November 18, 2019
File No. 25216050.01

Mr. John Hnat
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King Dr.
Milwaukee, WI 53212-3128

Subject: Evaluation of Grace Christian Fellowship Vapor Mitigation Systems
Mobil Oil Gas Station 05-H4A
9922 W. Capitol Drive, Milwaukee, WI
PECFA #5322-1435-22-A
DNR BRRTS #03-41-095653

Dear Mr. Hnat:

SCS Engineers (SCS) is providing the following summary of our evaluation of the Grace Christian Fellowship (Grace) vapor mitigation systems. The work was performed based on the scope of work proposed in our October 5, 2018 Petroleum Environmental Cleanup Fund Award (PECFA) budget request, which was approved by the Wisconsin Department of Natural Resources (WDNR) in their October 23, 2018 budget approval letter. Work included inspection of the Grace perimeter drain tile venting system (DTVS) and the interior sub-slab depressurization mitigation system (SSDMS), sub-slab pressure field extension (PFE) testing, sub-slab vapor sampling, and indoor/outdoor air sampling.

SCS performed the initial DTVS and SSDMS inspections, PFE testing, and sub-slab vapor sampling. Grace's contractor, RA Environmental (RAE) made various system repairs, conducted the indoor/outdoor air sampling, and additional PFE testing. RAE's PFE and indoor/outdoor air sampling results are summarized in this letter. Additional information and a summary of system repairs are provided in RAE's April 7, 2019 summary report, which RAE submitted to the WDNR.

Both mitigation systems were found to be non-operational in January 2019, but were repaired by RAE and operating again by March 2019. PFE testing shows that the SSDMS produces good sub-slab vacuum, which should reduce the potential for vapor migration into the Grace building. The sub-slab and indoor air sampling results indicate there is not a current vapor intrusion threat to the Grace building. However, SCS recommends that both mitigation systems be operated and maintained as a precaution. Based on the findings, it does not appear that additional remedial action or expansion of the Grace vapor mitigation systems would be necessary. Further details regarding the evaluation and recommendations are provided below.

SYSTEM INSPECTION

On January 11, 2019, SCS performed an initial inspection of the Grace DTVS and SSDMS. Both systems were found to be non-operational and in a state of disrepair. Neither of the mitigation system blowers were working and the alarm systems, which were designed to warn Grace of system failure, had either failed or had been deactivated. The access ports on both floor sump lids, which were designed to keep vapor from migrating into the building, were found to be open so that

dehumidifier hoses could discharge to the sumps. It is SCS's understanding that RAE had been periodically servicing the systems, but it was not clear how long the systems had been non-operational or when RAE had last inspected the systems.

On January 17, 2019, SCS met with RAE at Grace to inspect the systems. RAE subsequently contracted with Grace to make system repairs, which appear to have been completed on or before March 14, 2019, per RAE's above-noted report. Photos of the system inspections are included in Attachment A.

PRESSURE FIELD EXTENSION TESTING

PFE testing was performed by SCS on August 6, 2019, with the vapor systems running individually, together, and with both venting systems turned off. Results are summarized in Table 1. PFE sub-slab test locations were established by RAE and are shown on RAE's map, included in Attachment B.

Prior to conducting the PFE testing, SCS replaced access port covers on the two basement sump lids, which Grace had removed in order to run dehumidifier discharge hoses to the sumps. SCS also installed a temporary stainless steel Vapor Pin® (vapor pin) into each of RAE's PFE test locations for ease of vacuum measurement. All vacuum measurements were made with a digital manometer capable of measuring vacuum to 0.001 inches of water. Photos of the PFE testing are included in Attachment A.

The SCS PFE test results are similar to RAE's PFE results and show good sub-slab vacuum (i.e., vacuums less than -0.004 inches of water per WDNR RR-800 vapor mitigation guidance) in the vicinity of the SSDMS pickup points, which are located in the west side of the Grace basement. Operation of the DTVS did not appear to significantly influence sub-slab vacuum.

One of the PFE vacuum observation points, TP-4, was observed to have no vacuum. TP-4 is a clean-out for one of the SSDMS pickup points. Further inspection revealed the presence of water in the pickup point, which was likely blocking flow and limiting vacuum at this location.

Following completion of SCS's PFE testing, and with permission of Grace, SCS turned off both the DTVS and SSDMS and re-inserted the dehumidifier discharge lines to the two basement sumps. SCS's temporary vapor pins were removed and RAE's vacuum observation point plugs replaced. With Grace's approval, the DTVS and SSDMS were left off for approximately 1 week in order to evaluate sub-slab vapor concentrations as discussed below.

SUB-SLAB VAPOR SAMPLING AND SUMP LID LEAK TESTING

On August 14, 2019, SCS returned to Grace to perform sub-slab vapor sampling and sump lid leak testing. The sub-slab sampling was performed with both the DTVS and SSDMS having been off for approximately 1 week. As with the PFE testing, both basement sump lids' access ports were found to be off so that Grace could run dehumidifier hoses to the sumps. Photos from the sub-slab sampling are included in Attachment A.

SCS collected sub-slab vapor samples from select PFE test locations using vapor pins installed in PFE test holes. Sample locations are shown in Attachment B. Vapor pin seals and SCS sampling equipment were tested for leaks prior to the sampling. No leaks were detected. The samples were collected in laboratory-supplied 6-liter Summa canisters equipped with 30-minute flow controllers.

SCS turned on the DTVS and SSDMS on August 14, 2019, following the sub-slab sampling. The dehumidifier hoses were then removed from each sump and the sump access port lids attached securely. SCS then used a smoke pen to test for vacuum leaks around the sump lids. No leaks were observed. Following leak testing SCS removed the sump port lids and reinserted the dehumidifier hoses as requested by Grace. Following the sampling, SCS removed all temporary vapor pins and replaced RAE's vacuum observation point plugs at each location.

All sub-slab samples were submitted under chain of custody (COC) to Pace Analytical of Minneapolis, Minnesota, for analysis of petroleum volatile organic compounds (PVOCs) and naphthalene via laboratory method TO-15. SCS field sheets are included in Attachment D. The laboratory report is included in Attachment C, and results are summarized in Table 2.

