

July 16, 2013



Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin 53212

Attn: Ms. Margaret Brunette
P: [414] 263-8557
F: [414] 263-8550
E: margaret.brunette@wisconsin.gov

Re: **Ambient Air Sampling-March 2013**
Clare Central Apartment Complexes
1003 and 1033 Atkinson Avenue
Milwaukee, Wisconsin
Terracon Project No. 58107058
WDNR BRRTS No. 02-41-549867

Dear Ms. Brunette:

At your request, Terracon Consultants, Inc. (Terracon) prepared this letter to summarize the ambient air sampling performed on March 28, 2013 at the above-referenced property. The ambient air sampling was performed to evaluate the effectiveness of the modifications made to the sub-slab depressurization system (SSDS) as documented in Terracon's March 1, 2013 *Site Investigation and Interim Action Report*. A brief project background, and the procedures and results of the March 2013 ambient air sampling are provided in the following sections.

Background

On January 30, 2012, Terracon collected ambient air samples in the storage room areas of the 1003 and 1033 Atkinson Avenue apartment buildings, adjacent to sub-slab vapor monitoring points SS-1 and SS-2, respectively, to evaluate the effectiveness of the SSDS installed in each apartment complex. The ambient air samples (Ambient 1003 Atkinson and Ambient 1033 Atkinson) were collected using 6-liter evacuated Summa canisters obtained from Pace. The Summa canister's regulator and restrictor were calibrated to draw the vapor samples over a 24-hour period. The vapor samples collected within the Summa canisters were submitted to Pace for volatile organic compound (VOC) laboratory analysis by US EPA Method TO-15.

Chloroform, 1,4-Dichlorobenzene and trichloroethene (TCE) were detected at concentrations above their respective residential vapor action limits (VALs) in the 1033 Atkinson complex, and benzene, chloroform and 1,4-Dichlorobenzene were detected at concentrations above their VALs in the 1003 West Atkinson complex. Therefore, on March 28, 2012, Terracon retained Radon Abatement (RA) to perform additional sub-slab communication testing to evaluate SSDS influence. Holes were drilled through the concrete floor, and a micro manometer was utilized to collect vacuum data through the penetrations. It was concluded through the vacuum data that

Responsive ■ Resourceful ■ Reliable

Vapor Intrusion Assessment

Clare Central ■ Milwaukee, Wisconsin

July 16, 2013 ■ Terracon Project No. 58107058



the SSDS's radius of influence was not reaching certain areas beneath the entire building slabs, and that there were likely building footings that were disturbing the sub slab depressurization.

On Oct 22, 2012, RA was again contracted to create larger drop pits and replace the SSDS suction fans with higher powered fans in an attempt get better depressurization communication in the sub slab. RA found during their enlargement of the drop pits that a concrete footing existed in the 1033 Atkinson complex slab nearly adjacent to the drop pits. As such, RA found a building diagram of the apartments showing the footing system at the City of Milwaukee building inspector's office, and on December 3, 2012, RA returned to the site to bore through the concrete footings in an attempt to open depressurization communication to the entire sub slab.

Ambient Air Sampling

On March 28, 2013 ambient air samples were collected in the locations of prior ambient air sampling locations at the site, near sub-slab vapor monitoring point SS-1 (1003 Atkinson Avenue) and SS-2 (1033 Atkinson Avenue).

The ambient air samples (Ambient 1003 Atkinson and Ambient 1033 Atkinson) were collected using 6-liter evacuated Summa canisters obtained from Pace. The Summa canister's regulator and restrictor were calibrated to draw the vapor samples over a 24-hour period. The vapor samples collected within the Summa canisters were submitted to Pace for VOC laboratory analysis by US EPA Method TO-15.

TCE was detected above its residential VAL in the ambient air sample collected from the 1003 Atkinson Avenue complex. Chloroform, 1,4-dichloroethane and naphthalene were detected above their respective residential VALs from the sample collected from the 1033 Atkinson Avenue complex. The ambient air sampling locations are presented on the attached figure. Photodocumentation of the sampling locations is attached. The laboratory analytical results for the 1003 and 1033 complexes are tabulated on the attached Tables 1 and 2, respectively. The laboratory analytical reports and associated chain of custody documentation for the March 28, 2013 events are also attached.

Path Forward

It is unknown what caused the trichloroethylene concentration increase in the ambient air sample collected from the 1003 Atkinson complex; however, it may be related to temporal variations including precipitation and temperature.

The proposed remedial action to address the vapor intrusion concern is to excavate soils on the exterior of each complex, and extend extraction points horizontally beneath the complexes. The horizontal drops will be manifolded into a central location. It still must be stated that the source

Vapor Intrusion Assessment

Clare Central ■ Milwaukee, Wisconsin
July 16, 2013 ■ Terracon Project No. 58107058



soils which contain the highest TCE concentrations adjacent to the buildings may also need shallow excavation and ventilation to prevent any new or continual migration of vapors toward and under the buildings.

If you have any questions or comments regarding this summary, please contact us at (414) 423-0255.

Sincerely,



A handwritten signature in black ink, appearing to read 'Paul A. Lenaker'.

