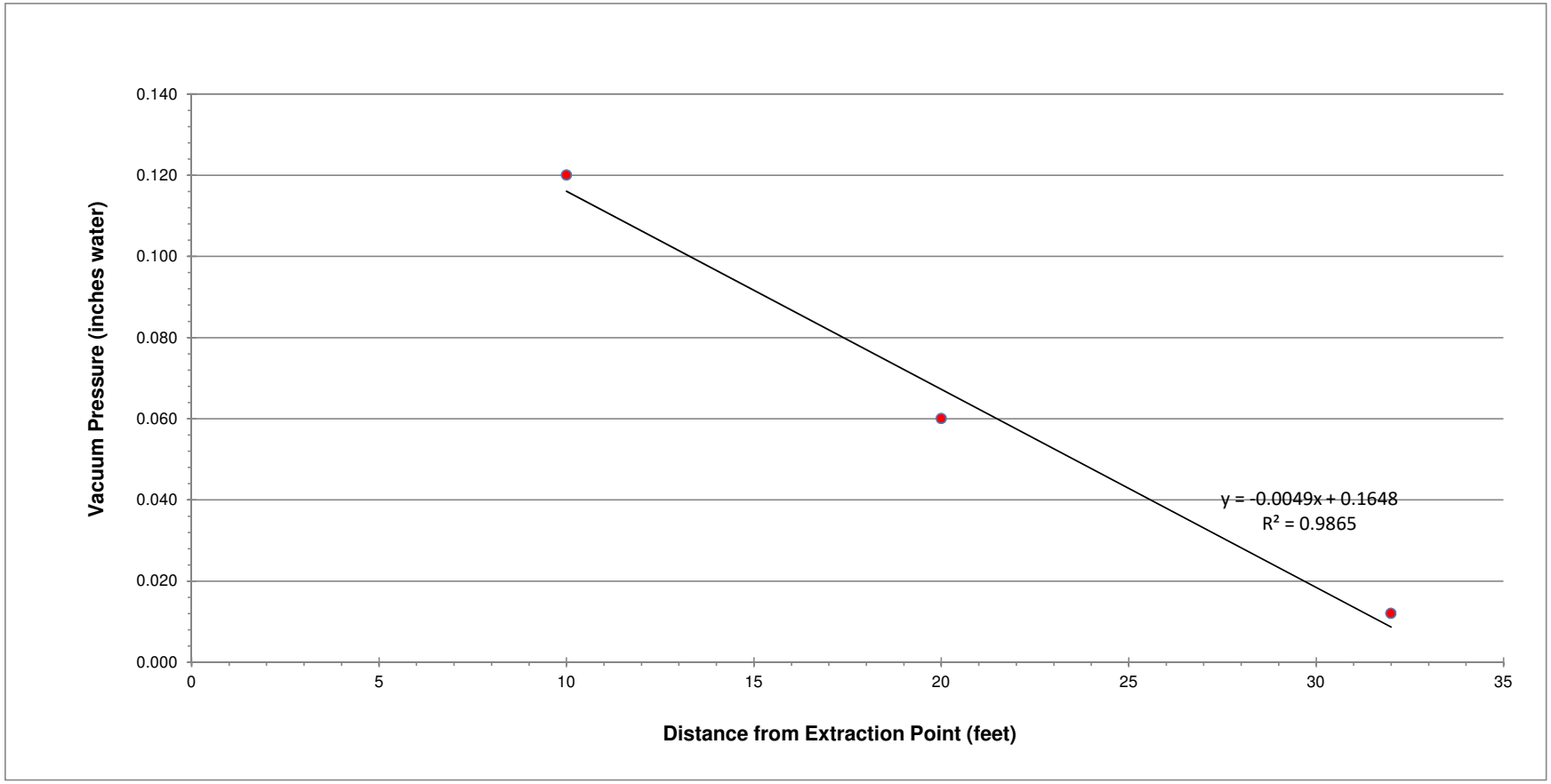
	Location	Distance from Extraction Point (feet)	Vacuum (in. water)
HPV-2 Test	TP-1	10	0.042
	TP-2	25	0.022
	TP-3	35	0.000
	TP-4	20	0.050

Figure 4
Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-3 in Building #2



	Location	Distance from Extraction Point (feet)	Vacuum (in. water)
HPV-3 Test	TP-1	10	0.370
	TP-2	20	0.176
	TP-3	30	0.000
	TP-4	27	0.043

Figure 5
Vacuum Pressure Readings vs. Distance for High Purge Volume Test at HPV-4 in Building #2



	Location	Distance from Extraction Point (feet)	Vacuum (in. water)
HPV-4 Test	TP-1	10	0.120
	TP-2	20	0.060
	TP-3	32	0.012

ATTACHMENT 1

SUBSLAB VAPOR LABORATORY ANALYTICAL REPORT

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

October 16, 2017

Cory Katzban
The Sigma Group
1300 W. Canal St.
Milwaukee, WI 53233

RE: Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Dear Cory Katzban:
Enclosed are the analytical results for sample(s) received by the laboratory on October 02, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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,

Megan McCabe

Megan McCabe
megan.mccabe@pacelabs.com
(612)607-1700
Project Manager

Enclosures

cc: Sarah Fernholz, Sigma Group
Kristin Kurzka, The Sigma Group
Adam Roder, Sigma Environmental Services

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without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Minnesota Certification IDs
1700 Elm Street SE, Suite 200, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: UST-078
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas Certification #: 88-0680
California Certification #: MN00064
CNMI Saipan Certification #:MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970
Wyoming via EPA Region 8 Certification #: 8TMS-L

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10405537001	**HPV-1**	Air	09/27/17 11:53	10/02/17 11:00
10405537002	**HPV-2**	Air	09/27/17 15:50	10/02/17 11:00
10405537003	**HPV-3**	Air	09/28/17 10:39	10/02/17 11:00
10405537004	**HPV-4**	Air	09/28/17 12:21	10/02/17 11:00
10405537005	**SVP-1**	Air	09/28/17 09:56	10/02/17 11:00
10405537006	**SVP-2**	Air	09/28/17 09:43	10/02/17 11:00
10405537007	**SVP-3**	Air	09/28/17 09:32	10/02/17 11:00
10405537008	**SVP-4**	Air	09/28/17 09:28	10/02/17 11:00

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10405537001	**HPV-1**	TO-15	MJL	61	PASI-M
10405537002	**HPV-2**	TO-15	MJL	61	PASI-M
10405537003	**HPV-3**	TO-15	MJL	61	PASI-M
10405537004	**HPV-4**	TO-15	MJL	61	PASI-M
10405537005	**SVP-1**	TO-15	MJL	61	PASI-M
10405537006	**SVP-2**	TO-15	MJL	61	PASI-M
10405537007	**SVP-3**	TO-15	MJL	61	PASI-M
10405537008	**SVP-4**	TO-15	MJL	61	PASI-M

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Pace Analytical Services, LLC
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: HPV-1 **Lab ID: 10405537001** Collected: 09/27/17 11:53 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**21.9**	ug/m3	3.4	2.1	1.39		10/14/17 11:18	67-64-1	
Benzene	**42.1**	ug/m3	0.45	0.21	1.39		10/14/17 11:18	71-43-2	
Benzyl chloride	**<0.33**	ug/m3	1.5	0.33	1.39		10/14/17 11:18	100-44-7	
Bromodichloromethane	**2.8**	ug/m3	1.9	0.49	1.39		10/14/17 11:18	75-27-4	
Bromoform	**<0.96**	ug/m3	2.9	0.96	1.39		10/14/17 11:18	75-25-2	
Bromomethane	**<0.29**	ug/m3	1.1	0.29	1.39		10/14/17 11:18	74-83-9	
1,3-Butadiene	**<0.29**	ug/m3	0.63	0.29	1.39		10/14/17 11:18	106-99-0	
2-Butanone (MEK)	**8.5**	ug/m3	4.2	0.28	1.39		10/14/17 11:18	78-93-3	
Carbon disulfide	**1.1**	ug/m3	0.88	0.25	1.39		10/14/17 11:18	75-15-0	
Carbon tetrachloride	**0.51J**	ug/m3	0.89	0.44	1.39		10/14/17 11:18	56-23-5	
Chlorobenzene	**<0.25**	ug/m3	1.3	0.25	1.39		10/14/17 11:18	108-90-7	
Chloroethane	**<0.28**	ug/m3	0.75	0.28	1.39		10/14/17 11:18	75-00-3	
Chloroform	**6.3**	ug/m3	0.69	0.32	1.39		10/14/17 11:18	67-66-3	
Chloromethane	**<0.19**	ug/m3	0.58	0.19	1.39		10/14/17 11:18	74-87-3	
Cyclohexane	**4.3**	ug/m3	0.97	0.32	1.39		10/14/17 11:18	110-82-7	
Dibromochloromethane	**1.3J**	ug/m3	2.4	0.61	1.39		10/14/17 11:18	124-48-1	
1,2-Dibromoethane (EDB)	**<0.46**	ug/m3	2.2	0.46	1.39		10/14/17 11:18	106-93-4	
1,2-Dichlorobenzene	**0.87J**	ug/m3	1.7	0.45	1.39		10/14/17 11:18	95-50-1	
1,3-Dichlorobenzene	**<0.65**	ug/m3	1.7	0.65	1.39		10/14/17 11:18	541-73-1	
1,4-Dichlorobenzene	**<0.29**	ug/m3	1.7	0.29	1.39		10/14/17 11:18	106-46-7	
Dichlorodifluoromethane	**1.9**	ug/m3	1.4	0.58	1.39		10/14/17 11:18	75-71-8	
1,1-Dichloroethane	**<0.29**	ug/m3	1.1	0.29	1.39		10/14/17 11:18	75-34-3	
1,2-Dichloroethane	**<0.28**	ug/m3	0.57	0.28	1.39		10/14/17 11:18	107-06-2	
1,1-Dichloroethene	**<0.33**	ug/m3	1.1	0.33	1.39		10/14/17 11:18	75-35-4	
cis-1,2-Dichloroethene	**<0.47**	ug/m3	1.1	0.47	1.39		10/14/17 11:18	156-59-2	
trans-1,2-Dichloroethene	**<0.41**	ug/m3	1.1	0.41	1.39		10/14/17 11:18	156-60-5	
1,2-Dichloropropane	**<0.43**	ug/m3	1.3	0.43	1.39		10/14/17 11:18	78-87-5	
cis-1,3-Dichloropropene	**<0.34**	ug/m3	1.3	0.34	1.39		10/14/17 11:18	10061-01-5	
trans-1,3-Dichloropropene	**<0.58**	ug/m3	1.3	0.58	1.39		10/14/17 11:18	10061-02-6	
Dichlorotetrafluoroethane	**<0.61**	ug/m3	2.0	0.61	1.39		10/14/17 11:18	76-14-2	
Ethanol	**16.0**	ug/m3	1.3	0.65	1.39		10/14/17 11:18	64-17-5	
Ethyl acetate	**<0.27**	ug/m3	1.0	0.27	1.39		10/14/17 11:18	141-78-6	
Ethylbenzene	**2.4**	ug/m3	1.2	0.24	1.39		10/14/17 11:18	100-41-4	
4-Ethyltoluene	**1.1J**	ug/m3	1.4	0.30	1.39		10/14/17 11:18	622-96-8	
n-Heptane	**2.0**	ug/m3	1.2	0.29	1.39		10/14/17 11:18	142-82-5	
Hexachloro-1,3-butadiene	**<1.2**	ug/m3	3.0	1.2	1.39		10/14/17 11:18	87-68-3	
n-Hexane	**4.1**	ug/m3	1.0	0.46	1.39		10/14/17 11:18	110-54-3	
2-Hexanone	**<0.85**	ug/m3	5.8	0.85	1.39		10/14/17 11:18	591-78-6	
Methylene Chloride	**<2.1**	ug/m3	4.9	2.1	1.39		10/14/17 11:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.49**	ug/m3	5.8	0.49	1.39		10/14/17 11:18	108-10-1	
Methyl-tert-butyl ether	**<0.93**	ug/m3	5.1	0.93	1.39		10/14/17 11:18	1634-04-4	
Naphthalene	**1.8J**	ug/m3	3.7	0.83	1.39		10/14/17 11:18	91-20-3	
2-Propanol	**<1.7**	ug/m3	3.5	1.7	1.39		10/14/17 11:18	67-63-0	
Propylene	**4.1**	ug/m3	0.49	0.22	1.39		10/14/17 11:18	115-07-1	
Styrene	**1.4**	ug/m3	1.2	0.23	1.39		10/14/17 11:18	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.40**	ug/m3	0.97	0.40	1.39		10/14/17 11:18	79-34-5	