PVOCs and naphthalene were detected in several of the sub-slab vapor samples; however, the concentrations did not exceed WDNR's vapor risk screening levels (VRSLs).

INDOOR/OUTDOOR AIR SAMPLING

Per RAE's April 7, 2019 report, indoor and outdoor air sampling was performed by RAE on March 6-7, 2019, while the DTVS and SSDMS were off and on March 14-15, 2019, while the DTVS and SSDMS were on. It is not clear from RAE's report how long the systems were off or on prior to the sampling. SCS understands that the air samples were collected in laboratory-supplied 6-liter Summa canisters equipped with 24-hour flow controllers and submitted to Pace Analytical for laboratory analysis of PVOCs, naphthalene, and total hydrocarbons (THC) as gas. Sample locations are shown on RAE's map included in Attachment B.

The laboratory COCs for the sampling events were not filled out completely by RAE. The COCs are missing canister size, photoionization detector (PID) readings, initial and final canister vacuums, flow controller identification numbers, laboratory method for analysis, and relinquishing information. However, the laboratory receiving documentation does indicate that the canisters were received under vacuum so it appears the canisters did not leak during transit to the laboratory. The laboratory reports are included in Attachment C, and results are summarized in Table 3.

PVOCs and THC as gas were detected in several of the samples; however, none of the sample concentrations exceeded WDNR's indoor air vapor action levels (VALs). The WDNR does not have indoor air standard for THC as gas.

CONCLUSIONS AND RECOMMENDATIONS

In January 2019 SCS found the Grace DTVS and SSDMS to be non-operational and in state of disrepair. SCS does not know how long the systems had been in this condition. Grace's contractor, RAE, repaired the systems and had them running again in March 2019.

Subsequent PFE testing shows the SSDMS is producing sufficient sub-slab vacuum and that the DTVS does not significantly influence sub-slab vacuum.

Sub-slab and indoor air sampling results suggest that there is not a vapor intrusion risk at this time. However, SCS recommends that the systems be left in place and operated with routine maintenance as a precaution. A detailed Operation, Monitoring, and Maintenance (OM & M) Plan should be prepared for the mitigation systems in accordance with WDNR RR-800 vapor mitigation guidance so

that Grace, their contractors, and other stakeholders understand the purpose of the systems, the various system components and layout, system maintenance/monitoring needs, and record keeping requirements.

SCS's September 2016 Revised Remedial Action Options Plan and Remedial Design Report proposed excavation of impacted soil from under the Grace building to reduce the quantity of residual soil contamination. The report also proposed expansion of the SSDMS to increase the system's PFE under the Grace building. Based on the above-noted evaluation findings, it does not appear that soil excavation to remove potentially impacted soil from under Grace would be needed or that changes to the SSDMS, such as installation or expansion of points, would be necessary. Therefore, SCS proposes to remove soil excavation and SSDMS expansion tasks from the remedial action plan.

Lastly, SCS recommends that the dehumidifier hoses be permanently sealed through the Grace basement sump lids, or other means of handling humidifier discharge be utilized, in order to minimize vacuum loss from the DTVS and SSDMS through the sumps and to prevent vapors from migrating through the sump lids into indoor air.

Please feel free to contact us at (608) 224-2830 with any questions concerning this letter.

Sincerely,

Robert Langdon
Senior Project Manager
SCS Engineers

Ray Tierney, PG
Vice President
SCS Engineers

Keith R. Gilkey, PE
Senior Engineer
SCS Engineers

REL/lmh/KG/RT

cc: J. Singh – PSK Investments
Thomas A. Cabush – Cabush, Kasdorf, Lewis & Swietlik, SC
David G. Peterson – Reinhart, Boerner, Van Deuren, SC
Pamela Mylotta – WDNR

Encl. Table 1 – Pressure Field Extension Testing Vacuums
Table 2 – Sub-Slab Vapor Analytical Results Summary
Table 3 – Indoor and Outdoor Air Sampling Analytical Summary
Attachment A – Photos
Attachment B – RAE Sample Location Maps
Attachment C – Laboratory Analytical Reports
Attachment D – Sub-Slab Sample Field Sheets

Table 1. Pressure Field Extension Testing Vacuums
Grace Christian Church / SCS Project No. 25216050.01
All vacuum reported in inches of water

Vacuum Observation Point	SSDMS On/DTVS On (Round 1)	SSDMS On/DTVS On (Round 2)	SSDMS On/ DTVS Off	SSDMS Off/ DTVS On	SSDMS Off/ DTVS Off
TP-1	-0.0735	-0.0743	-0.0642	-0.0017	-0.0010
TP-2 (SSDMS Cleanout)	-0.564	-0.565	-0.555	-0.003	-0.002
TP-3 (SSDMS Cleanout)	-0.680	-0.068	-0.678	-0.002	-0.003
TP-4 (SSDMS Cleanout)	0.005	0.005	0.004	0.002	0.001
TP-5 (SSDMS Cleanout)	-1.230	-1.229	-1.234	-0.004	-0.003
TP-6	-0.0657	-0.0661	-0.0434	-0.0052	0.0007
TP-7	-0.0465	-0.0474	-0.0241	-0.0062	-0.0005
TP-8	-0.0008	-0.0012	-0.0005	-0.0004	0.0003
TP-9	0.0006	0.0004	0.0000	0.0003	0.0006
TP-10	-0.0269	-0.0272	-0.0260	-0.0007	-0.0006
TP-11	-0.0418	-0.0419	-0.0353	-0.0034	-0.0021
TP-12	-0.0081	-0.0091	-0.0076	-0.0020	-0.0011
TP-13	-0.0223	-0.0224	-0.0215	-0.0005	0.0002
TP-14	-0.0075	-0.0079	-0.0073	-0.0014	-0.0013
TP-15	-0.0030	-0.0031	-0.0033	0.0000	0.0000
TP-16	-0.0007	0.0000	0.0000	-0.0001	-0.0003
TP-S1 (Sump 1)	-0.0700	-0.0700	-0.0590	-0.0020	-0.0020
TP-S2 (Sump 2)	0.0000	0.0000	0.0000	-0.0010	0.0000

Abbreviations:
SSDMS = Sub-Slab Depressurization Mitigation System
DTVS = Drain Tile Venting System

Notes:
Vacuums measured on August 6, 2019.
Vacuums at TP-2, TP-3, TP-4, TP-5, TP-S1 and TP-S2 measured using Testo 480 digital manometer. All other vacuums measured using Dwyer Series 477A digital manometer.