Paul A. Lenaker
Senior Staff Geologist

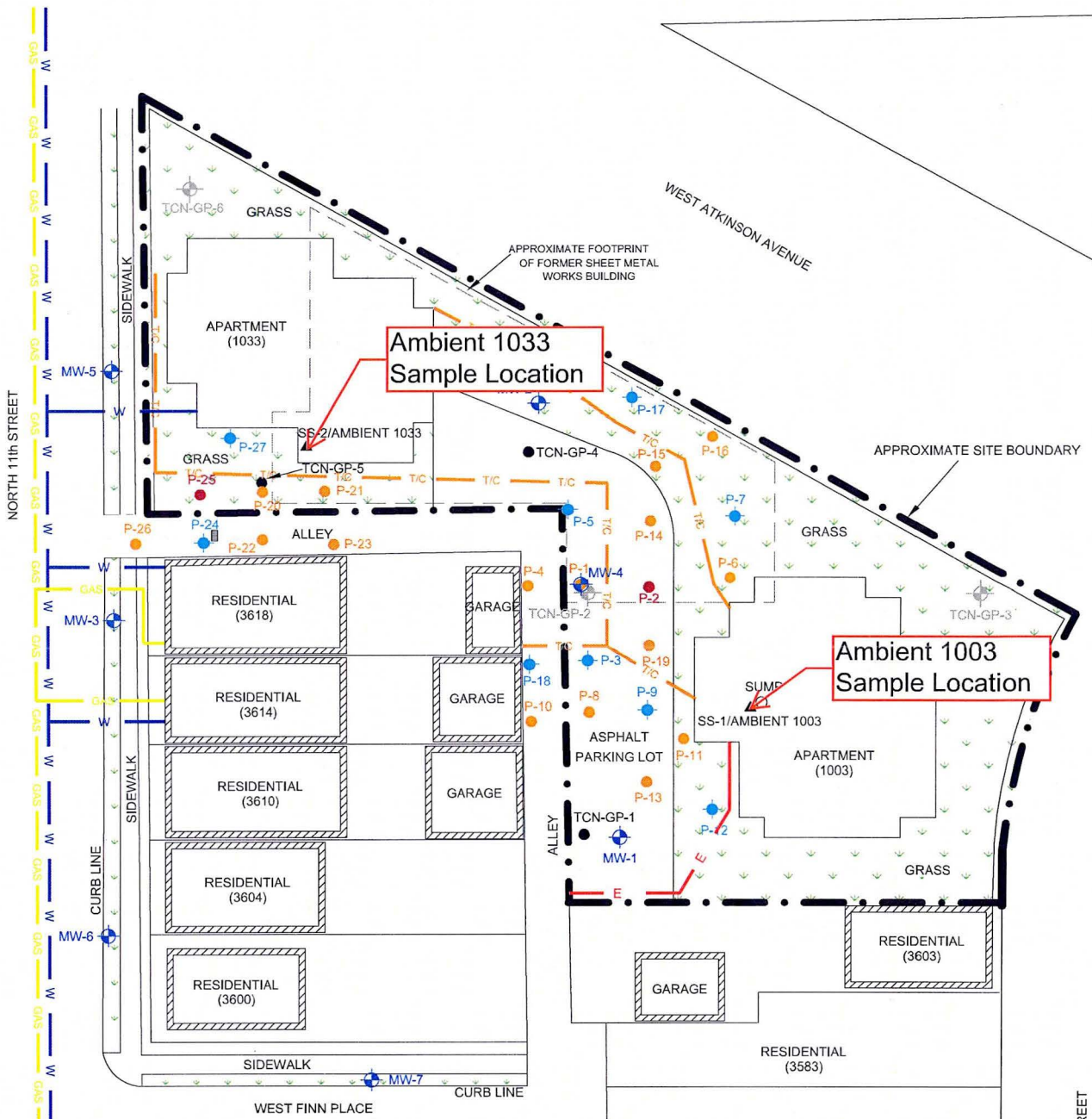
A handwritten signature in black ink, appearing to read 'Timothy P. Welch'.

Timothy P. Welch, P. G.
Senior Project Manager

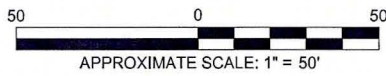
Attachments: Figure 2
Tables 1 and 2
Photodocumentation
Laboratory Analytical Reports

PAL/TPW:/pal/N:\Projects\2010\58107058\Correspondence\ Ambient Air Sampling-March 2013.Clare Central.docx

Copy to: Ms. Margie Kidder- St. Clare Management (Electronic)
Mr. Don Gallo-Reinhart Boerner, S.C. (Electronic)



LEGEND	
	SOIL & GROUNDWATER PROBE LOCATION (TERRACON LSI, AUGUST 16, 2006)
	SOIL PROBE LOCATION (TERRACON LSI, AUGUST 16, 2006)
	GROUNDWATER MONITORING WELL
	GEOPROBE BORING TO 20 FEET BGS
	GEOPROBE BORING TO 20 FEET BGS WITH TEMPORARY WELL
	GEOPROBE BORING TO 35 FEET BGS
	SUB SLAB VAPOR MONITORING POINT / AMBIENT AIR MONITORING POINT (2/11/11 AND 1/30/12)
	ELECTRIC (WE ENERGIES)
	WATER LINE
	COMMUNICATION (AT & T)
	GAS LINE



Project Mgr:	PAL	Project No.	58107058
Drawn By:	AGC	Scale:	AS SHOWN
Checked By:	PAL	File No.	58107058 BL
Approved By:	TWP	Date:	2/3/12

Terracon
 Consulting Engineers and Scientists
 9856 SOUTH 57th STREET FRANKLIN, WI 53132
 PH. (414) 423-0255 FAX. (414) 423-0566

SITE DIAGRAM

CLARE CENTRAL
 1003 AND 1033 WEST ATKINSON AVENUE

WISCONSIN

FIGURE	2
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Table 1
Air Analytical Test Results Summary for Volatile Organic Compounds (Detected Compounds Only)

Clare Central
1003 West Atkinson Avenue
Milwaukee, Wisconsin
Terracon Project No. 58107058

Sample ID	Sample Type	Sample Depth (in.)	Sample Date	Sampling Method	Acetone	Benzene	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroform	Chloroethane	Cyclohexane	Dibromochloromethane	1,2-Dibromoethane (EDB)	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1,1-Trichloroethane	
SS-1 (1003 West Atkinson)	Sub-slab	6	2/11/2011	6-Liter Summa Canister with 24-hour grab sample	65.8	2.3	4.7	5.5	<2.2	<1.6	<1.6	<0.70	3.2	3.9	3.3	5.4	270	4.9	
Ambient 1003	Ambient air	surface	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	32	3.4	8.2	<0.39	<0.96	<0.90	<0.74	<1.3	1.8	<1.4	<1.4	4.1	46	<0.42	
Subslab 1003	Sub-slab	6	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	<60	<3.3	<11	<1.8	<4.3	<4.1	<3.4	<6.0	<2.5	<6.5	<6.1	<7.0	570	7.2	
Ambient 1003	Ambient air	surface	1/30/2012	6-Liter Summa Canister with 24-hour grab sample	37.0	1.6	1.9	0.2	0.66	<0.049	2.3	2.2	3.5	<1.7	<1.5	89	14	<0.81	
Ambient 1003	Ambient air	surface	3/28/2013	6-Liter Summa Canister with 24-hour grab sample	22.5	<3.4	<6.2	<6.5	<6.6	<9.8	<10.3	<4.4	<7.3	<18.0	<16.2	<12.7	43.5	<8.5	
Vapor Screening Levels - Residential ¹					µg/m ³	320,000	31	62,000	7,300	41	620	11	940	10,000	9	0.41	22	1,000	150
Vapor Action Level ²					µg/m ³	32,000	3.1	6,200	730	4.1	62	1.1	94	1,000	0.9	0.041	2.2	100	16

Notes:

All concentrations are in micrograms per cubic meter (µg/m³)

* < * Indicates not detected above listed Method Detection Limit (MDL)

"NE" Indicates EPA screening level not established

"E" Indicates an estimated result; result concentration exceeds the calibration range

¹ Screening value is the Vapor Action Level adjusted for sub-slab and soil-gas vapor to residential indoor air by applying an attenuation factor of 10 for comparison with the analytical results.