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: HPV-1 **Lab ID: 10405537001** Collected: 09/27/17 11:53 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Tetrachloroethene	**<0.40**	ug/m3	0.96	0.40	1.39		10/14/17 11:18	127-18-4	
Tetrahydrofuran	**2.2**	ug/m3	0.83	0.38	1.39		10/14/17 11:18	109-99-9	
Toluene	**30.0**	ug/m3	1.1	0.22	1.39		10/14/17 11:18	108-88-3	
1,2,4-Trichlorobenzene	**<1.3**	ug/m3	5.2	1.3	1.39		10/14/17 11:18	120-82-1	
1,1,1-Trichloroethane	**<0.48**	ug/m3	1.5	0.48	1.39		10/14/17 11:18	71-55-6	
1,1,2-Trichloroethane	**<0.31**	ug/m3	0.76	0.31	1.39		10/14/17 11:18	79-00-5	
Trichloroethene	**1.5**	ug/m3	0.76	0.37	1.39		10/14/17 11:18	79-01-6	
Trichlorofluoromethane	**1.6J**	ug/m3	1.6	0.58	1.39		10/14/17 11:18	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.51**	ug/m3	2.2	0.51	1.39		10/14/17 11:18	76-13-1	
1,2,4-Trimethylbenzene	**5.4**	ug/m3	1.4	0.24	1.39		10/14/17 11:18	95-63-6	
1,3,5-Trimethylbenzene	**1.3J**	ug/m3	1.4	0.57	1.39		10/14/17 11:18	108-67-8	
Vinyl acetate	**1.7**	ug/m3	1.0	0.22	1.39		10/14/17 11:18	108-05-4	
Vinyl chloride	**<0.18**	ug/m3	0.36	0.18	1.39		10/14/17 11:18	75-01-4	
m&p-Xylene	**10.5**	ug/m3	2.5	0.49	1.39		10/14/17 11:18	179601-23-1	
o-Xylene	**4.2**	ug/m3	1.2	0.52	1.39		10/14/17 11:18	95-47-6	