Created by:	REL	Date:	8/7/2019
Last revision by:	LMH	Date:	8/8/2019
Checked by:	JSN	Date:	8/9/2019
Proj Mgr QA/QC:	RT	Date:	9/3/2019

I:\25216050.01\Data and Calculations\Tables\[Table 1-Pressure Field Extension Testing Vacuums.xlsx]Table 1

Table 2. Sub-Slab Vapor Analytical Results Summary
Grace Christian Church / SCS Project No. 25216050.01
(Results are in ppbV)

Sample	Location	Date	Lab Notes	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Benzene	Ethylbenzene	m&p-Xylene	o-Xylene	Methyl-tert-butyl ether	Naphthalene	Toluene
TP-1	Basement, Northwest Office	8/14/2019	--	1.1	<0.14	0.4	0.91	2.6	0.82	<0.33	1.2	2.2
TP-3	Basement, Northwest	8/14/2019	--	0.86	<0.13	0.49	0.72	2	0.66	<0.3	1.1	1.8
TP-6	Basement, West Wall	8/14/2019	--	0.92	<0.14	0.34	0.7	2	0.72	<0.33	1.1	2.3
TP-7	Basement, West Wall	8/14/2019	--	1	<0.14	0.43	0.75	2	0.75	<0.33	1.3	2.3
TP-10	Basement, Northeast Storage Room	8/14/2019	--	0.94	<0.15	0.37	0.75	1.9	0.68	<0.33	<0.45	1.8
TP-11	Basement, North Wall	8/14/2019	--	0.7	<0.14	<0.083	0.5	1.2	0.5	<0.33	<0.43	1.1
Vapor Risk Screening Level (Residential Building)				430	430	37	83	770	770	1,000	5.3	47,000
Vapor Risk Screening Level (Small Commercial Building)				1,700	1,700	160	370	3,300	3,300	4,300	23	190,000

Abbreviations:
ppbV = parts per billion by volume -- = Not Applicable

Created by: LMH Date: 8/21/2019
Last revision by: LMH Date: 8/21/2019
Checked by: AJR Date: 8/22/2019
Proj Mgr QA/QC: RT Date: 9/3/2019

Notes:
1. All samples were collected by SCS Engineers.
2. Samples were collected while perimeter drain tile venting system (DTVS) and interior sub-slab depressurization mitigation system (SSDMS) were off. Both systems shut off on August 6, 2019.
3. Samples were collected in 6-liter summa canisters over a 30-minute period and analyzed using the USEPA TO-15 analytical method.
4. Vapor Risk Screening Levels are from Wisconsin Department of Natural Resources' WI Vapor Quick Look-Up Table, which is based on November 2017 USEPA Regional Screening Level Tables.
5. **Bold+underlined** values meet or exceed Vapor Risk Screening Levels.

Lab Notes:
None

I:\25216050.01\Data and Calculations\Tables\[Table 2-Sub-Slab Vapor.xlsx]Sub-Slab Results

Table 3. Indoor and Outdoor Air Sampling Analytical Summary
Grace Christian Fellowship Building / SCS Project No. 25216050.01
(Results are in ug/m3)

Sample	Location	Date	Lab Notes	THC as Gas	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Benzene	Ethylbenzene	m&p-Xylene	o-Xylene	Methyl-tert-butyl ether	Naphthalene	Toluene
CI	First Floor	3/7/2019	--	164 N2	1.8	1.7	0.85	2.9	11.0	9.1	<0.95	<1.9	10.0
	First Floor	3/15/2019	--	175 N2	2.0	1.2 J	0.56	1.4	5.3	3.4	<1.0	<2.0	6.9
CN	First Floor	3/15/2019	--	90.1 J,N2	1.9	1.2 J	0.53	1.3 J	4.8	3.2	<0.99	<2.0	6.4
PO	First Floor	3/7/2019	--	984 N2	<0.70	<0.62	0.76	<0.47	<1.1	<0.53	<1.0	<2.0	<0.54
	First Floor	3/15/2019	--	169 N2	2.0	1.3 J	0.54	1.4 J	5.1	3.3	<1.0	<2.0	6.6
CR	Basement	3/7/2019	--	1,090 N2	<0.67	<0.59	0.59	4.9	12.7	4.3	<0.99	<2.0	5.3
	Basement	3/15/2019	--	241 N2	1.5 J	0.94 J	0.50 J	0.99 J	3.6	2.4	<1.1	<2.1	6.0
MB	Basement	3/7/2019	--	956 N2	0.80 J	0.69 J	0.60	3.9	10.6	4.4	<1.0	<2.0	6.6
	Basement	3/15/2019	--	112 J,N2	1.4 J	0.83 J	0.54	0.98 J	3.3	1.9	<1.0	<2.0	5.2
ER	Basement	3/7/2019	--	981 N2	0.96 J	<0.63	0.55	3.0	8.3	3.8	<1.0	<2.1	6.1
	Basement	3/15/2019	--	204 N2	1.6	0.90 J	0.53	1.0 J	3.7	2.2	<0.99	<2.0	6.0
EXT	Roof Top	3/15/2019	--	<72.1 N2	<0.63	<0.55	0.54	<0.42	<0.97	<0.48	<0.92	<1.8	0.73 J
Indoor Air Vapor Action Level (Residential Building)				NE	63	63	3.6	11	100	100	110	0.83	5,200
Indoor Air Vapor Action Level (Small Commercial Building)				NE	260	260	16	49	440	440	470	3.6	22,000

Abbreviations:
ug/m3 = micrograms per cubic meter
-- = Not Applicable
NE = No Standard Established

Created by: AJR Date: 10/21/2019
Last revision by: AJR Date: 10/21/2019
Checked by: LMH Date: 10/21/2019
Proj Mgr QA/QC: REL Date: 10/21/2019

Notes:
1. All samples were collected by RA Environmental.
2. The March 7, 2019 samples were collected while perimeter drain tile venting system (DTVS) and interior sub-slab depressurization mitigation system (SSDMS) were off.
3. The March 15, 2019 samples were collected while the DTVS and SSMS were on.
4. Samples were collected in 6-liter summa canisters over a 24-hour period and analyzed using the USEPA TO-15 analytical method.
5. Vapor Risk Screening Levels are from Wisconsin Department of Natural Resources' WI Vapor Quick Look-Up Table, which is based on November 2017 USEPA Regional Screening Level Tables.
6. **Bold+underlined** values meet or exceed Vapor Risk Screening Levels.