² Vapor Action Level for residential indoor air given as the lesser of 1:100,000 lifetime cancer risk or noncancer hazard index of 1 value in generic U.S. EPA Tables at the web address: http://www.epa.gov/reg3hwmd/risk/human/vb-concentration_table/Generic_Tables/index.htm and modified for Wisconsin Vapor Intrusion Guidance PUB-RR-800 lifetime cancer risk (1:100,000) (May 2013)

BOLD TYPE = Values indicate EPA residential Vapor Action Level or Vapor Screening Level Exceedences

Sub-Slab Depressurization System operational on May 10, 2011

Table 1
Air Analytical Test Results Summary for Volatile Organic Compounds (Detected Compounds Only)

Clare Central
1003 West Atkinson Avenue
Milwaukee, Wisconsin
Terracon Project No. 58107058

Sample ID	Sample Type	Sample Depth (ft.)	Sample Date	Sampling Method	1,2-Dichloroethane	1,1-Dichloroethane	cis-1,2-Dichloroethane	trans-1,2-Dichloroethane	Ethanol	Ethylbenzene	4-Ethyltoluene	Ethyl Acetate	n-Heptane	n-Hexane	Methylene Chloride	2-Propanol (Isopropyl alcohol)	Styrene	Tetrachloroethane
SS-1 (1003 West Atkinson)	Sub-slab	6	2/11/2011	6-Liter Summa Canister with 24-hour grab sample	2.1	8.8	47.7	2.8	778	3.6	<4.2	<1.2	4.7	4.9	4.5	45.2	<1.4	3.1
Ambient 1003	Ambient air	surface	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	1.2	<0.51	3.6	<0.79	890	1.8	<1.3	<2.9	2.3	4.8	32	83	<0.99	2.3
Subslab 1003	Sub-slab	6	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	<3.5	5.2	56	<3.6	540	<5.4	<5.9	<13	<3.5	<2.1	15	40.0	<4.5	<4.9
Ambient 1003	Ambient air	surface	1/30/2012	6-Liter Summa Canister with 24-hour grab sample	0.52	<0.79	1.8	<0.79	1500E	0.52	0.36	3.3	34	1.7	24	79	0.33	1.2
Ambient 1003	Ambient air	surface	3/28/2013	6-Liter Summa Canister with 24-hour grab sample	<4.3	<8.4	37.9	<8.4	1010	<9.1	<10.4	<7.6	<8.6	18.3	116	27	<9.0	<7.2
Vapor Screening Levels - Residential ¹					µg/m ³	9.4	2,100	NE	830	NE	97	NE	NE	7,300	6,300	NE	10,000	420
Vapor Action Level ²					µg/m ³	0.94	210	NE	83	NE	9.7	NE	NE	730	630	NE	1,000	42

Notes:

All concentrations are in micrograms per cubic meter (µg/m³)

"<" Indicates not detected above listed Method Detection Limit (MDL)

"NE" Indicates EPA screening level not established

"E" Indicates an estimated result; result concentration exceeds the calibration range

¹ Screening value is the Vapor Action Level adjusted for sub-slab and soil-gas vapor to residential indoor air by applying an attenuation factor of 10 for comparison with the analytical results.

² Vapor Action Level for residential indoor air given as the lesser of 1:100,000 lifetime cancer risk or noncancer hazard index of 1 value in generic U.S. EPA Tables at the web address: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm and modified for Wisconsin Vapor Intrusion Guidance PUB-RR-800 lifetime cancer risk (1:100,000) (May 2013)

BOLD TYPE = Values indicate EPA residential Vapor Action Level or Vapor Screening Level E
Sub-Slab Depressurization System operational on May 10, 2011

Table 1
Air Analytical Test Results Summary for Volatile Organic Compounds (Detected Compounds Only)

Clare Central
1003 West Atkinson Avenue
Milwaukee, Wisconsin
Terracon Project No. 58107058

Sample ID	Sample Type	Sample Depth (in.)	Sample Date	Sampling Method	Tetrahydrofuran	Toluene	1,1,1-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	m,p-Xylene	o-xylene	
SS-1 (1003 West Atkinson)	Sub-slab	6	2/11/2011	6-Liter Summa Canister with 24-hour grab sample	6.6	36.2	20.2	5,130	84.4	<2.7	6.0	3.9	9.0	4.1	
Ambient 1003	Ambient air	surface	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	<0.74	36	2.1	80	43	<0.95	5.1	<1.3	5.0	1.8	
Subslab 1003	Sub-slab	6	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	<3.4	6.6	62	2,500	86	<4.3	<5.6	<5.8	<9.5	<4.8	
Ambient 1003	Ambient air	surface	1/30/2012	6-Liter Summa Canister with 24-hour grab sample	<2.9	3.5	0.52	29	6.7	0.63	0.48	<0.98	0.87	0.47	
Ambient 1003	Ambient air	surface	3/28/2013	6-Liter Summa Canister with 24-hour grab sample	<6.2	<8.0	12	841	<11.8	<16.6	<10.4	<10.4	<18.3	<9.1	
Vapor Screening Levels - Residential ¹					µg/m ³	NE	52,000	52,000	21.0	7,300	310,000	73	NE	1,000	1,000
Vapor Action Level ²					µg/m ³	NE	5,200	5,200	2.1	730	31,000	7.3	NE	100	100

Notes:

All concentrations are in micrograms per cubic meter (µg/m³)

* < * Indicates not detected above listed Method Detection Limit (MDL)

"NE" Indicates EPA screening level not established

"E" Indicates an estimated result; result concentration exceeds the calibration range

¹ Screening value is the Vapor Action Level adjusted for sub-slab and soil-gas vapor to residential indoor air by applying an attenuation factor of 10 for comparison with the analytical results.