Sample: HPV-2 **Lab ID: 10405537002** Collected: 09/27/17 15:50 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**17.7**	ug/m3	3.7	2.3	1.55		10/14/17 11:53	67-64-1	
Benzene	**27.7**	ug/m3	0.50	0.23	1.55		10/14/17 11:53	71-43-2	
Benzyl chloride	**<0.37**	ug/m3	1.6	0.37	1.55		10/14/17 11:53	100-44-7	
Bromodichloromethane	**<0.55**	ug/m3	2.1	0.55	1.55		10/14/17 11:53	75-27-4	
Bromoform	**<1.1**	ug/m3	3.3	1.1	1.55		10/14/17 11:53	75-25-2	
Bromomethane	**<0.32**	ug/m3	1.2	0.32	1.55		10/14/17 11:53	74-83-9	
1,3-Butadiene	**<0.32**	ug/m3	0.70	0.32	1.55		10/14/17 11:53	106-99-0	
2-Butanone (MEK)	**8.4**	ug/m3	4.6	0.31	1.55		10/14/17 11:53	78-93-3	
Carbon disulfide	**14.8**	ug/m3	0.98	0.28	1.55		10/14/17 11:53	75-15-0	
Carbon tetrachloride	**<0.49**	ug/m3	0.99	0.49	1.55		10/14/17 11:53	56-23-5	
Chlorobenzene	**<0.28**	ug/m3	1.5	0.28	1.55		10/14/17 11:53	108-90-7	
Chloroethane	**<0.32**	ug/m3	0.84	0.32	1.55		10/14/17 11:53	75-00-3	
Chloroform	**0.69J**	ug/m3	0.77	0.36	1.55		10/14/17 11:53	67-66-3	
Chloromethane	**<0.21**	ug/m3	0.65	0.21	1.55		10/14/17 11:53	74-87-3	
Cyclohexane	**1.9**	ug/m3	1.1	0.35	1.55		10/14/17 11:53	110-82-7	
Dibromochloromethane	**<0.69**	ug/m3	2.7	0.69	1.55		10/14/17 11:53	124-48-1	
1,2-Dibromoethane (EDB)	**<0.52**	ug/m3	2.4	0.52	1.55		10/14/17 11:53	106-93-4	
1,2-Dichlorobenzene	**<0.51**	ug/m3	1.9	0.51	1.55		10/14/17 11:53	95-50-1	
1,3-Dichlorobenzene	**<0.72**	ug/m3	1.9	0.72	1.55		10/14/17 11:53	541-73-1	
1,4-Dichlorobenzene	**<0.32**	ug/m3	1.9	0.32	1.55		10/14/17 11:53	106-46-7	
Dichlorodifluoromethane	**1.9**	ug/m3	1.6	0.64	1.55		10/14/17 11:53	75-71-8	
1,1-Dichloroethane	**<0.33**	ug/m3	1.3	0.33	1.55		10/14/17 11:53	75-34-3	
1,2-Dichloroethane	**<0.31**	ug/m3	0.64	0.31	1.55		10/14/17 11:53	107-06-2	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: HPV-2 **Lab ID: 10405537002** Collected: 09/27/17 15:50 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
1,1-Dichloroethene	**<0.37**	ug/m3	1.3	0.37	1.55		10/14/17 11:53	75-35-4	
cis-1,2-Dichloroethene	**<0.53**	ug/m3	1.3	0.53	1.55		10/14/17 11:53	156-59-2	
trans-1,2-Dichloroethene	**<0.46**	ug/m3	1.3	0.46	1.55		10/14/17 11:53	156-60-5	
1,2-Dichloropropane	**<0.47**	ug/m3	1.5	0.47	1.55		10/14/17 11:53	78-87-5	
cis-1,3-Dichloropropene	**<0.38**	ug/m3	1.4	0.38	1.55		10/14/17 11:53	10061-01-5	
trans-1,3-Dichloropropene	**<0.65**	ug/m3	1.4	0.65	1.55		10/14/17 11:53	10061-02-6	
Dichlorotetrafluoroethane	**<0.69**	ug/m3	2.2	0.69	1.55		10/14/17 11:53	76-14-2	
Ethanol	**17.0**	ug/m3	1.5	0.72	1.55		10/14/17 11:53	64-17-5	
Ethyl acetate	**<0.30**	ug/m3	1.1	0.30	1.55		10/14/17 11:53	141-78-6	
Ethylbenzene	**1.9**	ug/m3	1.4	0.27	1.55		10/14/17 11:53	100-41-4	
4-Ethyltoluene	**1.1J**	ug/m3	1.6	0.33	1.55		10/14/17 11:53	622-96-8	
n-Heptane	**2.7**	ug/m3	1.3	0.33	1.55		10/14/17 11:53	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.4	1.3	1.55		10/14/17 11:53	87-68-3	
n-Hexane	**1.9**	ug/m3	1.1	0.52	1.55		10/14/17 11:53	110-54-3	
2-Hexanone	**<0.95**	ug/m3	6.5	0.95	1.55		10/14/17 11:53	591-78-6	
Methylene Chloride	**<2.4**	ug/m3	5.5	2.4	1.55		10/14/17 11:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.55**	ug/m3	6.5	0.55	1.55		10/14/17 11:53	108-10-1	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		10/14/17 11:53	1634-04-4	
Naphthalene	**1.9J**	ug/m3	4.1	0.93	1.55		10/14/17 11:53	91-20-3	
2-Propanol	**1.9J**	ug/m3	3.9	1.9	1.55		10/14/17 11:53	67-63-0	
Propylene	**1.4**	ug/m3	0.54	0.24	1.55		10/14/17 11:53	115-07-1	
Styrene	**1.1J**	ug/m3	1.3	0.26	1.55		10/14/17 11:53	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.45**	ug/m3	1.1	0.45	1.55		10/14/17 11:53	79-34-5	
Tetrachloroethene	**4.3**	ug/m3	1.1	0.44	1.55		10/14/17 11:53	127-18-4	
Tetrahydrofuran	**1.8**	ug/m3	0.93	0.42	1.55		10/14/17 11:53	109-99-9	
Toluene	**44.6**	ug/m3	1.2	0.25	1.55		10/14/17 11:53	108-88-3	
1,2,4-Trichlorobenzene	**<1.5**	ug/m3	5.8	1.5	1.55		10/14/17 11:53	120-82-1	
1,1,1-Trichloroethane	**<0.53**	ug/m3	1.7	0.53	1.55		10/14/17 11:53	71-55-6	
1,1,2-Trichloroethane	**<0.35**	ug/m3	0.85	0.35	1.55		10/14/17 11:53	79-00-5	
Trichloroethene	**1.1**	ug/m3	0.85	0.42	1.55		10/14/17 11:53	79-01-6	
Trichlorofluoromethane	**1.4J**	ug/m3	1.8	0.65	1.55		10/14/17 11:53	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.57**	ug/m3	2.5	0.57	1.55		10/14/17 11:53	76-13-1	
1,2,4-Trimethylbenzene	**4.5**	ug/m3	1.5	0.27	1.55		10/14/17 11:53	95-63-6	
1,3,5-Trimethylbenzene	**1.1J**	ug/m3	1.5	0.64	1.55		10/14/17 11:53	108-67-8	
Vinyl acetate	**1.6**	ug/m3	1.1	0.24	1.55		10/14/17 11:53	108-05-4	
Vinyl chloride	**<0.20**	ug/m3	0.40	0.20	1.55		10/14/17 11:53	75-01-4	
m&p-Xylene	**8.4**	ug/m3	2.7	0.54	1.55		10/14/17 11:53	179601-23-1	
o-Xylene	**3.1**	ug/m3	1.4	0.58	1.55		10/14/17 11:53	95-47-6	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: HPV-3 **Lab ID: 10405537003** Collected: 09/28/17 10:39 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**18.2**	ug/m3	3.5	2.2	1.44		10/14/17 12:29	67-64-1	
Benzene	**19.0**	ug/m3	0.47	0.22	1.44		10/14/17 12:29	71-43-2	
Benzyl chloride	**<0.34**	ug/m3	1.5	0.34	1.44		10/14/17 12:29	100-44-7	
Bromodichloromethane	**<0.51**	ug/m3	2.0	0.51	1.44		10/14/17 12:29	75-27-4	
Bromoform	**<1.0**	ug/m3	3.0	1.0	1.44		10/14/17 12:29	75-25-2	
Bromomethane	**<0.30**	ug/m3	1.1	0.30	1.44		10/14/17 12:29	74-83-9	
1,3-Butadiene	**<0.30**	ug/m3	0.65	0.30	1.44		10/14/17 12:29	106-99-0	
2-Butanone (MEK)	**26.8**	ug/m3	4.3	0.29	1.44		10/14/17 12:29	78-93-3	
Carbon disulfide	**3.8**	ug/m3	0.91	0.26	1.44		10/14/17 12:29	75-15-0	
Carbon tetrachloride	**<0.46**	ug/m3	0.92	0.46	1.44		10/14/17 12:29	56-23-5	
Chlorobenzene	**<0.26**	ug/m3	1.4	0.26	1.44		10/14/17 12:29	108-90-7	
Chloroethane	**<0.29**	ug/m3	0.78	0.29	1.44		10/14/17 12:29	75-00-3	
Chloroform	**0.51J**	ug/m3	0.71	0.33	1.44		10/14/17 12:29	67-66-3	
Chloromethane	**<0.19**	ug/m3	0.60	0.19	1.44		10/14/17 12:29	74-87-3	
Cyclohexane	**1.4**	ug/m3	1.0	0.33	1.44		10/14/17 12:29	110-82-7	
Dibromochloromethane	**<0.64**	ug/m3	2.5	0.64	1.44		10/14/17 12:29	124-48-1	
1,2-Dibromoethane (EDB)	**<0.48**	ug/m3	2.2	0.48	1.44		10/14/17 12:29	106-93-4	
1,2-Dichlorobenzene	**<0.47**	ug/m3	1.8	0.47	1.44		10/14/17 12:29	95-50-1	
1,3-Dichlorobenzene	**<0.67**	ug/m3	1.8	0.67	1.44		10/14/17 12:29	541-73-1	
1,4-Dichlorobenzene	**<0.30**	ug/m3	1.8	0.30	1.44		10/14/17 12:29	106-46-7	
Dichlorodifluoromethane	**2.0**	ug/m3	1.5	0.60	1.44		10/14/17 12:29	75-71-8	
1,1-Dichloroethane	**<0.31**	ug/m3	1.2	0.31	1.44		10/14/17 12:29	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/m3	0.59	0.29	1.44		10/14/17 12:29	107-06-2	
1,1-Dichloroethene	**<0.34**	ug/m3	1.2	0.34	1.44		10/14/17 12:29	75-35-4	
cis-1,2-Dichloroethene	**<0.49**	ug/m3	1.2	0.49	1.44		10/14/17 12:29	156-59-2	
trans-1,2-Dichloroethene	**<0.42**	ug/m3	1.2	0.42	1.44		10/14/17 12:29	156-60-5	
1,2-Dichloropropane	**<0.44**	ug/m3	1.4	0.44	1.44		10/14/17 12:29	78-87-5	
cis-1,3-Dichloropropene	**<0.35**	ug/m3	1.3	0.35	1.44		10/14/17 12:29	10061-01-5	
trans-1,3-Dichloropropene	**<0.60**	ug/m3	1.3	0.60	1.44		10/14/17 12:29	10061-02-6	
Dichlorotetrafluoroethane	**<0.64**	ug/m3	2.0	0.64	1.44		10/14/17 12:29	76-14-2	
Ethanol	**23.5**	ug/m3	1.4	0.67	1.44		10/14/17 12:29	64-17-5	
Ethyl acetate	**<0.28**	ug/m3	1.1	0.28	1.44		10/14/17 12:29	141-78-6	
Ethylbenzene	**3.3**	ug/m3	1.3	0.25	1.44		10/14/17 12:29	100-41-4	
4-Ethyltoluene	**<0.31**	ug/m3	1.4	0.31	1.44		10/14/17 12:29	622-96-8	
n-Heptane	**2.0**	ug/m3	1.2	0.30	1.44		10/14/17 12:29	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.1	1.3	1.44		10/14/17 12:29	87-68-3	
n-Hexane	**1.8**	ug/m3	1.0	0.48	1.44		10/14/17 12:29	110-54-3	
2-Hexanone	**<0.88**	ug/m3	6.0	0.88	1.44		10/14/17 12:29	591-78-6	
Methylene Chloride	**<2.2**	ug/m3	5.1	2.2	1.44		10/14/17 12:29	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.51**	ug/m3	6.0	0.51	1.44		10/14/17 12:29	108-10-1	
Methyl-tert-butyl ether	**<0.96**	ug/m3	5.3	0.96	1.44		10/14/17 12:29	1634-04-4	
Naphthalene	**2.1J**	ug/m3	3.8	0.86	1.44		10/14/17 12:29	91-20-3	
2-Propanol	**4.2**	ug/m3	3.6	1.8	1.44		10/14/17 12:29	67-63-0	
Propylene	**2.0**	ug/m3	0.50	0.23	1.44		10/14/17 12:29	115-07-1	
Styrene	**0.94J**	ug/m3	1.3	0.24	1.44		10/14/17 12:29	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.42**	ug/m3	1.0	0.42	1.44		10/14/17 12:29	79-34-5	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: HPV-3 **Lab ID: 10405537003** Collected: 09/28/17 10:39 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Tetrachloroethene	**1.4**	ug/m3	0.99	0.41	1.44		10/14/17 12:29	127-18-4	
Tetrahydrofuran	**1.6**	ug/m3	0.86	0.39	1.44		10/14/17 12:29	109-99-9	
Toluene	**26.9**	ug/m3	1.1	0.23	1.44		10/14/17 12:29	108-88-3	
1,2,4-Trichlorobenzene	**<1.4**	ug/m3	5.4	1.4	1.44		10/14/17 12:29	120-82-1	
1,1,1-Trichloroethane	**<0.49**	ug/m3	1.6	0.49	1.44		10/14/17 12:29	71-55-6	
1,1,2-Trichloroethane	**<0.32**	ug/m3	0.79	0.32	1.44		10/14/17 12:29	79-00-5	
Trichloroethene	**0.71J**	ug/m3	0.79	0.39	1.44		10/14/17 12:29	79-01-6	
Trichlorofluoromethane	**1.9**	ug/m3	1.6	0.60	1.44		10/14/17 12:29	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.53**	ug/m3	2.3	0.53	1.44		10/14/17 12:29	76-13-1	
1,2,4-Trimethylbenzene	**3.5**	ug/m3	1.4	0.25	1.44		10/14/17 12:29	95-63-6	
1,3,5-Trimethylbenzene	**0.81J**	ug/m3	1.4	0.59	1.44		10/14/17 12:29	108-67-8	
Vinyl acetate	**2.0**	ug/m3	1.0	0.23	1.44		10/14/17 12:29	108-05-4	
Vinyl chloride	**<0.18**	ug/m3	0.37	0.18	1.44		10/14/17 12:29	75-01-4	
m&p-Xylene	**11.4**	ug/m3	2.5	0.50	1.44		10/14/17 12:29	179601-23-1	
o-Xylene	**3.9**	ug/m3	1.3	0.53	1.44		10/14/17 12:29	95-47-6	