Lab Notes:
J = Estimated concentration at or above the Limit of Detection and below the Limit of Quantitation
N2 = The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

I:\25216050.01\Data and Calculations\Tables\[Table 3-Indoor and Outdoor Air Sampling.xlsx]Sub-Slab Results

Attachment A

Photos

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 1: Drain tile venting system vacuum pipe on west side of Grace 1/07/2019

Photo 2: Sub-slab depressurization mitigation system vacuum lines on north side of Grace 1/07/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 3: Sump 1 with sub-slab depressurization mitigation system vacuum pipe and manometer 01/07/2019

Photo 4: Sub-slab depressurization mitigation system manometer reading zero vacuum 01/07/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 5: Sub-slab depressurization mitigation system alarm system and vacuum gauge. Alarm not functioning 01/07/2019.

Photo 6: Sump 1 lid 01/07/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 7: Sub-slab depressurization mitigation system blower on Grace roof, not operating 01/17/2019

Photo 8: Drain tile ventilation system blower box 01/17/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 9: Drain tile ventilation system blower not operating 01/17/2019

Photo 10: Sub-slab depressurization mitigation system and drain tile ventilation system electrical connections 01/17/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 11: Drain tile ventilation system vacuum piping 01/17/2019

Photo 12: RA Environmental sub-slab vacuum observation point and plug, typical 08/06/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 13: RA Environmental sub-slab vacuum observation point fitted with vapor pin for sub-slab pressure field extension testing, typical
08/06/2019

Photo 14: Sub-slab depressurization mitigation system cleanout lid fitted with tubing for sub-slab pressure field extension testing, typical
08/06/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 15: Dehumidifier at Sump 1 08/06/2019

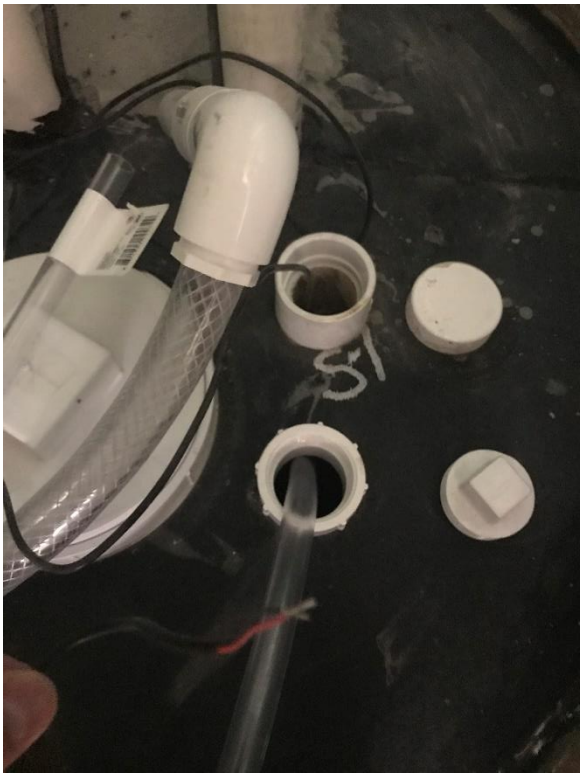


Photo 16: Sump 1 lid with open port for dehumidifier hose 08/06/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 17: Dehumidifier at Sump 2 08/06/2019

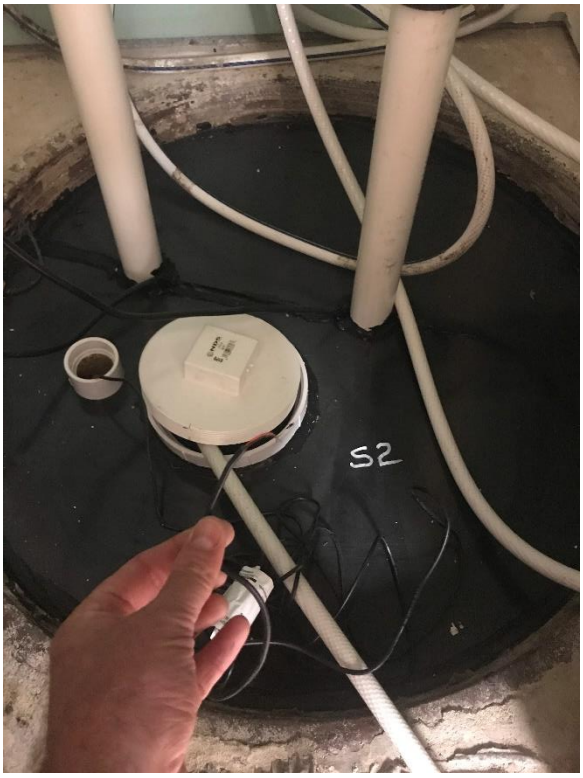


Photo 18: Sump 2 lid with open port for dehumidifier hose 08/06/2019

Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 19: Sub-slab vapor sampling equipment at sub-slab depressurization mitigation system cleanout sample location, typical 08/14/2019