² Vapor Action Level for residential indoor air given as the lesser of 1:100,000 lifetime cancer risk or noncancer hazard index of 1 value in generic U.S. EPA Tables at the web address: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm and modified for Wisconsin Vapor Intrusion Guidance PUB-RR-600 lifetime cancer risk (1:100,000) (May 2013)

BOLD TYPE = Values indicate EPA residential Vapor Action Level or Vapor Screening Level. Ex Sub-Slab Depressurization System operational on May 10, 2011

Table 2
Air Analytical Test Results Summary for Volatile Organic Compounds (Detected Compounds Only)

Clare Central
1033 West Atkinson Avenue
Milwaukee, Wisconsin
Terracon Project No. 58107058

Sample ID	Sample Type	Sample Depth (In.)	Sample Date	Sampling Method	Acetone	Benzene	2-Butanone (MEK)	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroform	Chloromethane	Cyclohexane	Dibromochloromethane	1,2-Dibromoethane (EDB)	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	1,1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloro-1,1,2,2-tetrafluoroethane	Ethanol	Ethylbenzene
SS-2 (1033 West Atkinson)	Sub-slab	6	2/11/2011	6-Liter Summa Canister with 24-hour grab sample	482	<23.4	<21.6	32.8	ND	109	<35.6	<15.1	<24.5	<61.2	<57.6	<43.2	762,000	<29.5	<29.5	<29.2	<29.2	<29.2	<50.4	279	331
Ambient 1033	Ambient air	surface	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	44.0	2.7	2.5	<0.39	ND	<0.90	<0.74	<1.3	<0.55	<1.4	<1.4	<1.5	37	<0.42	2.7	<0.51	<0.95	<0.79	<0.89	1,100	2.0
Subslab 1033	Sub-slab	6	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	360	<14	<45	<7.4	<18	20	<14	<25	<11	<28	<26	<30	26,000E	<8.1	<15	<9.8	<18	<15	<17	360	52
Ambient 1033	Ambient air	surface	1/30/2012	6-Liter Summa Canister with 24-hour grab sample	130	6.7	2.9	0.12	0.46	<0.92	3.0	6.8	0.32	<1.7	<1.5	6.8	7.2	<0.81	0.82	<0.79	<0.79	<0.79	1.8	2,700	1.2
Ambient 1033	Ambient air	surface	3/28/2013	6-Liter Summa Canister with 24-hour grab sample	64.9	2.8	5.2	<1.3	<1.3	<1.9	2.6	<0.84	<1.4	<3.5	<3.1	5	3.9	<1.6	<0.82	<1.6	<1.6	<1.6	<2.8	1,550	<1.8
Vapor Screening Levels - Residential ¹					320,000	31	52,000	7,300	41	520	11	940	10,000	9	0.41	22	1,000	150	9.4	2,100	NE	830	NE	NE	97
Vapor Action Level ²					32,000	3.1	5,200	730	4.1	52	1.1	94	1,000	0.9	0.041	2.2	100	15	0.94	210	NE	83	NE	NE	9.7

Notes:
 All concentrations are in micrograms per cubic meter (µg/m³)
 * < * Indicates not detected above Listed Method Detection Limit (MDL)
 NE Indicates EPA screening level not established
 E Indicates an estimated result; result concentration exceeds the calibration range
¹ Screening value is the Vapor Action Level adjusted for sub-slab and soil-gas vapor to residential indoor air by applying an attenuation factor of 10 for comparison with the analytical results.
² Vapor Action Level for residential indoor air given as the lesser of 1:100,000 lifetime cancer risk or noncancer hazard index of 1 value in generic U.S. EPA Tables at the web address: http://www.epa.gov/ing3hwm/risk/human/vbs-concentration_Table/Generic_Tables/index.htm and modified for Wisconsin Vapor Intrusion Guidance PUB-RR-800 lifetime cancer risk (1:100,000) (May 2013)
BOLD TYPE = Values indicate EPA Residential Vapor Action Level or Vapor Screening Level Exceedences
 Sub-Slab Depressurization System operational on May 10, 2011

Table 2
Air Analytical Test Results Summary for Volatile Organic Compounds (Detected Compounds Only)
Clare Central

1033 West Atkinson Avenue
Milwaukee, Wisconsin
Terracon Project No. 58107058

Sample ID	Sample Type	Sample Depth (in.)	Sample Date	Sampling Method	4-Ethyltoluene	Ethyl acetate	n-Heptane	n-Hexane	Methylene Chloride	Naphthalene	2-Propanol (Isopropyl alcohol)	Propene/Propylene	Styrene	Tetrachloroethene	Tetrahydrofuran	Toluene	1,1,1-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,1,2-Trichloro-1,2,2-trifluoroethane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	m&p-Xylene	o-xylene	
SS-2 (1033 West Atkinson)	Sub-slab	6	2/11/2011	6-Liter Summa Canister with 24-hour grab sample	<90.0	<26.3	<29.9	<25.9	<25.6	<97.2	<90.0	<12.6	398	<50.4	<21.6	82.8	42.7	89.8	<39.6	<50.4	78.8	49.3	<63.4	42.1	
Ambient 1033	Ambient air	surface	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	<1.3	<2.9	0.85	1.1	2.5	<1.9	130	<0.50	<0.99	<1.1	<0.74	57	0.82	3.1	130	<0.89	5.5	1.3	5.1	1.1	
Subslab 1033	Sub-slab	6	3/17/2011	6-Liter Summa Canister with 24-hour grab sample	<25	<56	<15	<8.7	53	<36	93.0	<9.6	74	<21	<14	28	<13	44	240	<17	<24	<25	<40	<20	
Ambient 1033	Ambient air	surface	1/30/2012	6-Liter Summa Canister with 24-hour grab sample	0.6	4.3	0.7	1.4	3.4	0.61	2,500	19.0	1.3	<1.4	<2.9	8.7	0.73	<1.1	14	0.47	1.9	0.4	3.5	0.96	
Ambient 1033	Ambient air	surface	3/28/2013	6-Liter Summa Canister with 24-hour grab sample	<2.0	19.4	<1.7	2.2	21	7.7	60	<0.70	<1.7	4.7	<1.2	6.8	<2.2	<1.1	7.2	<3.2	3.3	<2.0	4.2	<1.8	
Vapor Screening Levels - Residential ¹					ug/m ³	NE	NE	NE	7,300	6,300	7.2	NE	NE	10,000	420	NE	52,000	52,000	21.0	7,300	310,000	73	NE	1,000	1,000
Vapor Action Level ²					ug/m ³	NE	NE	NE	730	630	0.72	NE	NE	1,000	42	NE	5,200	5,200	2.1	730	31,000	7.3	NE	100	100

Notes:
 All concentrations are in micrograms per cubic meter (ug/m³)
 * < * Indicates not detected above listed Method Detection Limit (MDL)
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² Vapor Action Level for residential indoor air given as the lesser of 1:100,000 lifetime cancer risk or noncancer hazard index of 1 value in generic U.S EPA Tables at the web address: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm and modified for Wisconsin Vapor Intrusion Guidance PUB-RR-800 lifetime cancer risk (1:100,000) (May 2013)
BOLD TYPE = Values indicate EPA Residential Vapor Action Level or Vapor Screening Level
 Sub-Slab Depressurization System operational on May 10, 2011



1) View of ambient air sample collection near sub-slab vapor monitoring point SS-1.