Sample: HPV-4 **Lab ID: 10405537004** Collected: 09/28/17 12:21 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**27.5**	ug/m3	3.5	2.2	1.44		10/14/17 13:05	67-64-1	
Benzene	**12.7**	ug/m3	0.47	0.22	1.44		10/14/17 13:05	71-43-2	
Benzyl chloride	**1.0J**	ug/m3	1.5	0.34	1.44		10/14/17 13:05	100-44-7	
Bromodichloromethane	**<0.51**	ug/m3	2.0	0.51	1.44		10/14/17 13:05	75-27-4	
Bromoform	**<1.0**	ug/m3	3.0	1.0	1.44		10/14/17 13:05	75-25-2	
Bromomethane	**1.1J**	ug/m3	1.1	0.30	1.44		10/14/17 13:05	74-83-9	
1,3-Butadiene	**<0.30**	ug/m3	0.65	0.30	1.44		10/14/17 13:05	106-99-0	
2-Butanone (MEK)	**11.8**	ug/m3	4.3	0.29	1.44		10/14/17 13:05	78-93-3	
Carbon disulfide	**2.2**	ug/m3	0.91	0.26	1.44		10/14/17 13:05	75-15-0	
Carbon tetrachloride	**0.49J**	ug/m3	0.92	0.46	1.44		10/14/17 13:05	56-23-5	
Chlorobenzene	**<0.26**	ug/m3	1.4	0.26	1.44		10/14/17 13:05	108-90-7	
Chloroethane	**1.7**	ug/m3	0.78	0.29	1.44		10/14/17 13:05	75-00-3	
Chloroform	**0.55J**	ug/m3	0.71	0.33	1.44		10/14/17 13:05	67-66-3	
Chloromethane	**11.6**	ug/m3	0.60	0.19	1.44		10/14/17 13:05	74-87-3	
Cyclohexane	**1.8**	ug/m3	1.0	0.33	1.44		10/14/17 13:05	110-82-7	
Dibromochloromethane	**<0.64**	ug/m3	2.5	0.64	1.44		10/14/17 13:05	124-48-1	
1,2-Dibromoethane (EDB)	**<0.48**	ug/m3	2.2	0.48	1.44		10/14/17 13:05	106-93-4	
1,2-Dichlorobenzene	**<0.47**	ug/m3	1.8	0.47	1.44		10/14/17 13:05	95-50-1	
1,3-Dichlorobenzene	**<0.67**	ug/m3	1.8	0.67	1.44		10/14/17 13:05	541-73-1	
1,4-Dichlorobenzene	**<0.30**	ug/m3	1.8	0.30	1.44		10/14/17 13:05	106-46-7	
Dichlorodifluoromethane	**1.8**	ug/m3	1.5	0.60	1.44		10/14/17 13:05	75-71-8	
1,1-Dichloroethane	**<0.31**	ug/m3	1.2	0.31	1.44		10/14/17 13:05	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/m3	0.59	0.29	1.44		10/14/17 13:05	107-06-2	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: HPV-4 **Lab ID: 10405537004** Collected: 09/28/17 12:21 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
1,1-Dichloroethene	**<0.34**	ug/m3	1.2	0.34	1.44		10/14/17 13:05	75-35-4	
cis-1,2-Dichloroethene	**<0.49**	ug/m3	1.2	0.49	1.44		10/14/17 13:05	156-59-2	
trans-1,2-Dichloroethene	**<0.42**	ug/m3	1.2	0.42	1.44		10/14/17 13:05	156-60-5	
1,2-Dichloropropane	**<0.44**	ug/m3	1.4	0.44	1.44		10/14/17 13:05	78-87-5	
cis-1,3-Dichloropropene	**<0.35**	ug/m3	1.3	0.35	1.44		10/14/17 13:05	10061-01-5	
trans-1,3-Dichloropropene	**<0.60**	ug/m3	1.3	0.60	1.44		10/14/17 13:05	10061-02-6	
Dichlorotetrafluoroethane	**<0.64**	ug/m3	2.0	0.64	1.44		10/14/17 13:05	76-14-2	
Ethanol	**14.0**	ug/m3	1.4	0.67	1.44		10/14/17 13:05	64-17-5	
Ethyl acetate	**<0.28**	ug/m3	1.1	0.28	1.44		10/14/17 13:05	141-78-6	
Ethylbenzene	**3.2**	ug/m3	1.3	0.25	1.44		10/14/17 13:05	100-41-4	
4-Ethyltoluene	**0.73J**	ug/m3	1.4	0.31	1.44		10/14/17 13:05	622-96-8	
n-Heptane	**2.7**	ug/m3	1.2	0.30	1.44		10/14/17 13:05	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.1	1.3	1.44		10/14/17 13:05	87-68-3	
n-Hexane	**1.5**	ug/m3	1.0	0.48	1.44		10/14/17 13:05	110-54-3	
2-Hexanone	**<0.88**	ug/m3	6.0	0.88	1.44		10/14/17 13:05	591-78-6	
Methylene Chloride	**<2.2**	ug/m3	5.1	2.2	1.44		10/14/17 13:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	**3.0J**	ug/m3	6.0	0.51	1.44		10/14/17 13:05	108-10-1	
Methyl-tert-butyl ether	**<0.96**	ug/m3	5.3	0.96	1.44		10/14/17 13:05	1634-04-4	
Naphthalene	**2.3J**	ug/m3	3.8	0.86	1.44		10/14/17 13:05	91-20-3	
2-Propanol	**<1.8**	ug/m3	3.6	1.8	1.44		10/14/17 13:05	67-63-0	
Propylene	**2.7**	ug/m3	0.50	0.23	1.44		10/14/17 13:05	115-07-1	
Styrene	**2.0**	ug/m3	1.3	0.24	1.44		10/14/17 13:05	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.42**	ug/m3	1.0	0.42	1.44		10/14/17 13:05	79-34-5	
Tetrachloroethene	**0.82J**	ug/m3	0.99	0.41	1.44		10/14/17 13:05	127-18-4	
Tetrahydrofuran	**2.7**	ug/m3	0.86	0.39	1.44		10/14/17 13:05	109-99-9	
Toluene	**31.6**	ug/m3	1.1	0.23	1.44		10/14/17 13:05	108-88-3	
1,2,4-Trichlorobenzene	**<1.4**	ug/m3	5.4	1.4	1.44		10/14/17 13:05	120-82-1	
1,1,1-Trichloroethane	**<0.49**	ug/m3	1.6	0.49	1.44		10/14/17 13:05	71-55-6	
1,1,2-Trichloroethane	**<0.32**	ug/m3	0.79	0.32	1.44		10/14/17 13:05	79-00-5	
Trichloroethene	**0.44J**	ug/m3	0.79	0.39	1.44		10/14/17 13:05	79-01-6	
Trichlorofluoromethane	**1.7**	ug/m3	1.6	0.60	1.44		10/14/17 13:05	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.53**	ug/m3	2.3	0.53	1.44		10/14/17 13:05	76-13-1	
1,2,4-Trimethylbenzene	**5.5**	ug/m3	1.4	0.25	1.44		10/14/17 13:05	95-63-6	
1,3,5-Trimethylbenzene	**1.4J**	ug/m3	1.4	0.59	1.44		10/14/17 13:05	108-67-8	
Vinyl acetate	**28.0**	ug/m3	1.0	0.23	1.44		10/14/17 13:05	108-05-4	
Vinyl chloride	**<0.18**	ug/m3	0.37	0.18	1.44		10/14/17 13:05	75-01-4	
m&p-Xylene	**12.5**	ug/m3	2.5	0.50	1.44		10/14/17 13:05	179601-23-1	
o-Xylene	**4.4**	ug/m3	1.3	0.53	1.44		10/14/17 13:05	95-47-6	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: SVP-1 **Lab ID: 10405537005** Collected: 09/28/17 09:56 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**12.3**	ug/m3	3.5	2.2	1.44		10/14/17 13:41	67-64-1	
Benzene	**1.2**	ug/m3	0.47	0.22	1.44		10/14/17 13:41	71-43-2	
Benzyl chloride	**<0.34**	ug/m3	1.5	0.34	1.44		10/14/17 13:41	100-44-7	
Bromodichloromethane	**<0.51**	ug/m3	2.0	0.51	1.44		10/14/17 13:41	75-27-4	
Bromoform	**<1.0**	ug/m3	3.0	1.0	1.44		10/14/17 13:41	75-25-2	
Bromomethane	**<0.30**	ug/m3	1.1	0.30	1.44		10/14/17 13:41	74-83-9	
1,3-Butadiene	**<0.30**	ug/m3	0.65	0.30	1.44		10/14/17 13:41	106-99-0	
2-Butanone (MEK)	**5.1**	ug/m3	4.3	0.29	1.44		10/14/17 13:41	78-93-3	
Carbon disulfide	**<0.26**	ug/m3	0.91	0.26	1.44		10/14/17 13:41	75-15-0	
Carbon tetrachloride	**<0.46**	ug/m3	0.92	0.46	1.44		10/14/17 13:41	56-23-5	
Chlorobenzene	**<0.26**	ug/m3	1.4	0.26	1.44		10/14/17 13:41	108-90-7	
Chloroethane	**<0.29**	ug/m3	0.78	0.29	1.44		10/14/17 13:41	75-00-3	
Chloroform	**0.45J**	ug/m3	0.71	0.33	1.44		10/14/17 13:41	67-66-3	
Chloromethane	**0.73**	ug/m3	0.60	0.19	1.44		10/14/17 13:41	74-87-3	
Cyclohexane	**1.9**	ug/m3	1.0	0.33	1.44		10/14/17 13:41	110-82-7	
Dibromochloromethane	**<0.64**	ug/m3	2.5	0.64	1.44		10/14/17 13:41	124-48-1	
1,2-Dibromoethane (EDB)	**<0.48**	ug/m3	2.2	0.48	1.44		10/14/17 13:41	106-93-4	
1,2-Dichlorobenzene	**<0.47**	ug/m3	1.8	0.47	1.44		10/14/17 13:41	95-50-1	
1,3-Dichlorobenzene	**<0.67**	ug/m3	1.8	0.67	1.44		10/14/17 13:41	541-73-1	
1,4-Dichlorobenzene	**<0.30**	ug/m3	1.8	0.30	1.44		10/14/17 13:41	106-46-7	
Dichlorodifluoromethane	**2.0**	ug/m3	1.5	0.60	1.44		10/14/17 13:41	75-71-8	
1,1-Dichloroethane	**<0.31**	ug/m3	1.2	0.31	1.44		10/14/17 13:41	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/m3	0.59	0.29	1.44		10/14/17 13:41	107-06-2	
1,1-Dichloroethene	**<0.34**	ug/m3	1.2	0.34	1.44		10/14/17 13:41	75-35-4	
cis-1,2-Dichloroethene	**<0.49**	ug/m3	1.2	0.49	1.44		10/14/17 13:41	156-59-2	
trans-1,2-Dichloroethene	**<0.42**	ug/m3	1.2	0.42	1.44		10/14/17 13:41	156-60-5	
1,2-Dichloropropane	**<0.44**	ug/m3	1.4	0.44	1.44		10/14/17 13:41	78-87-5	
cis-1,3-Dichloropropene	**<0.35**	ug/m3	1.3	0.35	1.44		10/14/17 13:41	10061-01-5	
trans-1,3-Dichloropropene	**<0.60**	ug/m3	1.3	0.60	1.44		10/14/17 13:41	10061-02-6	
Dichlorotetrafluoroethane	**<0.64**	ug/m3	2.0	0.64	1.44		10/14/17 13:41	76-14-2	
Ethanol	**14.0**	ug/m3	1.4	0.67	1.44		10/14/17 13:41	64-17-5	
Ethyl acetate	**<0.28**	ug/m3	1.1	0.28	1.44		10/14/17 13:41	141-78-6	
Ethylbenzene	**3.4**	ug/m3	1.3	0.25	1.44		10/14/17 13:41	100-41-4	
4-Ethyltoluene	**1.2J**	ug/m3	1.4	0.31	1.44		10/14/17 13:41	622-96-8	
n-Heptane	**2.3**	ug/m3	1.2	0.30	1.44		10/14/17 13:41	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.1	1.3	1.44		10/14/17 13:41	87-68-3	
n-Hexane	**2.2**	ug/m3	1.0	0.48	1.44		10/14/17 13:41	110-54-3	
2-Hexanone	**<0.88**	ug/m3	6.0	0.88	1.44		10/14/17 13:41	591-78-6	
Methylene Chloride	**3.0J**	ug/m3	5.1	2.2	1.44		10/14/17 13:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**3.0J**	ug/m3	6.0	0.51	1.44		10/14/17 13:41	108-10-1	
Methyl-tert-butyl ether	**<0.96**	ug/m3	5.3	0.96	1.44		10/14/17 13:41	1634-04-4	
Naphthalene	**1.4J**	ug/m3	3.8	0.86	1.44		10/14/17 13:41	91-20-3	
2-Propanol	**<1.8**	ug/m3	3.6	1.8	1.44		10/14/17 13:41	67-63-0	
Propylene	**1.1**	ug/m3	0.50	0.23	1.44		10/14/17 13:41	115-07-1	
Styrene	**1.2J**	ug/m3	1.3	0.24	1.44		10/14/17 13:41	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.42**	ug/m3	1.0	0.42	1.44		10/14/17 13:41	79-34-5	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: SVP-1 **Lab ID: 10405537005** Collected: 09/28/17 09:56 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Tetrachloroethene	**<0.41**	ug/m3	0.99	0.41	1.44		10/14/17 13:41	127-18-4	
Tetrahydrofuran	**2.5**	ug/m3	0.86	0.39	1.44		10/14/17 13:41	109-99-9	
Toluene	**32.4**	ug/m3	1.1	0.23	1.44		10/14/17 13:41	108-88-3	
1,2,4-Trichlorobenzene	**<1.4**	ug/m3	5.4	1.4	1.44		10/14/17 13:41	120-82-1	
1,1,1-Trichloroethane	**<0.49**	ug/m3	1.6	0.49	1.44		10/14/17 13:41	71-55-6	
1,1,2-Trichloroethane	**<0.32**	ug/m3	0.79	0.32	1.44		10/14/17 13:41	79-00-5	
Trichloroethene	**<0.39**	ug/m3	0.79	0.39	1.44		10/14/17 13:41	79-01-6	
Trichlorofluoromethane	**1.2J**	ug/m3	1.6	0.60	1.44		10/14/17 13:41	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.53**	ug/m3	2.3	0.53	1.44		10/14/17 13:41	76-13-1	
1,2,4-Trimethylbenzene	**4.2**	ug/m3	1.4	0.25	1.44		10/14/17 13:41	95-63-6	
1,3,5-Trimethylbenzene	**1.1J**	ug/m3	1.4	0.59	1.44		10/14/17 13:41	108-67-8	
Vinyl acetate	**0.81J**	ug/m3	1.0	0.23	1.44		10/14/17 13:41	108-05-4	
Vinyl chloride	**<0.18**	ug/m3	0.37	0.18	1.44		10/14/17 13:41	75-01-4	
m&p-Xylene	**12.5**	ug/m3	2.5	0.50	1.44		10/14/17 13:41	179601-23-1	
o-Xylene	**4.3**	ug/m3	1.3	0.53	1.44		10/14/17 13:41	95-47-6	