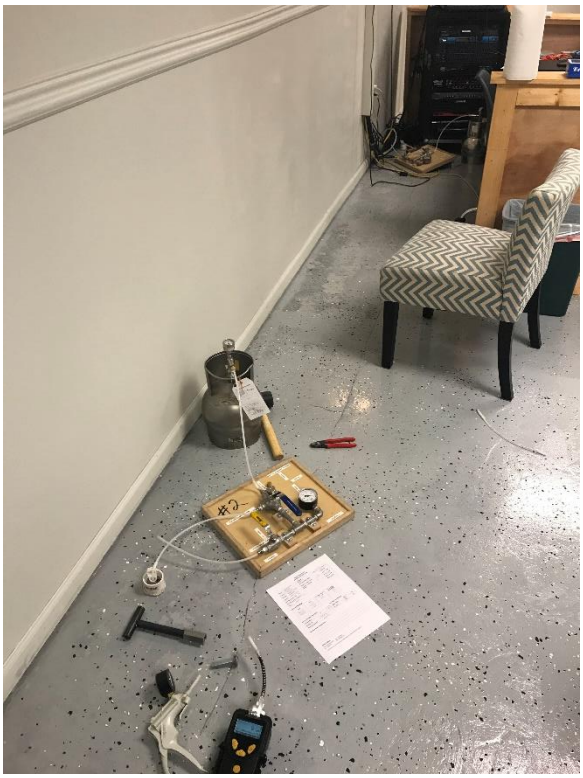


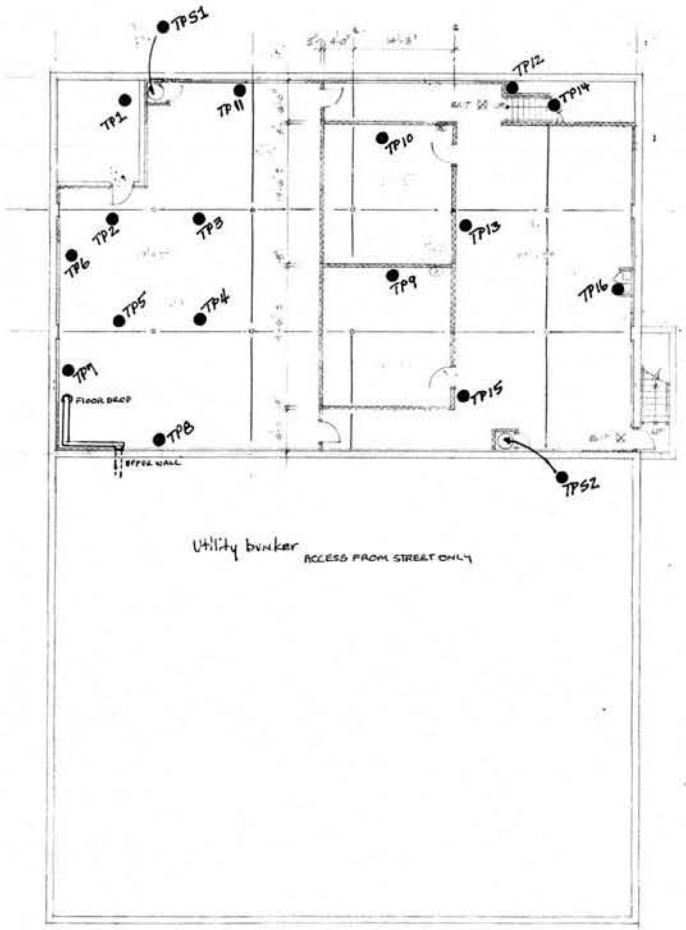
Photo 20: Sub-slab vapor sampling equipment at RAE vacuum test port, typical 08/14/2019

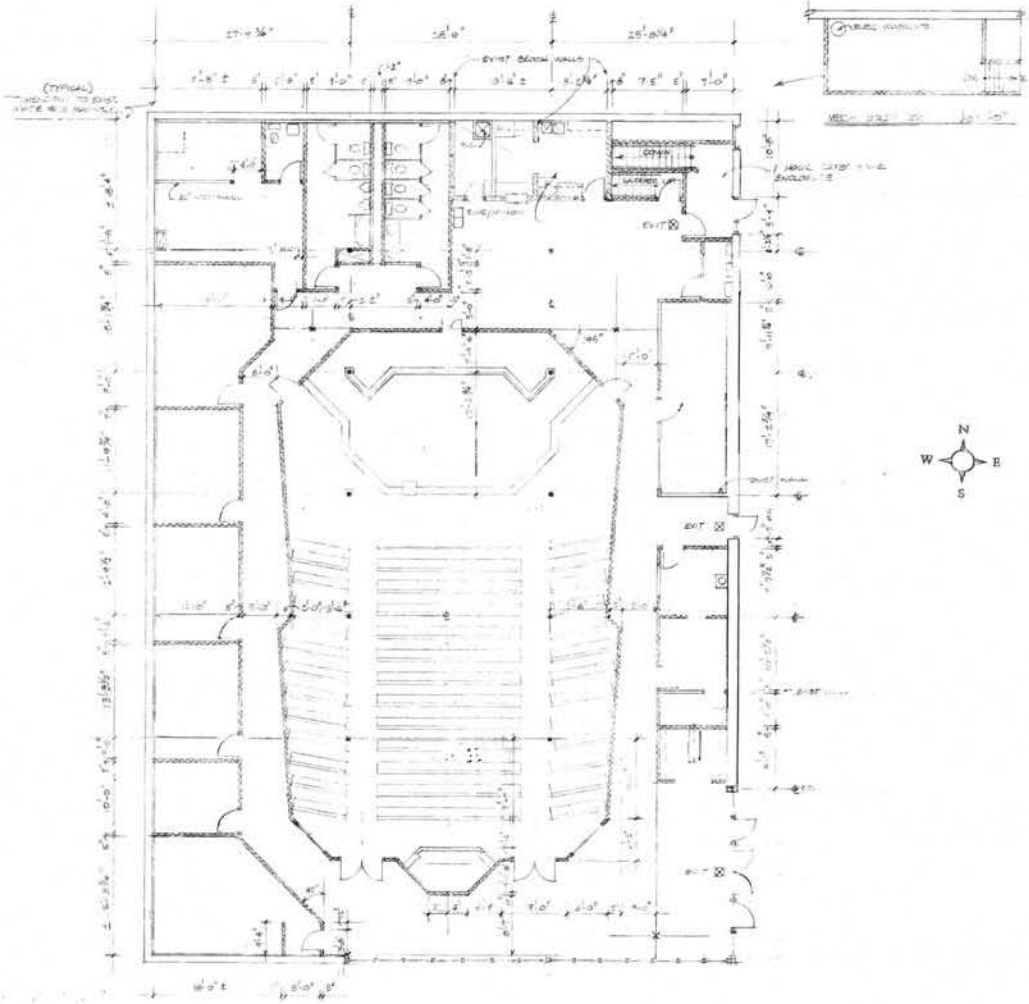
Grace Christian Fellowship Vapor Mitigation Systems Evaluation Photos
SCS Engineers Project #25216050.01