2) View of ambient air sample collection near sub-slab vapor monitoring point SS-2.



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

April 09, 2013

Tim Welch
Terracon WI
9856 S. 57th. St.
Franklin, WI 53132

RE: Project: 58107058 Clare Central
Pace Project No.: 10224199

Dear Tim Welch:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2013. 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,

Carolynne Trout

carolynne.trout@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



CERTIFICATIONS

Project: 58107058 Clare Central
Pace Project No.: 10224199

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
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
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

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SAMPLE SUMMARY

Project: 58107058 Clare Central
Pace Project No.: 10224199

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10224199001	1003 Ambient	Air	03/28/13 08:30	04/02/13 10:04
10224199002	1033 Ambient	Air	03/28/13 08:45	04/02/13 10:04

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

SAMPLE ANALYTE COUNT

Project: 58107058 Clare Central
Pace Project No.: 10224199

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10224199001	1003 Ambient	TO-15	CJR	61
10224199002	1033 Ambient	TO-15	CJR	61

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 58107058 Clare Central
 Pace Project No.: 10224199

Sample: 1003 Ambient Lab ID: 10224199001 Collected: 03/28/13 08:30 Received: 04/02/13 10:04 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	22.5	ug/m3	5.0	10.39		04/09/13 12:26	67-64-1	
Benzene	ND	ug/m3	3.4	10.39		04/09/13 12:26	71-43-2	
Benzyl chloride	ND	ug/m3	10.9	10.39		04/09/13 12:26	100-44-7	
Bromodichloromethane	ND	ug/m3	14.1	10.39		04/09/13 12:26	75-27-4	
Bromoform	ND	ug/m3	21.8	10.39		04/09/13 12:26	75-25-2	
Bromomethane	ND	ug/m3	8.2	10.39		04/09/13 12:26	74-83-9	
1,3-Butadiene	ND	ug/m3	4.7	10.39		04/09/13 12:26	106-99-0	
2-Butanone (MEK)	ND	ug/m3	6.2	10.39		04/09/13 12:26	78-93-3	
Carbon disulfide	ND	ug/m3	6.5	10.39		04/09/13 12:26	75-15-0	
Carbon tetrachloride	ND	ug/m3	6.6	10.39		04/09/13 12:26	56-23-5	
Chlorobenzene	ND	ug/m3	9.8	10.39		04/09/13 12:26	108-90-7	
Chloroethane	ND	ug/m3	5.6	10.39		04/09/13 12:26	75-00-3	
Chloroform	ND	ug/m3	10.3	10.39		04/09/13 12:26	67-66-3	
Chloromethane	ND	ug/m3	4.4	10.39		04/09/13 12:26	74-87-3	
Cyclohexane	ND	ug/m3	7.3	10.39		04/09/13 12:26	110-82-7	
Dibromochloromethane	ND	ug/m3	18.0	10.39		04/09/13 12:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	16.2	10.39		04/09/13 12:26	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	12.7	10.39		04/09/13 12:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	12.7	10.39		04/09/13 12:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	12.7	10.39		04/09/13 12:26	106-46-7	
Dichlorodifluoromethane	43.5	ug/m3	10.5	10.39		04/09/13 12:26	75-71-8	
1,1-Dichloroethane	ND	ug/m3	8.5	10.39		04/09/13 12:26	75-34-3	
1,2-Dichloroethane	ND	ug/m3	4.3	10.39		04/09/13 12:26	107-06-2	
1,1-Dichloroethene	ND	ug/m3	8.4	10.39		04/09/13 12:26	75-35-4	
cis-1,2-Dichloroethene	37.9	ug/m3	8.4	10.39		04/09/13 12:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	8.4	10.39		04/09/13 12:26	156-60-5	
1,2-Dichloropropane	ND	ug/m3	9.8	10.39		04/09/13 12:26	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	9.6	10.39		04/09/13 12:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	9.6	10.39		04/09/13 12:26	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	14.8	10.39		04/09/13 12:26	76-14-2	
Ethanol	1010	ug/m3	3.9	10.39		04/09/13 12:26	64-17-5	E
Ethyl acetate	ND	ug/m3	7.6	10.39		04/09/13 12:26	141-78-6	
Ethylbenzene	ND	ug/m3	9.1	10.39		04/09/13 12:26	100-41-4	
4-Ethyltoluene	ND	ug/m3	10.4	10.39		04/09/13 12:26	622-96-8	
n-Heptane	ND	ug/m3	8.6	10.39		04/09/13 12:26	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	22.9	10.39		04/09/13 12:26	87-68-3	
n-Hexane	18.3	ug/m3	7.5	10.39		04/09/13 12:26	110-54-3	
2-Hexanone	ND	ug/m3	8.6	10.39		04/09/13 12:26	591-78-6	
Methylene Chloride	116	ug/m3	7.4	10.39		04/09/13 12:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/m3	8.6	10.39		04/09/13 12:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	7.6	10.39		04/09/13 12:26	1634-04-4	
Naphthalene	ND	ug/m3	11.1	10.39		04/09/13 12:26	91-20-3	
2-Propanol	26.5	ug/m3	5.2	10.39		04/09/13 12:26	67-63-0	
Propylene	ND	ug/m3	3.6	10.39		04/09/13 12:26	115-07-1	
Styrene	ND	ug/m3	9.0	10.39		04/09/13 12:26	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	7.3	10.39		04/09/13 12:26	79-34-5	
Tetrachloroethene	ND	ug/m3	7.2	10.39		04/09/13 12:26	127-18-4	