Sample: SVP-2 **Lab ID: 10405537006** Collected: 09/28/17 09:43 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**29.0**	ug/m3	3.5	2.2	1.44		10/14/17 14:53	67-64-1	
Benzene	**5.3**	ug/m3	0.47	0.22	1.44		10/14/17 14:53	71-43-2	
Benzyl chloride	**<0.34**	ug/m3	1.5	0.34	1.44		10/14/17 14:53	100-44-7	
Bromodichloromethane	**19.0**	ug/m3	2.0	0.51	1.44		10/14/17 14:53	75-27-4	
Bromoform	**<1.0**	ug/m3	3.0	1.0	1.44		10/14/17 14:53	75-25-2	
Bromomethane	**<0.30**	ug/m3	1.1	0.30	1.44		10/14/17 14:53	74-83-9	
1,3-Butadiene	**<0.30**	ug/m3	0.65	0.30	1.44		10/14/17 14:53	106-99-0	
2-Butanone (MEK)	**17.5**	ug/m3	4.3	0.29	1.44		10/14/17 14:53	78-93-3	
Carbon disulfide	**7.5**	ug/m3	0.91	0.26	1.44		10/14/17 14:53	75-15-0	
Carbon tetrachloride	**0.49J**	ug/m3	0.92	0.46	1.44		10/14/17 14:53	56-23-5	
Chlorobenzene	**<0.26**	ug/m3	1.4	0.26	1.44		10/14/17 14:53	108-90-7	
Chloroethane	**<0.29**	ug/m3	0.78	0.29	1.44		10/14/17 14:53	75-00-3	
Chloroform	**31.9**	ug/m3	0.71	0.33	1.44		10/14/17 14:53	67-66-3	
Chloromethane	**0.63**	ug/m3	0.60	0.19	1.44		10/14/17 14:53	74-87-3	
Cyclohexane	**3.6**	ug/m3	1.0	0.33	1.44		10/14/17 14:53	110-82-7	
Dibromochloromethane	**5.3**	ug/m3	2.5	0.64	1.44		10/14/17 14:53	124-48-1	
1,2-Dibromoethane (EDB)	**<0.48**	ug/m3	2.2	0.48	1.44		10/14/17 14:53	106-93-4	
1,2-Dichlorobenzene	**<0.47**	ug/m3	1.8	0.47	1.44		10/14/17 14:53	95-50-1	
1,3-Dichlorobenzene	**<0.67**	ug/m3	1.8	0.67	1.44		10/14/17 14:53	541-73-1	
1,4-Dichlorobenzene	**<0.30**	ug/m3	1.8	0.30	1.44		10/14/17 14:53	106-46-7	
Dichlorodifluoromethane	**1.8**	ug/m3	1.5	0.60	1.44		10/14/17 14:53	75-71-8	
1,1-Dichloroethane	**<0.31**	ug/m3	1.2	0.31	1.44		10/14/17 14:53	75-34-3	
1,2-Dichloroethane	**<0.29**	ug/m3	0.59	0.29	1.44		10/14/17 14:53	107-06-2	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: SVP-2 **Lab ID: 10405537006** Collected: 09/28/17 09:43 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
1,1-Dichloroethene	**<0.34**	ug/m3	1.2	0.34	1.44		10/14/17 14:53	75-35-4	
cis-1,2-Dichloroethene	**<0.49**	ug/m3	1.2	0.49	1.44		10/14/17 14:53	156-59-2	
trans-1,2-Dichloroethene	**<0.42**	ug/m3	1.2	0.42	1.44		10/14/17 14:53	156-60-5	
1,2-Dichloropropane	**<0.44**	ug/m3	1.4	0.44	1.44		10/14/17 14:53	78-87-5	
cis-1,3-Dichloropropene	**<0.35**	ug/m3	1.3	0.35	1.44		10/14/17 14:53	10061-01-5	
trans-1,3-Dichloropropene	**<0.60**	ug/m3	1.3	0.60	1.44		10/14/17 14:53	10061-02-6	
Dichlorotetrafluoroethane	**<0.64**	ug/m3	2.0	0.64	1.44		10/14/17 14:53	76-14-2	
Ethanol	**14.9**	ug/m3	1.4	0.67	1.44		10/14/17 14:53	64-17-5	
Ethyl acetate	**1.6**	ug/m3	1.1	0.28	1.44		10/14/17 14:53	141-78-6	
Ethylbenzene	**7.7**	ug/m3	1.3	0.25	1.44		10/14/17 14:53	100-41-4	
4-Ethyltoluene	**1.8**	ug/m3	1.4	0.31	1.44		10/14/17 14:53	622-96-8	
n-Heptane	**6.0**	ug/m3	1.2	0.30	1.44		10/14/17 14:53	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.1	1.3	1.44		10/14/17 14:53	87-68-3	
n-Hexane	**9.2**	ug/m3	1.0	0.48	1.44		10/14/17 14:53	110-54-3	
2-Hexanone	**1.4J**	ug/m3	6.0	0.88	1.44		10/14/17 14:53	591-78-6	
Methylene Chloride	**2.2J**	ug/m3	5.1	2.2	1.44		10/14/17 14:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	**12.6**	ug/m3	6.0	0.51	1.44		10/14/17 14:53	108-10-1	
Methyl-tert-butyl ether	**<0.96**	ug/m3	5.3	0.96	1.44		10/14/17 14:53	1634-04-4	
Naphthalene	**1.3J**	ug/m3	3.8	0.86	1.44		10/14/17 14:53	91-20-3	
2-Propanol	**<1.8**	ug/m3	3.6	1.8	1.44		10/14/17 14:53	67-63-0	
Propylene	**<0.23**	ug/m3	0.50	0.23	1.44		10/14/17 14:53	115-07-1	
Styrene	**1.4**	ug/m3	1.3	0.24	1.44		10/14/17 14:53	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.42**	ug/m3	1.0	0.42	1.44		10/14/17 14:53	79-34-5	
Tetrachloroethene	**16.7**	ug/m3	0.99	0.41	1.44		10/14/17 14:53	127-18-4	
Tetrahydrofuran	**6.7**	ug/m3	0.86	0.39	1.44		10/14/17 14:53	109-99-9	
Toluene	**50.6**	ug/m3	1.1	0.23	1.44		10/14/17 14:53	108-88-3	
1,2,4-Trichlorobenzene	**<1.4**	ug/m3	5.4	1.4	1.44		10/14/17 14:53	120-82-1	
1,1,1-Trichloroethane	**<0.49**	ug/m3	1.6	0.49	1.44		10/14/17 14:53	71-55-6	
1,1,2-Trichloroethane	**<0.32**	ug/m3	0.79	0.32	1.44		10/14/17 14:53	79-00-5	
Trichloroethene	**<0.39**	ug/m3	0.79	0.39	1.44		10/14/17 14:53	79-01-6	
Trichlorofluoromethane	**1.4J**	ug/m3	1.6	0.60	1.44		10/14/17 14:53	75-69-4	
1,1,2-Trichlorotrifluoroethane	**0.60J**	ug/m3	2.3	0.53	1.44		10/14/17 14:53	76-13-1	
1,2,4-Trimethylbenzene	**4.9**	ug/m3	1.4	0.25	1.44		10/14/17 14:53	95-63-6	
1,3,5-Trimethylbenzene	**2.0**	ug/m3	1.4	0.59	1.44		10/14/17 14:53	108-67-8	
Vinyl acetate	**1.6**	ug/m3	1.0	0.23	1.44		10/14/17 14:53	108-05-4	
Vinyl chloride	**<0.18**	ug/m3	0.37	0.18	1.44		10/14/17 14:53	75-01-4	
m&p-Xylene	**24.8**	ug/m3	2.5	0.50	1.44		10/14/17 14:53	179601-23-1	
o-Xylene	**10.8**	ug/m3	1.3	0.53	1.44		10/14/17 14:53	95-47-6	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: SVP-3 **Lab ID: 10405537007** Collected: 09/28/17 09:32 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**17.8**	ug/m3	3.7	2.3	1.55		10/14/17 15:30	67-64-1	
Benzene	**1.7**	ug/m3	0.50	0.23	1.55		10/14/17 15:30	71-43-2	
Benzyl chloride	**<0.37**	ug/m3	1.6	0.37	1.55		10/14/17 15:30	100-44-7	
Bromodichloromethane	**<0.55**	ug/m3	2.1	0.55	1.55		10/14/17 15:30	75-27-4	
Bromoform	**<1.1**	ug/m3	3.3	1.1	1.55		10/14/17 15:30	75-25-2	
Bromomethane	**<0.32**	ug/m3	1.2	0.32	1.55		10/14/17 15:30	74-83-9	
1,3-Butadiene	**<0.32**	ug/m3	0.70	0.32	1.55		10/14/17 15:30	106-99-0	
2-Butanone (MEK)	**8.4**	ug/m3	4.6	0.31	1.55		10/14/17 15:30	78-93-3	
Carbon disulfide	**0.77J**	ug/m3	0.98	0.28	1.55		10/14/17 15:30	75-15-0	
Carbon tetrachloride	**<0.49**	ug/m3	0.99	0.49	1.55		10/14/17 15:30	56-23-5	
Chlorobenzene	**<0.28**	ug/m3	1.5	0.28	1.55		10/14/17 15:30	108-90-7	
Chloroethane	**<0.32**	ug/m3	0.84	0.32	1.55		10/14/17 15:30	75-00-3	
Chloroform	**0.59J**	ug/m3	0.77	0.36	1.55		10/14/17 15:30	67-66-3	
Chloromethane	**1.4**	ug/m3	0.65	0.21	1.55		10/14/17 15:30	74-87-3	
Cyclohexane	**4.8**	ug/m3	1.1	0.35	1.55		10/14/17 15:30	110-82-7	
Dibromochloromethane	**<0.69**	ug/m3	2.7	0.69	1.55		10/14/17 15:30	124-48-1	
1,2-Dibromoethane (EDB)	**<0.52**	ug/m3	2.4	0.52	1.55		10/14/17 15:30	106-93-4	
1,2-Dichlorobenzene	**<0.51**	ug/m3	1.9	0.51	1.55		10/14/17 15:30	95-50-1	
1,3-Dichlorobenzene	**<0.72**	ug/m3	1.9	0.72	1.55		10/14/17 15:30	541-73-1	
1,4-Dichlorobenzene	**<0.32**	ug/m3	1.9	0.32	1.55		10/14/17 15:30	106-46-7	
Dichlorodifluoromethane	**2.1**	ug/m3	1.6	0.64	1.55		10/14/17 15:30	75-71-8	
1,1-Dichloroethane	**<0.33**	ug/m3	1.3	0.33	1.55		10/14/17 15:30	75-34-3	
1,2-Dichloroethane	**<0.31**	ug/m3	0.64	0.31	1.55		10/14/17 15:30	107-06-2	
1,1-Dichloroethene	**<0.37**	ug/m3	1.3	0.37	1.55		10/14/17 15:30	75-35-4	
cis-1,2-Dichloroethene	**<0.53**	ug/m3	1.3	0.53	1.55		10/14/17 15:30	156-59-2	
trans-1,2-Dichloroethene	**<0.46**	ug/m3	1.3	0.46	1.55		10/14/17 15:30	156-60-5	
1,2-Dichloropropane	**<0.47**	ug/m3	1.5	0.47	1.55		10/14/17 15:30	78-87-5	
cis-1,3-Dichloropropene	**<0.38**	ug/m3	1.4	0.38	1.55		10/14/17 15:30	10061-01-5	
trans-1,3-Dichloropropene	**<0.65**	ug/m3	1.4	0.65	1.55		10/14/17 15:30	10061-02-6	
Dichlorotetrafluoroethane	**<0.69**	ug/m3	2.2	0.69	1.55		10/14/17 15:30	76-14-2	
Ethanol	**12.6**	ug/m3	1.5	0.72	1.55		10/14/17 15:30	64-17-5	
Ethyl acetate	**1.4**	ug/m3	1.1	0.30	1.55		10/14/17 15:30	141-78-6	
Ethylbenzene	**3.6**	ug/m3	1.4	0.27	1.55		10/14/17 15:30	100-41-4	
4-Ethyltoluene	**1.7**	ug/m3	1.6	0.33	1.55		10/14/17 15:30	622-96-8	
n-Heptane	**3.9**	ug/m3	1.3	0.33	1.55		10/14/17 15:30	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.4	1.3	1.55		10/14/17 15:30	87-68-3	
n-Hexane	**17.0**	ug/m3	1.1	0.52	1.55		10/14/17 15:30	110-54-3	
2-Hexanone	**<0.95**	ug/m3	6.5	0.95	1.55		10/14/17 15:30	591-78-6	
Methylene Chloride	**137**	ug/m3	5.5	2.4	1.55		10/14/17 15:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	**1.7J**	ug/m3	6.5	0.55	1.55		10/14/17 15:30	108-10-1	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		10/14/17 15:30	1634-04-4	
Naphthalene	**1.4J**	ug/m3	4.1	0.93	1.55		10/14/17 15:30	91-20-3	
2-Propanol	**<1.9**	ug/m3	3.9	1.9	1.55		10/14/17 15:30	67-63-0	
Propylene	**1.7**	ug/m3	0.54	0.24	1.55		10/14/17 15:30	115-07-1	
Styrene	**1.3**	ug/m3	1.3	0.26	1.55		10/14/17 15:30	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.45**	ug/m3	1.1	0.45	1.55		10/14/17 15:30	79-34-5	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: SVP-3 **Lab ID: 10405537007** Collected: 09/28/17 09:32 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Tetrachloroethene	**<0.44**	ug/m3	1.1	0.44	1.55		10/14/17 15:30	127-18-4	
Tetrahydrofuran	**3.2**	ug/m3	0.93	0.42	1.55		10/14/17 15:30	109-99-9	
Toluene	**52.6**	ug/m3	1.2	0.25	1.55		10/14/17 15:30	108-88-3	
1,2,4-Trichlorobenzene	**<1.5**	ug/m3	5.8	1.5	1.55		10/14/17 15:30	120-82-1	
1,1,1-Trichloroethane	**<0.53**	ug/m3	1.7	0.53	1.55		10/14/17 15:30	71-55-6	
1,1,2-Trichloroethane	**<0.35**	ug/m3	0.85	0.35	1.55		10/14/17 15:30	79-00-5	
Trichloroethene	**<0.42**	ug/m3	0.85	0.42	1.55		10/14/17 15:30	79-01-6	
Trichlorofluoromethane	**1.4J**	ug/m3	1.8	0.65	1.55		10/14/17 15:30	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.57**	ug/m3	2.5	0.57	1.55		10/14/17 15:30	76-13-1	
1,2,4-Trimethylbenzene	**4.7**	ug/m3	1.5	0.27	1.55		10/14/17 15:30	95-63-6	
1,3,5-Trimethylbenzene	**1.4J**	ug/m3	1.5	0.64	1.55		10/14/17 15:30	108-67-8	
Vinyl acetate	**1.2**	ug/m3	1.1	0.24	1.55		10/14/17 15:30	108-05-4	
Vinyl chloride	**<0.20**	ug/m3	0.40	0.20	1.55		10/14/17 15:30	75-01-4	
m&p-Xylene	**13.7**	ug/m3	2.7	0.54	1.55		10/14/17 15:30	179601-23-1	
o-Xylene	**4.7**	ug/m3	1.4	0.58	1.55		10/14/17 15:30	95-47-6	