Photo 21: Manometer on sub-slab depressurization mitigation system piping after drain tile ventilation system and sub-slab depressurization mitigation system turned back on 08/14/2019

Attachment B

RAE Sample Location Maps





Floor Plan Scale 1/8" = 1'– 0"

GRACE CHRISTIAN FELLOWSHIP

9900 WEST CAPITOL DRIVE MILWAUKEE WISCONSIN

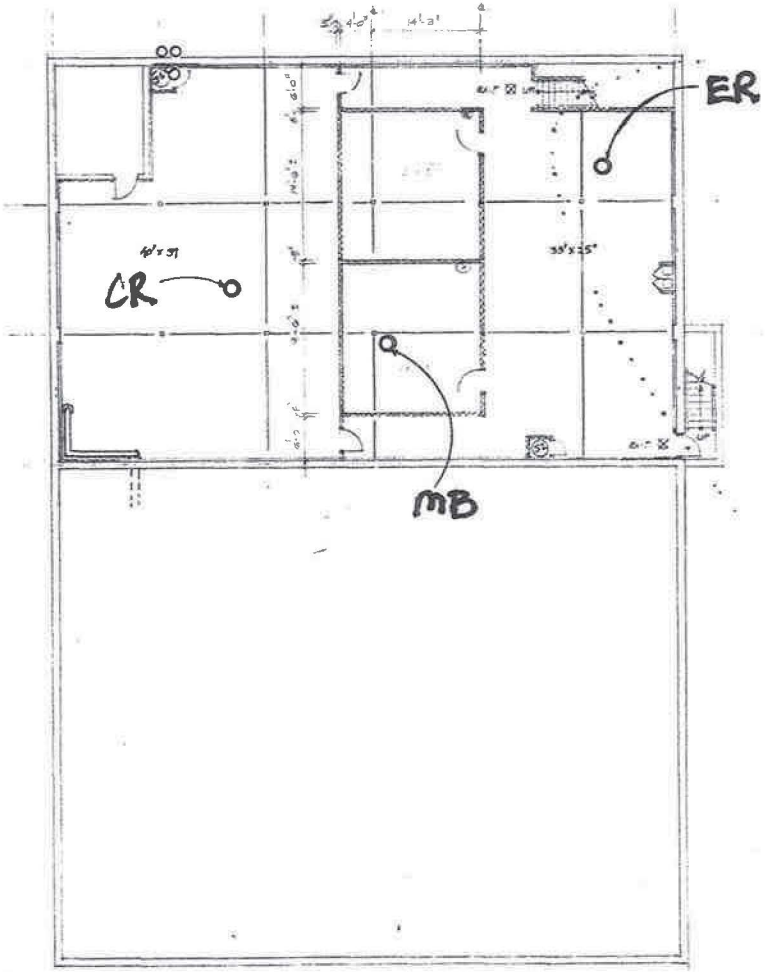
03/11/19 SYSTEMS OFF
03/14/19 SYSTEMS ON, W SYSTEM ONLY, NW SYSTEM ONLY

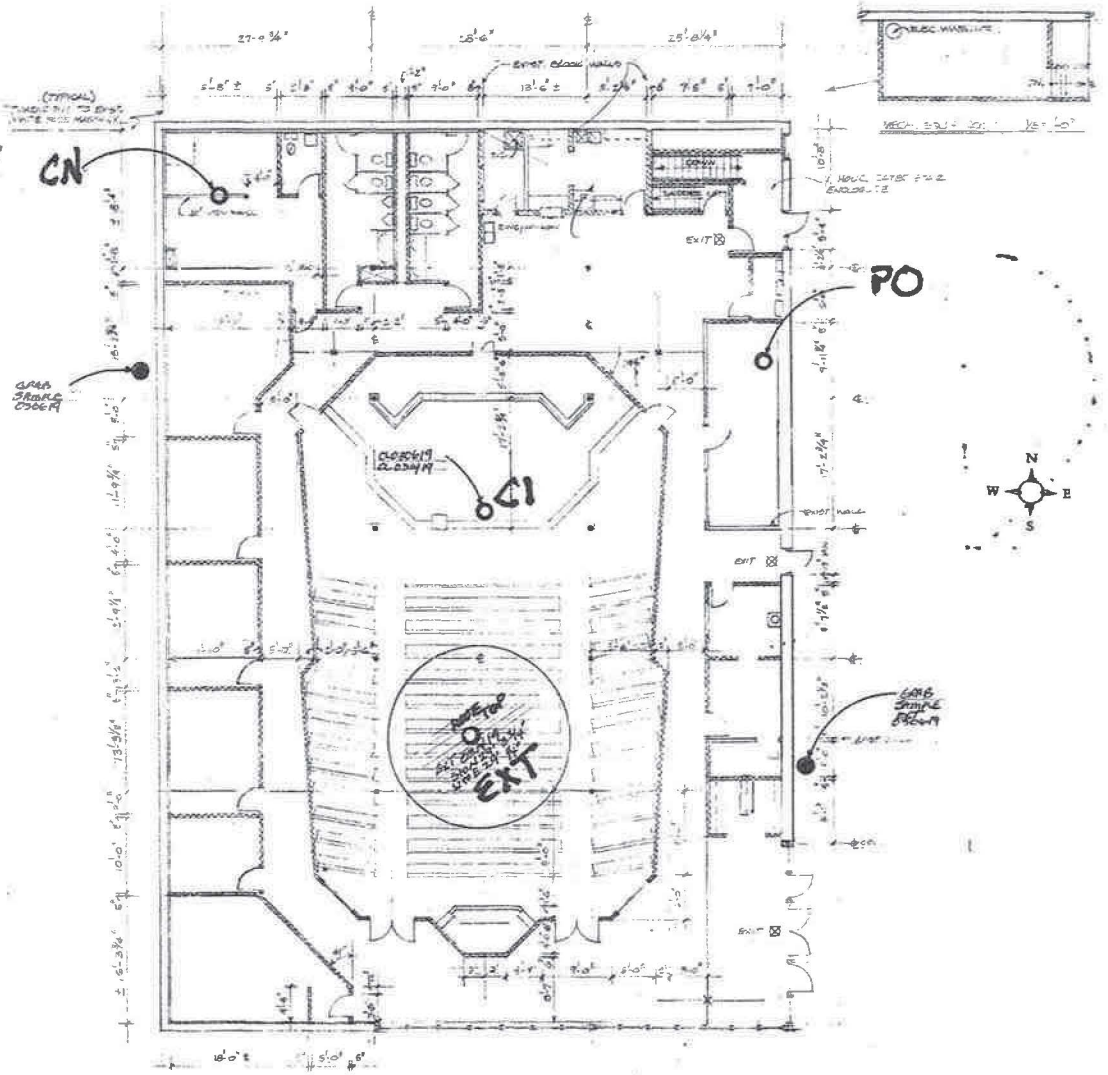
FIELD EXTENSION COMMUNICATION TESTING

RA ENVIRONMENTAL
414-546-3691 HALES CORNERS WISCONSIN

LEGEND
TEST POINTS
FES ●

CHART "B"





Floor Plan Scale 1/8" = 1'– 0"

GRACE CHRISTIAN FELLOWSHIP

9900 WEST CAPITOL DRIVE MILWAUKEE WISCONSIN

030619	A
031419	B

AMBIENT AIR EVALUATION

RA ENVIRONMENTAL
414-446-3691 HALES CORNERS WISCONSIN

CHART "C"

Attachment C

Laboratory Analytical Reports

Pace Analytical®
www.pacelabs.com

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

August 21, 2019

Rob Langdon
SCS Engineers
2830 Dairy Dr.
Madison, WI 53718

RE: Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Dear Rob Langdon:
Enclosed are the analytical results for sample(s) received by the laboratory on August 15, 2019. 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.

This report was revised August 21, 2019 to change the sample ID for 10487546-004

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

Sincerely,

Kirsten Hogberg

Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

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

CERTIFICATIONS

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW 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
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
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 Primary 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
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

Pace Analytical®
www.pacelabs.com

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

SAMPLE SUMMARY

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10487546001	**TP-11**	Air	08/14/19 11:00	08/15/19 11:10
10487546002	**TP-1**	Air	08/14/19 11:15	08/15/19 11:10
10487546003	**TP-6**	Air	08/14/19 11:37	08/15/19 11:10
10487546004	**TP-7**	Air	08/14/19 11:53	08/15/19 11:10
10487546005	**TP-3**	Air	08/14/19 12:21	08/15/19 11:10
10487546006	**TP-10**	Air	08/14/19 13:12	08/15/19 11:10

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

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

SAMPLE ANALYTE COUNT

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10487546001	**TP-11**	TO-15	CH1	9	PASI-M
10487546002	**TP-1**	TO-15	CH1	9	PASI-M