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REPORT OF LABORATORY ANALYSIS

Page 5 of 13

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ANALYTICAL RESULTS

Project: 58107058 Clare Central
 Pace Project No.: 10224199

Sample: 1003 Ambient Lab ID: 10224199001 Collected: 03/28/13 08:30 Received: 04/02/13 10:04 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Tetrahydrofuran	ND	ug/m3	6.2	10.39		04/09/13 12:26	109-99-9	
Toluene	ND	ug/m3	8.0	10.39		04/09/13 12:26	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	15.7	10.39		04/09/13 12:26	120-82-1	
1,1,1-Trichloroethane	12.0	ug/m3	11.5	10.39		04/09/13 12:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	5.7	10.39		04/09/13 12:26	79-00-5	
Trichloroethene	841	ug/m3	5.7	10.39		04/09/13 12:26	79-01-6	
Trichlorofluoromethane	ND	ug/m3	11.8	10.39		04/09/13 12:26	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	16.6	10.39		04/09/13 12:26	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/m3	10.4	10.39		04/09/13 12:26	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	10.4	10.39		04/09/13 12:26	108-67-8	
Vinyl acetate	ND	ug/m3	7.4	10.39		04/09/13 12:26	108-05-4	
Vinyl chloride	ND	ug/m3	2.7	10.39		04/09/13 12:26	75-01-4	
m&p-Xylene	ND	ug/m3	18.3	10.39		04/09/13 12:26	179601-23-1	
o-Xylene	ND	ug/m3	9.1	10.39		04/09/13 12:26	95-47-6	



ANALYTICAL RESULTS

Project: 58107058 Clare Central
 Pace Project No.: 10224199

Sample: 1033 Ambient Lab ID: 10224199002 Collected: 03/28/13 08:45 Received: 04/02/13 10:04 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	64.9	ug/m3	0.96	2		04/09/13 11:57	67-64-1	
Benzene	2.8	ug/m3	0.65	2		04/09/13 11:57	71-43-2	
Benzyl chloride	ND	ug/m3	2.1	2		04/09/13 11:57	100-44-7	
Bromodichloromethane	ND	ug/m3	2.7	2		04/09/13 11:57	75-27-4	
Bromoform	ND	ug/m3	4.2	2		04/09/13 11:57	75-25-2	
Bromomethane	ND	ug/m3	1.6	2		04/09/13 11:57	74-83-9	
1,3-Butadiene	ND	ug/m3	0.90	2		04/09/13 11:57	106-99-0	
2-Butanone (MEK)	5.2	ug/m3	1.2	2		04/09/13 11:57	78-93-3	
Carbon disulfide	ND	ug/m3	1.3	2		04/09/13 11:57	75-15-0	
Carbon tetrachloride	ND	ug/m3	1.3	2		04/09/13 11:57	56-23-5	
Chlorobenzene	ND	ug/m3	1.9	2		04/09/13 11:57	108-90-7	
Chloroethane	ND	ug/m3	1.1	2		04/09/13 11:57	75-00-3	
Chloroform	2.6	ug/m3	2.0	2		04/09/13 11:57	67-66-3	
Chloromethane	ND	ug/m3	0.84	2		04/09/13 11:57	74-87-3	
Cyclohexane	ND	ug/m3	1.4	2		04/09/13 11:57	110-82-7	
Dibromochloromethane	ND	ug/m3	3.5	2		04/09/13 11:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	3.1	2		04/09/13 11:57	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	2.4	2		04/09/13 11:57	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	2.4	2		04/09/13 11:57	541-73-1	
1,4-Dichlorobenzene	5.0	ug/m3	2.4	2		04/09/13 11:57	106-46-7	
Dichlorodifluoromethane	3.9	ug/m3	2.0	2		04/09/13 11:57	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.6	2		04/09/13 11:57	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.82	2		04/09/13 11:57	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.6	2		04/09/13 11:57	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.6	2		04/09/13 11:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.6	2		04/09/13 11:57	156-60-5	
1,2-Dichloropropane	ND	ug/m3	1.9	2		04/09/13 11:57	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.8	2		04/09/13 11:57	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.8	2		04/09/13 11:57	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	2.8	2		04/09/13 11:57	76-14-2	
Ethanol	1560	ug/m3	0.76	2		04/09/13 11:57	64-17-5	E
Ethyl acetate	19.4	ug/m3	1.5	2		04/09/13 11:57	141-78-6	
Ethylbenzene	ND	ug/m3	1.8	2		04/09/13 11:57	100-41-4	
4-Ethyltoluene	ND	ug/m3	2.0	2		04/09/13 11:57	622-96-8	
n-Heptane	ND	ug/m3	1.7	2		04/09/13 11:57	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	4.4	2		04/09/13 11:57	87-68-3	
n-Hexane	2.2	ug/m3	1.4	2		04/09/13 11:57	110-54-3	
2-Hexanone	ND	ug/m3	1.7	2		04/09/13 11:57	591-78-6	
Methylene Chloride	21.0	ug/m3	1.4	2		04/09/13 11:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/m3	1.7	2		04/09/13 11:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	1.5	2		04/09/13 11:57	1634-04-4	
Naphthalene	7.7	ug/m3	2.1	2		04/09/13 11:57	91-20-3	
2-Propanol	60.4	ug/m3	1.0	2		04/09/13 11:57	67-63-0	
Propylene	ND	ug/m3	0.70	2		04/09/13 11:57	115-07-1	
Styrene	ND	ug/m3	1.7	2		04/09/13 11:57	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	1.4	2		04/09/13 11:57	79-34-5	
Tetrachloroethene	4.7	ug/m3	1.4	2		04/09/13 11:57	127-18-4	

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REPORT OF LABORATORY ANALYSIS