Sample: SVP-4 **Lab ID: 10405537008** Collected: 09/28/17 09:28 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Acetone	**9.0**	ug/m3	3.6	2.2	1.49		10/14/17 16:06	67-64-1	
Benzene	**0.98**	ug/m3	0.48	0.22	1.49		10/14/17 16:06	71-43-2	
Benzyl chloride	**<0.35**	ug/m3	1.6	0.35	1.49		10/14/17 16:06	100-44-7	
Bromodichloromethane	**<0.53**	ug/m3	2.0	0.53	1.49		10/14/17 16:06	75-27-4	
Bromoform	**<1.0**	ug/m3	3.1	1.0	1.49		10/14/17 16:06	75-25-2	
Bromomethane	**<0.31**	ug/m3	1.2	0.31	1.49		10/14/17 16:06	74-83-9	
1,3-Butadiene	**<0.31**	ug/m3	0.67	0.31	1.49		10/14/17 16:06	106-99-0	
2-Butanone (MEK)	**3.2J**	ug/m3	4.5	0.30	1.49		10/14/17 16:06	78-93-3	
Carbon disulfide	**0.55J**	ug/m3	0.94	0.27	1.49		10/14/17 16:06	75-15-0	
Carbon tetrachloride	**<0.47**	ug/m3	0.95	0.47	1.49		10/14/17 16:06	56-23-5	
Chlorobenzene	**<0.27**	ug/m3	1.4	0.27	1.49		10/14/17 16:06	108-90-7	
Chloroethane	**<0.30**	ug/m3	0.80	0.30	1.49		10/14/17 16:06	75-00-3	
Chloroform	**0.37J**	ug/m3	0.74	0.34	1.49		10/14/17 16:06	67-66-3	
Chloromethane	**0.68**	ug/m3	0.63	0.20	1.49		10/14/17 16:06	74-87-3	
Cyclohexane	**1.8**	ug/m3	1.0	0.34	1.49		10/14/17 16:06	110-82-7	
Dibromochloromethane	**<0.66**	ug/m3	2.6	0.66	1.49		10/14/17 16:06	124-48-1	
1,2-Dibromoethane (EDB)	**<0.50**	ug/m3	2.3	0.50	1.49		10/14/17 16:06	106-93-4	
1,2-Dichlorobenzene	**<0.49**	ug/m3	1.8	0.49	1.49		10/14/17 16:06	95-50-1	
1,3-Dichlorobenzene	**<0.69**	ug/m3	1.8	0.69	1.49		10/14/17 16:06	541-73-1	
1,4-Dichlorobenzene	**<0.31**	ug/m3	1.8	0.31	1.49		10/14/17 16:06	106-46-7	
Dichlorodifluoromethane	**2.0**	ug/m3	1.5	0.62	1.49		10/14/17 16:06	75-71-8	
1,1-Dichloroethane	**<0.32**	ug/m3	1.2	0.32	1.49		10/14/17 16:06	75-34-3	
1,2-Dichloroethane	**<0.30**	ug/m3	0.61	0.30	1.49		10/14/17 16:06	107-06-2	