10487546003	**TP-6**	TO-15	CH1	9	PASI-M
10487546004	**TP-7**	TO-15	CH1	9	PASI-M
10487546005	**TP-3**	TO-15	CH1	9	PASI-M
10487546006	**TP-10**	TO-15	CH1	9	PASI-M

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

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

ANALYTICAL RESULTS

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Sample: TP-11 **Lab ID: 10487546001** Collected: 08/14/19 11:00 Received: 08/15/19 11:10 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**<0.27**	ug/m3	0.57	0.27	1.75		08/18/19 21:04	71-43-2	
Ethylbenzene	**2.2**	ug/m3	1.5	0.53	1.75		08/18/19 21:04	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/m3	6.4	1.2	1.75		08/18/19 21:04	1634-04-4	
Naphthalene	**<2.3**	ug/m3	4.7	2.3	1.75		08/18/19 21:04	91-20-3	
Toluene	**4.4**	ug/m3	1.3	0.61	1.75		08/18/19 21:04	108-88-3	
1,2,4-Trimethylbenzene	**3.5**	ug/m3	1.7	0.79	1.75		08/18/19 21:04	95-63-6	
1,3,5-Trimethylbenzene	**<0.70**	ug/m3	1.7	0.70	1.75		08/18/19 21:04	108-67-8	
m&p-Xylene	**5.3**	ug/m3	3.1	1.2	1.75		08/18/19 21:04	179601-23-1	
o-Xylene	**2.2**	ug/m3	1.5	0.60	1.75		08/18/19 21:04	95-47-6	

Sample: TP-1 **Lab ID: 10487546002** Collected: 08/14/19 11:15 Received: 08/15/19 11:10 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**1.3**	ug/m3	0.58	0.27	1.79		08/18/19 21:35	71-43-2	
Ethylbenzene	**4.0**	ug/m3	1.6	0.55	1.79		08/18/19 21:35	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/m3	6.6	1.2	1.79		08/18/19 21:35	1634-04-4	
Naphthalene	**6.3**	ug/m3	4.8	2.4	1.79		08/18/19 21:35	91-20-3	
Toluene	**8.5**	ug/m3	1.4	0.63	1.79		08/18/19 21:35	108-88-3	
1,2,4-Trimethylbenzene	**5.4**	ug/m3	1.8	0.81	1.79		08/18/19 21:35	95-63-6	
1,3,5-Trimethylbenzene	**<0.71**	ug/m3	1.8	0.71	1.79		08/18/19 21:35	108-67-8	
m&p-Xylene	**11.5**	ug/m3	3.2	1.3	1.79		08/18/19 21:35	179601-23-1	
o-Xylene	**3.6**	ug/m3	1.6	0.62	1.79		08/18/19 21:35	95-47-6	

Sample: TP-6 **Lab ID: 10487546003** Collected: 08/14/19 11:37 Received: 08/15/19 11:10 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**1.1**	ug/m3	0.57	0.27	1.75		08/18/19 22:05	71-43-2	
Ethylbenzene	**3.1**	ug/m3	1.5	0.53	1.75		08/18/19 22:05	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/m3	6.4	1.2	1.75		08/18/19 22:05	1634-04-4	
Naphthalene	**6.0**	ug/m3	4.7	2.3	1.75		08/18/19 22:05	91-20-3	
Toluene	**8.7**	ug/m3	1.3	0.61	1.75		08/18/19 22:05	108-88-3	
1,2,4-Trimethylbenzene	**4.6**	ug/m3	1.7	0.79	1.75		08/18/19 22:05	95-63-6	
1,3,5-Trimethylbenzene	**<0.70**	ug/m3	1.7	0.70	1.75		08/18/19 22:05	108-67-8	
m&p-Xylene	**8.8**	ug/m3	3.1	1.2	1.75		08/18/19 22:05	179601-23-1	
o-Xylene	**3.2**	ug/m3	1.5	0.60	1.75		08/18/19 22:05	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