Page 7 of 13

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ANALYTICAL RESULTS

Project: 58107058 Clare Central
 Pace Project No.: 10224199

Sample: 1033 Ambient Lab ID: 10224199002 Collected: 03/28/13 08:45 Received: 04/02/13 10:04 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Tetrahydrofuran	ND	ug/m3	1.2	2		04/09/13 11:57	109-99-9	
Toluene	6.8	ug/m3	1.5	2		04/09/13 11:57	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	3.0	2		04/09/13 11:57	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	2.2	2		04/09/13 11:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	1.1	2		04/09/13 11:57	79-00-5	
Trichloroethene	ND	ug/m3	1.1	2		04/09/13 11:57	79-01-6	
Trichlorofluoromethane	7.2	ug/m3	2.3	2		04/09/13 11:57	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	3.2	2		04/09/13 11:57	76-13-1	
1,2,4-Trimethylbenzene	3.3	ug/m3	2.0	2		04/09/13 11:57	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	2.0	2		04/09/13 11:57	108-67-8	
Vinyl acetate	ND	ug/m3	1.4	2		04/09/13 11:57	108-05-4	
Vinyl chloride	ND	ug/m3	0.52	2		04/09/13 11:57	75-01-4	
m&p-Xylene	4.2	ug/m3	3.5	2		04/09/13 11:57	179601-23-1	
o-Xylene	ND	ug/m3	1.8	2		04/09/13 11:57	95-47-6	



QUALITY CONTROL DATA

Project: 58107058 Clare Central
 Pace Project No.: 10224199

QC Batch: AIR/17097 Analysis Method: TO-15
 QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
 Associated Lab Samples: 10224199001, 10224199002

METHOD BLANK: 1406222 Matrix: Air
 Associated Lab Samples: 10224199001, 10224199002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	1.1	04/09/13 10:57	
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.70	04/09/13 10:57	
1,1,2-Trichloroethane	ug/m3	ND	0.55	04/09/13 10:57	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	1.6	04/09/13 10:57	
1,1-Dichloroethane	ug/m3	ND	0.82	04/09/13 10:57	
1,1-Dichloroethene	ug/m3	ND	0.81	04/09/13 10:57	
1,2,4-Trichlorobenzene	ug/m3	ND	1.5	04/09/13 10:57	
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	04/09/13 10:57	
1,2-Dibromoethane (EDB)	ug/m3	ND	1.6	04/09/13 10:57	
1,2-Dichlorobenzene	ug/m3	ND	1.2	04/09/13 10:57	
1,2-Dichloroethane	ug/m3	ND	0.41	04/09/13 10:57	
1,2-Dichloropropane	ug/m3	ND	0.94	04/09/13 10:57	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	04/09/13 10:57	
1,3-Butadiene	ug/m3	ND	0.45	04/09/13 10:57	
1,3-Dichlorobenzene	ug/m3	ND	1.2	04/09/13 10:57	
1,4-Dichlorobenzene	ug/m3	ND	1.2	04/09/13 10:57	
2-Butanone (MEK)	ug/m3	ND	0.60	04/09/13 10:57	
2-Hexanone	ug/m3	ND	0.83	04/09/13 10:57	
2-Propanol	ug/m3	ND	0.50	04/09/13 10:57	
4-Ethyltoluene	ug/m3	ND	1.0	04/09/13 10:57	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	0.83	04/09/13 10:57	
Acetone	ug/m3	ND	0.48	04/09/13 10:57	
Benzene	ug/m3	ND	0.32	04/09/13 10:57	
Benzyl chloride	ug/m3	ND	1.0	04/09/13 10:57	
Bromodichloromethane	ug/m3	ND	1.4	04/09/13 10:57	
Bromoform	ug/m3	ND	2.1	04/09/13 10:57	
Bromomethane	ug/m3	ND	0.79	04/09/13 10:57	
Carbon disulfide	ug/m3	ND	0.63	04/09/13 10:57	
Carbon tetrachloride	ug/m3	ND	0.64	04/09/13 10:57	
Chlorobenzene	ug/m3	ND	0.94	04/09/13 10:57	
Chloroethane	ug/m3	ND	0.54	04/09/13 10:57	
Chloroform	ug/m3	ND	0.99	04/09/13 10:57	
Chloromethane	ug/m3	ND	0.42	04/09/13 10:57	
cis-1,2-Dichloroethene	ug/m3	ND	0.81	04/09/13 10:57	
cis-1,3-Dichloropropene	ug/m3	ND	0.92	04/09/13 10:57	
Cyclohexane	ug/m3	ND	0.70	04/09/13 10:57	
Dibromochloromethane	ug/m3	ND	1.7	04/09/13 10:57	
Dichlorodifluoromethane	ug/m3	ND	1.0	04/09/13 10:57	
Dichlorotetrafluoroethane	ug/m3	ND	1.4	04/09/13 10:57	
Ethanol	ug/m3	ND	0.38	04/09/13 10:57	
Ethyl acetate	ug/m3	ND	0.73	04/09/13 10:57	
Ethylbenzene	ug/m3	ND	0.88	04/09/13 10:57	
Hexachloro-1,3-butadiene	ug/m3	ND	2.2	04/09/13 10:57	

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REPORT OF LABORATORY ANALYSIS

Page 9 of 13

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QUALITY CONTROL DATA

Project: 58107058 Clare Central
Pace Project No.: 10224199

METHOD BLANK: 1406222 Matrix: Air

Associated Lab Samples: 10224199001, 10224199002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/m3	ND	1.8	04/09/13 10:57	
Methyl-tert-butyl ether	ug/m3	ND	0.73	04/09/13 10:57	
Methylene Chloride	ug/m3	ND	0.71	04/09/13 10:57	
n-Heptane	ug/m3	ND	0.83	04/09/13 10:57	
n-Hexane	ug/m3	ND	0.72	04/09/13 10:57	
Naphthalene	ug/m3	ND	1.1	04/09/13 10:57	
o-Xylene	ug/m3	ND	0.88	04/09/13 10:57	
Propylene	ug/m3	ND	0.35	04/09/13 10:57	
Styrene	ug/m3	ND	0.87	04/09/13 10:57	
Tetrachloroethene	ug/m3	ND	0.69	04/09/13 10:57	
Tetrahydrofuran	ug/m3	ND	0.60	04/09/13 10:57	
Toluene	ug/m3	ND	0.77	04/09/13 10:57	
trans-1,2-Dichloroethene	ug/m3	ND	0.81	04/09/13 10:57	
trans-1,3-Dichloropropene	ug/m3	ND	0.92	04/09/13 10:57	
Trichloroethene	ug/m3	ND	0.55	04/09/13 10:57	
Trichlorofluoromethane	ug/m3	ND	1.1	04/09/13 10:57	
Vinyl acetate	ug/m3	ND	0.72	04/09/13 10:57	
Vinyl chloride	ug/m3	ND	0.26	04/09/13 10:57	