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ANALYTICAL RESULTS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Sample: SVP-4 **Lab ID: 10405537008** Collected: 09/28/17 09:28 Received: 10/02/17 11:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
1,1-Dichloroethene	**<0.35**	ug/m3	1.2	0.35	1.49		10/14/17 16:06	75-35-4	
cis-1,2-Dichloroethene	**<0.51**	ug/m3	1.2	0.51	1.49		10/14/17 16:06	156-59-2	
trans-1,2-Dichloroethene	**<0.44**	ug/m3	1.2	0.44	1.49		10/14/17 16:06	156-60-5	
1,2-Dichloropropane	**<0.46**	ug/m3	1.4	0.46	1.49		10/14/17 16:06	78-87-5	
cis-1,3-Dichloropropene	**<0.37**	ug/m3	1.4	0.37	1.49		10/14/17 16:06	10061-01-5	
trans-1,3-Dichloropropene	**<0.63**	ug/m3	1.4	0.63	1.49		10/14/17 16:06	10061-02-6	
Dichlorotetrafluoroethane	**<0.66**	ug/m3	2.1	0.66	1.49		10/14/17 16:06	76-14-2	
Ethanol	**8.3**	ug/m3	1.4	0.69	1.49		10/14/17 16:06	64-17-5	
Ethyl acetate	**<0.29**	ug/m3	1.1	0.29	1.49		10/14/17 16:06	141-78-6	
Ethylbenzene	**2.1**	ug/m3	1.3	0.25	1.49		10/14/17 16:06	100-41-4	
4-Ethyltoluene	**0.98J**	ug/m3	1.5	0.32	1.49		10/14/17 16:06	622-96-8	
n-Heptane	**2.2**	ug/m3	1.2	0.31	1.49		10/14/17 16:06	142-82-5	
Hexachloro-1,3-butadiene	**<1.3**	ug/m3	3.2	1.3	1.49		10/14/17 16:06	87-68-3	
n-Hexane	**1.7**	ug/m3	1.1	0.50	1.49		10/14/17 16:06	110-54-3	
2-Hexanone	**<0.91**	ug/m3	6.2	0.91	1.49		10/14/17 16:06	591-78-6	
Methylene Chloride	**<2.3**	ug/m3	5.3	2.3	1.49		10/14/17 16:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.86J**	ug/m3	6.2	0.53	1.49		10/14/17 16:06	108-10-1	
Methyl-tert-butyl ether	**<0.99**	ug/m3	5.5	0.99	1.49		10/14/17 16:06	1634-04-4	
Naphthalene	**1.3J**	ug/m3	4.0	0.89	1.49		10/14/17 16:06	91-20-3	
2-Propanol	**<1.9**	ug/m3	3.7	1.9	1.49		10/14/17 16:06	67-63-0	
Propylene	**<0.23**	ug/m3	0.52	0.23	1.49		10/14/17 16:06	115-07-1	
Styrene	**0.83J**	ug/m3	1.3	0.25	1.49		10/14/17 16:06	100-42-5	
1,1,2,2-Tetrachloroethane	**<0.43**	ug/m3	1.0	0.43	1.49		10/14/17 16:06	79-34-5	
Tetrachloroethene	**<0.43**	ug/m3	1.0	0.43	1.49		10/14/17 16:06	127-18-4	
Tetrahydrofuran	**1.2**	ug/m3	0.89	0.41	1.49		10/14/17 16:06	109-99-9	
Toluene	**34.2**	ug/m3	1.1	0.24	1.49		10/14/17 16:06	108-88-3	
1,2,4-Trichlorobenzene	**<1.4**	ug/m3	5.6	1.4	1.49		10/14/17 16:06	120-82-1	
1,1,1-Trichloroethane	**<0.51**	ug/m3	1.7	0.51	1.49		10/14/17 16:06	71-55-6	
1,1,2-Trichloroethane	**<0.34**	ug/m3	0.82	0.34	1.49		10/14/17 16:06	79-00-5	
Trichloroethene	**<0.40**	ug/m3	0.82	0.40	1.49		10/14/17 16:06	79-01-6	
Trichlorofluoromethane	**1.2J**	ug/m3	1.7	0.62	1.49		10/14/17 16:06	75-69-4	
1,1,2-Trichlorotrifluoroethane	**<0.55**	ug/m3	2.4	0.55	1.49		10/14/17 16:06	76-13-1	
1,2,4-Trimethylbenzene	**3.3**	ug/m3	1.5	0.26	1.49		10/14/17 16:06	95-63-6	
1,3,5-Trimethylbenzene	**0.89J**	ug/m3	1.5	0.61	1.49		10/14/17 16:06	108-67-8	
Vinyl acetate	**<0.23**	ug/m3	1.1	0.23	1.49		10/14/17 16:06	108-05-4	
Vinyl chloride	**<0.19**	ug/m3	0.39	0.19	1.49		10/14/17 16:06	75-01-4	
m&p-Xylene	**8.5**	ug/m3	2.6	0.52	1.49		10/14/17 16:06	179601-23-1	
o-Xylene	**2.9**	ug/m3	1.3	0.55	1.49		10/14/17 16:06	95-47-6	

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QUALITY CONTROL DATA

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

QC Batch: 502562 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10405537001, 10405537002, 10405537003, 10405537004, 10405537005, 10405537006, 10405537007, 10405537008

METHOD BLANK: 2731861 Matrix: Air
Associated Lab Samples: 10405537001, 10405537002, 10405537003, 10405537004, 10405537005, 10405537006, 10405537007, 10405537008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	<0.34	1.1	10/14/17 10:06	
1,1,2,2-Tetrachloroethane	ug/m3	<0.29	0.70	10/14/17 10:06	
1,1,2-Trichloroethane	ug/m3	<0.22	0.55	10/14/17 10:06	
1,1,2-Trichlorotrifluoroethane	ug/m3	<0.37	1.6	10/14/17 10:06	
1,1-Dichloroethane	ug/m3	<0.21	0.82	10/14/17 10:06	
1,1-Dichloroethene	ug/m3	<0.24	0.81	10/14/17 10:06	
1,2,4-Trichlorobenzene	ug/m3	<0.96	3.8	10/14/17 10:06	
1,2,4-Trimethylbenzene	ug/m3	<0.17	1.0	10/14/17 10:06	
1,2-Dibromoethane (EDB)	ug/m3	<0.33	1.6	10/14/17 10:06	
1,2-Dichlorobenzene	ug/m3	<0.33	1.2	10/14/17 10:06	
1,2-Dichloroethane	ug/m3	<0.20	0.41	10/14/17 10:06	
1,2-Dichloropropane	ug/m3	<0.31	0.94	10/14/17 10:06	
1,3,5-Trimethylbenzene	ug/m3	<0.41	1.0	10/14/17 10:06	
1,3-Butadiene	ug/m3	<0.21	0.45	10/14/17 10:06	
1,3-Dichlorobenzene	ug/m3	<0.47	1.2	10/14/17 10:06	
1,4-Dichlorobenzene	ug/m3	<0.21	1.2	10/14/17 10:06	
2-Butanone (MEK)	ug/m3	<0.20	3.0	10/14/17 10:06	
2-Hexanone	ug/m3	<0.61	4.2	10/14/17 10:06	
2-Propanol	ug/m3	<1.2	2.5	10/14/17 10:06	
4-Ethyltoluene	ug/m3	<0.21	1.0	10/14/17 10:06	
4-Methyl-2-pentanone (MIBK)	ug/m3	<0.36	4.2	10/14/17 10:06	
Acetone	ug/m3	<1.5	2.4	10/14/17 10:06	
Benzene	ug/m3	<0.15	0.32	10/14/17 10:06	
Benzyl chloride	ug/m3	<0.24	1.0	10/14/17 10:06	
Bromodichloromethane	ug/m3	<0.36	1.4	10/14/17 10:06	
Bromoform	ug/m3	<0.69	2.1	10/14/17 10:06	
Bromomethane	ug/m3	<0.21	0.79	10/14/17 10:06	
Carbon disulfide	ug/m3	<0.18	0.63	10/14/17 10:06	
Carbon tetrachloride	ug/m3	<0.32	0.64	10/14/17 10:06	
Chlorobenzene	ug/m3	<0.18	0.94	10/14/17 10:06	
Chloroethane	ug/m3	<0.20	0.54	10/14/17 10:06	
Chloroform	ug/m3	<0.23	0.50	10/14/17 10:06	
Chloromethane	ug/m3	<0.13	0.42	10/14/17 10:06	
cis-1,2-Dichloroethene	ug/m3	<0.34	0.81	10/14/17 10:06	
cis-1,3-Dichloropropene	ug/m3	<0.24	0.92	10/14/17 10:06	
Cyclohexane	ug/m3	<0.23	0.70	10/14/17 10:06	
Dibromochloromethane	ug/m3	<0.44	1.7	10/14/17 10:06	
Dichlorodifluoromethane	ug/m3	<0.42	1.0	10/14/17 10:06	
Dichlorotetrafluoroethane	ug/m3	<0.44	1.4	10/14/17 10:06	
Ethanol	ug/m3	<0.46	0.96	10/14/17 10:06	

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QUALITY CONTROL DATA

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

METHOD BLANK: 2731861 Matrix: Air

Associated Lab Samples: 10405537001, 10405537002, 10405537003, 10405537004, 10405537005, 10405537006, 10405537007, 10405537008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethyl acetate	ug/m3	<0.20	0.73	10/14/17 10:06	
Ethylbenzene	ug/m3	<0.17	0.88	10/14/17 10:06	
Hexachloro-1,3-butadiene	ug/m3	<0.87	2.2	10/14/17 10:06	
m&p-Xylene	ug/m3	<0.35	1.8	10/14/17 10:06	
Methyl-tert-butyl ether	ug/m3	<0.67	3.7	10/14/17 10:06	
Methylene Chloride	ug/m3	<1.5	3.5	10/14/17 10:06	
n-Heptane	ug/m3	<0.21	0.83	10/14/17 10:06	
n-Hexane	ug/m3	<0.33	0.72	10/14/17 10:06	
Naphthalene	ug/m3	<0.60	2.7	10/14/17 10:06	
o-Xylene	ug/m3	<0.37	0.88	10/14/17 10:06	
Propylene	ug/m3	<0.16	0.35	10/14/17 10:06	
Styrene	ug/m3	<0.17	0.87	10/14/17 10:06	
Tetrachloroethene	ug/m3	<0.29	0.69	10/14/17 10:06	
Tetrahydrofuran	ug/m3	<0.27	0.60	10/14/17 10:06	
Toluene	ug/m3	<0.16	0.77	10/14/17 10:06	
trans-1,2-Dichloroethene	ug/m3	<0.30	0.81	10/14/17 10:06	
trans-1,3-Dichloropropene	ug/m3	<0.42	0.92	10/14/17 10:06	
Trichloroethene	ug/m3	<0.27	0.55	10/14/17 10:06	
Trichlorofluoromethane	ug/m3	<0.42	1.1	10/14/17 10:06	
Vinyl acetate	ug/m3	<0.16	0.72	10/14/17 10:06	
Vinyl chloride	ug/m3	<0.13	0.26	10/14/17 10:06	

LABORATORY CONTROL SAMPLE: 2731862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	60.9	110	70-134	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	76.8	110	70-130	
1,1,2-Trichloroethane	ug/m3	55.5	62.7	113	70-130	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	73.9	95	70-130	
1,1-Dichloroethane	ug/m3	41.1	44.8	109	70-130	
1,1-Dichloroethene	ug/m3	40.3	44.5	110	70-130	
1,2,4-Trichlorobenzene	ug/m3	75.4	66.9	89	60-150	
1,2,4-Trimethylbenzene	ug/m3	50	54.1	108	70-136	
1,2-Dibromoethane (EDB)	ug/m3	78.1	83.3	107	70-130	
1,2-Dichlorobenzene	ug/m3	61.1	61.4	100	70-139	
1,2-Dichloroethane	ug/m3	41.1	45.9	111	70-130	
1,2-Dichloropropane	ug/m3	47	52.2	111	70-131	
1,3,5-Trimethylbenzene	ug/m3	50	54.2	108	70-133	
1,3-Butadiene	ug/m3	22.5	23.8	106	70-130	
1,3-Dichlorobenzene	ug/m3	61.1	60.9	100	70-144	
1,4-Dichlorobenzene	ug/m3	61.1	60.2	99	70-139	
2-Butanone (MEK)	ug/m3	30	32.1	107	70-130	
2-Hexanone	ug/m3	104	110	105	70-138	

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QUALITY CONTROL DATA

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

LABORATORY CONTROL SAMPLE: 2731862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Propanol	ug/m3	125	128	102	70-130	
4-Ethyltoluene	ug/m3	50	53.9	108	70-135	
4-Methyl-2-pentanone (MIBK)	ug/m3	104	112	108	70-130	
Acetone	ug/m3	121	121	101	64-130	
Benzene	ug/m3	32.5	34.2	105	70-130	
Benzyl chloride	ug/m3	52.6	59.9	114	70-144	
Bromodichloromethane	ug/m3	68.1	77.5	114	70-134	
Bromoform	ug/m3	105	125	119	70-150	
Bromomethane	ug/m3	39.5	40.4	102	70-130	
Carbon disulfide	ug/m3	31.6	34.1	108	70-134	
Carbon tetrachloride	ug/m3	64	72.0	113	68-150	
Chlorobenzene	ug/m3	46.8	49.8	106	70-132	
Chloroethane	ug/m3	26.8	27.9	104	70-132	
Chloroform	ug/m3	49.6	54.8	110	70-130	
Chloromethane	ug/m3	21	21.6	103	70-130	
cis-1,2-Dichloroethene	ug/m3	40.3	43.6	108	70-133	
cis-1,3-Dichloropropene	ug/m3	46.1	49.9	108	70-137	
Cyclohexane	ug/m3	35	36.2	104	70-130	
Dibromochloromethane	ug/m3	86.6	103	119	70-144	
Dichlorodifluoromethane	ug/m3	50.3	51.2	102	70-130	
Dichlorotetrafluoroethane	ug/m3	71	74.9	105	70-130	
Ethanol	ug/m3	91.6	101	111	70-136	
Ethyl acetate	ug/m3	36.6	39.8	109	70-130	
Ethylbenzene	ug/m3	44.1	47.3	107	70-134	
Hexachloro-1,3-butadiene	ug/m3	108	123	113	45-150	
m&p-Xylene	ug/m3	88.3	93.4	106	70-130	
Methyl-tert-butyl ether	ug/m3	91.6	95.2	104	66-148	
Methylene Chloride	ug/m3	177	168	95	67-133	
n-Heptane	ug/m3	41.6	46.4	111	70-130	
n-Hexane	ug/m3	35.8	37.5	105	67-132	
Naphthalene	ug/m3	53.3	45.5	85	53-150	
o-Xylene	ug/m3	44.1	46.3	105	70-130	
Propylene	ug/m3	17.5	16.9	97	70-135	
Styrene	ug/m3	43.3	47.7	110	70-139	
Tetrachloroethene	ug/m3	68.9	76.2	110	70-130	
Tetrahydrofuran	ug/m3	30	32.8	110	70-130	
Toluene	ug/m3	38.3	40.5	106	70-130	
trans-1,2-Dichloroethene	ug/m3	40.3	43.6	108	70-131	
trans-1,3-Dichloropropene	ug/m3	46.1	50.3	109	70-142	
Trichloroethene	ug/m3	54.6	59.7	109	70-130	
Trichlorofluoromethane	ug/m3	57.1	61.4	108	70-130	
Vinyl acetate	ug/m3	35.8	37.7	105	70-137	
Vinyl chloride	ug/m3	26	26.2	101	70-130	

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QUALITY CONTROL DATA

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

SAMPLE DUPLICATE: 2732068

Parameter	Units	10405537005 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	<0.49	<0.49		25	
1,1,2,2-Tetrachloroethane	ug/m3	<0.42	<0.42		25	
1,1,2-Trichloroethane	ug/m3	<0.32	<0.32		25	
1,1,2-Trichlorotrifluoroethane	ug/m3	<0.53	<0.53		25	
1,1-Dichloroethane	ug/m3	<0.31	<0.31		25	
1,1-Dichloroethene	ug/m3	<0.34	<0.34		25	
1,2,4-Trichlorobenzene	ug/m3	<1.4	<1.4		25	
1,2,4-Trimethylbenzene	ug/m3	4.2	4.4	3	25	
1,2-Dibromoethane (EDB)	ug/m3	<0.48	<0.48		25	
1,2-Dichlorobenzene	ug/m3	<0.47	<0.47		25	
1,2-Dichloroethane	ug/m3	<0.29	<0.29		25	
1,2-Dichloropropane	ug/m3	<0.44	<0.44		25	
1,3,5-Trimethylbenzene	ug/m3	1.1J	1.1J		25	
1,3-Butadiene	ug/m3	<0.30	<0.30		25	
1,3-Dichlorobenzene	ug/m3	<0.67	<0.67		25	
1,4-Dichlorobenzene	ug/m3	<0.30	<0.30		25	
2-Butanone (MEK)	ug/m3	5.1	5.1	0	25	
2-Hexanone	ug/m3	<0.88	<0.88		25	
2-Propanol	ug/m3	<1.8	<1.8		25	
4-Ethyltoluene	ug/m3	1.2J	1.6		25	
4-Methyl-2-pentanone (MIBK)	ug/m3	3.0J	3.0J		25	
Acetone	ug/m3	12.3	12.4	1	25	
Benzene	ug/m3	1.2	1.2	0	25	
Benzyl chloride	ug/m3	<0.34	<0.34		25	
Bromodichloromethane	ug/m3	<0.51	<0.51		25	
Bromoform	ug/m3	<1.0	<1.0		25	
Bromomethane	ug/m3	<0.30	<0.30		25	
Carbon disulfide	ug/m3	<0.26	<0.26		25	
Carbon tetrachloride	ug/m3	<0.46	<0.46		25	
Chlorobenzene	ug/m3	<0.26	<0.26		25	
Chloroethane	ug/m3	<0.29	<0.29		25	
Chloroform	ug/m3	0.45J	0.45J		25	
Chloromethane	ug/m3	0.73	0.72	1	25	
cis-1,2-Dichloroethene	ug/m3	<0.49	<0.49		25	
cis-1,3-Dichloropropene	ug/m3	<0.35	<0.35		25	
Cyclohexane	ug/m3	1.9	1.9	2	25	
Dibromochloromethane	ug/m3	<0.64	<0.64		25	
Dichlorodifluoromethane	ug/m3	2.0	1.7	12	25	
Dichlorotetrafluoroethane	ug/m3	<0.64	<0.64		25	
Ethanol	ug/m3	14.0	14.0	0	25	
Ethyl acetate	ug/m3	<0.28	<0.28		25	
Ethylbenzene	ug/m3	3.4	3.5	3	25	
Hexachloro-1,3-butadiene	ug/m3	<1.3	<1.3		25	
m&p-Xylene	ug/m3	12.5	12.9	3	25	
Methyl-tert-butyl ether	ug/m3	<0.96	<0.96		25	
Methylene Chloride	ug/m3	3.0J	3.0J		25	
n-Heptane	ug/m3	2.3	2.3	1	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

SAMPLE DUPLICATE: 2732068

Parameter	Units	10405537005 Result	Dup Result	RPD	Max RPD	Qualifiers
n-Hexane	ug/m3	2.2	2.2	1	25	
Naphthalene	ug/m3	1.4J	1.3J		25	
o-Xylene	ug/m3	4.3	4.4	3	25	
Propylene	ug/m3	1.1	1.1	1	25	
Styrene	ug/m3	1.2J	1.2J		25	
Tetrachloroethene	ug/m3	<0.41	<0.41		25	
Tetrahydrofuran	ug/m3	2.5	2.6	3	25	
Toluene	ug/m3	32.4	32.3	0	25	
trans-1,2-Dichloroethene	ug/m3	<0.42	<0.42		25	
trans-1,3-Dichloropropene	ug/m3	<0.60	<0.60		25	
Trichloroethene	ug/m3	<0.39	<0.39		25	
Trichlorofluoromethane	ug/m3	1.2J	1.3J		25	
Vinyl acetate	ug/m3	0.81J	0.80J		25	
Vinyl chloride	ug/m3	<0.18	<0.18		25	

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QUALIFIERS

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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 at or above the adjusted LOD.

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.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

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1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 15227 Cudahy Connection
Pace Project No.: 10405537

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10405537001	**HPV-1**	TO-15	502562		
10405537002	**HPV-2**	TO-15	502562		
10405537003	**HPV-3**	TO-15	502562		
10405537004	**HPV-4**	TO-15	502562		
10405537005	**SVP-1**	TO-15	502562		
10405537006	**SVP-2**	TO-15	502562		
10405537007	**SVP-3**	TO-15	502562		
10405537008	**SVP-4**	TO-15	502562		

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10405537

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www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

28309

Page: 1 of 1

Section A Required Client Information:

Company: The Sigma Group, Inc.
Address: 1300 W. Canal ST. Milwaukee, WI 53233
Email To: Cory Katzban
Phone: 414/643/4200 Fax: 414-643-4210
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: Cory Katzban
Copy To: Adam Roder
Purchase Order No.:
Project Name: Cudahy Connection
Project Number: 15227

Section C Invoice Information:

Attention: Adam Roder
Company Name: The Sigma Group, Inc
Address: 1300 W. Canal St, Milwaukee, WI 53233
Pace Quote Reference:
Pace Project Manager/Sales Rep. Megan McCabe
Pace Profile #: 33819

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☒ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other

Location of Sampling by State: WI

Reporting Units: ug/m³ ☒ mg/m³ ___ PPBV ___ PPMV ___ Other ___

Report Level II.___ III.☒ IV.___ Other ___

Valid Media Codes: MEDIA / CODE — Tedlar Bag TB; 1 Liter Summa Can 1LC; 6 Liter Summa Can 6LC; Low Volume Puff LVP; High Volume Puff HVP; Other PM10

ITEM #	'Section D Required Client Information AIR SAMPLE ID (Sample IDs MUST BE UNIQUE)	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	TIME	COMPOSITE - DATE	TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	HPV-1	6LC	0.4	9/27/17	10:30a	9/27	11:53a	-30	-3	0541	1343							X			001
2	HPV-2	6LC	0.2	↓	2:38p	9/27	5:50p	-28	-4	0171	1299							X			002
3	HPV-3	6LC	0.0	9/28/17	9:18	9/28	10:39a	-30	-3	0783	1474							X			003
4	HPV-4	6LC	0.0		11am	9/28	12:21	-30	-3	1585	1466							X			004
5	SVP-1	6LC	0.0		8:36a	9/28	9:56a	-30	-3.5	1714	1315							X			005
6	SVP-2	6LC	0.1		8:33a	9/28	9:42a	-29	-3	1526	1493							X			006
7	SVP-3	6LC	0.0		8:25a	9/28	9:32a	-28	-4	0663	1478							X			007
8	SVP-4	6LC	0.0	↓	8:22a	9/28	9:28	-28	-3	0331	1489							X			008
9																					
10																					
11																					
12																					

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Cory Katzban / Sigma	9/28/17	1:00pm	[illegible]	10-2-17	1100

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
—	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: Cory Katzban

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY) 09/28/17

ORIGINAL

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 30Aug2017 Page 1 of 1
	Document No.: F-MN-A-106-rev.12	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: The Sigma Group

Project #: WO#: 10405537

10405537

Courier: ☑ Fed Ex ☐ UPS ☐ Speedee ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 7476 3002 0215/0226

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Tin Can ☐ Other: **Temp Blank rec:** ☐ Yes ☑ No

Temp. (TO17 and TO13 samples only) (°C): X **Corrected Temp (°C):** X **Thermom. Used:** ☐ 151401163 ☐ G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** X **Date & Initials of Person Examining Contents:** 10-2-17 AA

Type of ice Received ☐ Blue ☐ Wet ☑ None

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Media: (Air Can) Airbag Filter TDT Passive				11. Individually Certified Cans Y (N) (list which samples)
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.

Samples Received:

Canisters			Canisters		
Sample Number	Can ID	Flow Controller ID	Sample Number	Can ID	Flow Controller ID

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Megan McCabe **Date:** 10/3/17

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)