LABORATORY CONTROL SAMPLE: 1406223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	55.8	101	69-131	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	65.6	94	66-135	
1,1,2-Trichloroethane	ug/m3	55.5	51.7	93	68-132	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	79.3	102	65-130	
1,1-Dichloroethane	ug/m3	41.2	43.4	106	66-131	
1,1-Dichloroethene	ug/m3	40.3	42.6	106	64-136	
1,2,4-Trichlorobenzene	ug/m3	75.5	126	168	30-150	CH,L3
1,2,4-Trimethylbenzene	ug/m3	50	49.7	99	71-135	
1,2-Dibromoethane (EDB)	ug/m3	78.1	76.4	98	72-132	
1,2-Dichlorobenzene	ug/m3	61.2	59.1	97	68-148	
1,2-Dichloroethane	ug/m3	41.2	41.9	102	66-136	
1,2-Dichloropropane	ug/m3	47	41.4	88	68-133	
1,3,5-Trimethylbenzene	ug/m3	50	49.4	99	69-136	
1,3-Butadiene	ug/m3	22.5	20.7	92	69-134	
1,3-Dichlorobenzene	ug/m3	61.2	58.7	96	70-134	
1,4-Dichlorobenzene	ug/m3	61.2	62.8	103	66-134	
2-Butanone (MEK)	ug/m3	30	33.6	112	69-141	
2-Hexanone	ug/m3	41.7	40.2	96	74-132	
2-Propanol	ug/m3	25	29.6	118	64-139	
4-Ethyltoluene	ug/m3	50	48.4	97	71-134	
4-Methyl-2-pentanone (MIBK)	ug/m3	41.7	39.8	96	74-131	
Acetone	ug/m3	24.2	29.3	121	62-142	
Benzene	ug/m3	32.5	31.6	97	72-136	

Date: 04/09/2013 04:22 PM

REPORT OF LABORATORY ANALYSIS

Page 10 of 13

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QUALITY CONTROL DATA

Project: 58107058 Clare Central
Pace Project No.: 10224199

LABORATORY CONTROL SAMPLE: 1406223

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzyl chloride	ug/m3	52.5	54.9	105	70-134	
Bromodichloromethane	ug/m3	68.2	65.8	97	69-135	
Bromoform	ug/m3	105	112	106	72-133	
Bromomethane	ug/m3	39.5	33.2	84	65-125	
Carbon disulfide	ug/m3	31.7	32.3	102	68-127	
Carbon tetrachloride	ug/m3	64	48.9	76	64-133	
Chlorobenzene	ug/m3	46.8	40.8	87	65-135	
Chloroethane	ug/m3	26.8	22.0	82	63-129	
Chloroform	ug/m3	49.7	45.6	92	66-129	
Chloromethane	ug/m3	21	17.8	85	57-135	
cis-1,2-Dichloroethene	ug/m3	40.3	37.0	92	73-135	
cis-1,3-Dichloropropene	ug/m3	46.2	43.9	95	75-137	
Cyclohexane	ug/m3	35	38.0	109	73-139	
Dibromochloromethane	ug/m3	86.6	84.7	98	73-130	
Dichlorodifluoromethane	ug/m3	50.3	45.7	91	64-131	
Dichlorotetrafluoroethane	ug/m3	71.1	62.8	88	64-131	
Ethanol	ug/m3	19.2	19.6	102	62-134	
Ethyl acetate	ug/m3	36.6	38.3	104	73-136	
Ethylbenzene	ug/m3	44.2	42.0	95	74-136	
Hexachloro-1,3-butadiene	ug/m3	108	146	135	30-150	
m&p-Xylene	ug/m3	44.2	41.9	95	72-135	
Methyl-tert-butyl ether	ug/m3	36.7	46.1	126	71-134	
Methylene Chloride	ug/m3	35.3	35.0	99	59-140	
n-Heptane	ug/m3	41.7	39.2	94	73-136	
n-Hexane	ug/m3	35.8	34.6	96	67-136	
Naphthalene	ug/m3	53.3	103	194	30-150	CH,L1
o-Xylene	ug/m3	44.2	43.1	98	74-135	
Propylene	ug/m3	17.5	18.2	104	66-138	
Styrene	ug/m3	43.3	41.8	96	73-135	
Tetrachloroethene	ug/m3	69	67.0	97	66-135	
Tetrahydrofuran	ug/m3	30	29.4	98	73-130	
Toluene	ug/m3	38.3	39.6	103	71-134	
trans-1,2-Dichloroethene	ug/m3	40.3	42.7	106	68-129	
trans-1,3-Dichloropropene	ug/m3	46.2	44.5	96	75-129	
Trichloroethene	ug/m3	54.6	52.1	95	68-134	
Trichlorofluoromethane	ug/m3	57.1	58.1	102	61-134	
Vinyl acetate	ug/m3	35.8	41.8	117	70-139	
Vinyl chloride	ug/m3	26	22.5	87	64-134	

QUALIFIERS

Project: 58107058 Clare Central
Pace Project No.: 10224199

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

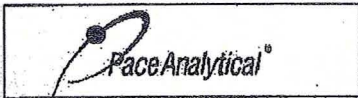
- CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
- E Analyte concentration exceeded the calibration range. The reported result is estimated.
- L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
- L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 58107058 Clare Central
Pace Project No.: 10224199

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10224199001	1003 Ambient	TO-15	AIR/17097		
10224199002	1033 Ambient	TO-15	AIR/17097		



Document Name:
Air Sample Condition Upon Receipt
Document No.:
F-MN-A-106-rev.07

Document Revised: 28Jan2013
Page 1 of 1
Issuing Authority:
Pace Minnesota Quality Office

Air Sample Condition
Upon Receipt

Client Name: Terracon Project #: _____

WO#: **10224199**



Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: walco

Tracking Number: _____

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 Other: _____

Temp. (TO17 and TO13 samples only) (°C): _____ Corrected Temp (°C): AMB
Temp should be above freezing to 6°C Correction Factor: _____

Thermom. Used: B88A912167504 80512447 72337080
Date & Initials of Person Examining Contents: [Signature] 4/2/13

Comments: _____

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	10.
Media: <u>Air Can</u>				11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	12.

Samples Received: 2 Air Cans, 2 Flow Controllers

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
<u>1003</u>	<u>PACE 0241</u>		<u>FC 0275</u>		
<u>1033</u>	<u>" 6809</u>		<u>" 6881</u>		

CLIENT NOTIFICATION/RESOLUTION Field Data Required? Yes No
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: [Signature] Date: 4/3/13

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)