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

ANALYTICAL RESULTS

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Sample: TP-7 **Lab ID: 10487546004** Collected: 08/14/19 11:53 Received: 08/15/19 11:10 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**1.4**	ug/m3	0.57	0.27	1.75		08/18/19 22:35	71-43-2	
Ethylbenzene	**3.3**	ug/m3	1.5	0.53	1.75		08/18/19 22:35	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/m3	6.4	1.2	1.75		08/18/19 22:35	1634-04-4	
Naphthalene	**6.7**	ug/m3	4.7	2.3	1.75		08/18/19 22:35	91-20-3	
Toluene	**9.0**	ug/m3	1.3	0.61	1.75		08/18/19 22:35	108-88-3	
1,2,4-Trimethylbenzene	**5.1**	ug/m3	1.7	0.79	1.75		08/18/19 22:35	95-63-6	
1,3,5-Trimethylbenzene	**<0.70**	ug/m3	1.7	0.70	1.75		08/18/19 22:35	108-67-8	
m&p-Xylene	**8.9**	ug/m3	3.1	1.2	1.75		08/18/19 22:35	179601-23-1	
o-Xylene	**3.3**	ug/m3	1.5	0.60	1.75		08/18/19 22:35	95-47-6	

Sample: TP-3 **Lab ID: 10487546005** Collected: 08/14/19 12:21 Received: 08/15/19 11:10 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**1.6**	ug/m3	0.55	0.26	1.68		08/18/19 23:06	71-43-2	
Ethylbenzene	**3.2**	ug/m3	1.5	0.51	1.68		08/18/19 23:06	100-41-4	
Methyl-tert-butyl ether	**<1.1**	ug/m3	6.1	1.1	1.68		08/18/19 23:06	1634-04-4	
Naphthalene	**5.9**	ug/m3	4.5	2.2	1.68		08/18/19 23:06	91-20-3	
Toluene	**6.8**	ug/m3	1.3	0.59	1.68		08/18/19 23:06	108-88-3	
1,2,4-Trimethylbenzene	**4.3**	ug/m3	1.7	0.76	1.68		08/18/19 23:06	95-63-6	
1,3,5-Trimethylbenzene	**<0.67**	ug/m3	1.7	0.67	1.68		08/18/19 23:06	108-67-8	
m&p-Xylene	**8.9**	ug/m3	3.0	1.2	1.68		08/18/19 23:06	179601-23-1	
o-Xylene	**2.9**	ug/m3	1.5	0.58	1.68		08/18/19 23:06	95-47-6	

Sample: TP-10 **Lab ID: 10487546006** Collected: 08/14/19 13:12 Received: 08/15/19 11:10 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**1.2**	ug/m3	0.59	0.28	1.83		08/18/19 23:36	71-43-2	
Ethylbenzene	**3.3**	ug/m3	1.6	0.56	1.83		08/18/19 23:36	100-41-4	
Methyl-tert-butyl ether	**<1.2**	ug/m3	6.7	1.2	1.83		08/18/19 23:36	1634-04-4	
Naphthalene	**<2.4**	ug/m3	4.9	2.4	1.83		08/18/19 23:36	91-20-3	
Toluene	**7.0**	ug/m3	1.4	0.64	1.83		08/18/19 23:36	108-88-3	
1,2,4-Trimethylbenzene	**4.7**	ug/m3	1.8	0.83	1.83		08/18/19 23:36	95-63-6	
1,3,5-Trimethylbenzene	**<0.73**	ug/m3	1.8	0.73	1.83		08/18/19 23:36	108-67-8	
m&p-Xylene	**8.5**	ug/m3	3.2	1.3	1.83		08/18/19 23:36	179601-23-1	
o-Xylene	**3.0**	ug/m3	1.6	0.63	1.83		08/18/19 23:36	95-47-6	

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

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

QUALITY CONTROL DATA

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

QC Batch: 626996 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10487546001, 10487546002, 10487546003, 10487546004, 10487546005, 10487546006

METHOD BLANK: 3383270 Matrix: Air
Associated Lab Samples: 10487546001, 10487546002, 10487546003, 10487546004, 10487546005, 10487546006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	<0.45	1.0	08/18/19 10:56	
1,3,5-Trimethylbenzene	ug/m3	<0.40	1.0	08/18/19 10:56	
Benzene	ug/m3	<0.15	0.32	08/18/19 10:56	
Ethylbenzene	ug/m3	<0.30	0.88	08/18/19 10:56	
m&p-Xylene	ug/m3	<0.70	1.8	08/18/19 10:56	
Methyl-tert-butyl ether	ug/m3	<0.66	3.7	08/18/19 10:56	
Naphthalene	ug/m3	<1.3	2.7	08/18/19 10:56	
o-Xylene	ug/m3	<0.34	0.88	08/18/19 10:56	
Toluene	ug/m3	<0.35	0.77	08/18/19 10:56	

LABORATORY CONTROL SAMPLE: 3383271

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	57.4	115	70-134	
1,3,5-Trimethylbenzene	ug/m3	50	59.1	118	70-132	
Benzene	ug/m3	32.5	37.1	114	70-130	
Ethylbenzene	ug/m3	44.1	53.1	120	67-131	
m&p-Xylene	ug/m3	88.3	109	124	70-132	
Methyl-tert-butyl ether	ug/m3	36.6	45.8	125	70-130	
Naphthalene	ug/m3	53.3	61.6	116	56-130	
o-Xylene	ug/m3	44.1	51.4	116	70-130	
Toluene	ug/m3	38.3	49.7	130	70-130	

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.

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

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, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

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

Pace Analytical®
www.pacelabs.com

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25216050.01 Grace Christian-Revised Report
Pace Project No.: 10487546

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10487546001	**TP-11**	TO-15	626996		
10487546002	**TP-1**	TO-15	626996		
10487546003	**TP-6**	TO-15	626996		
10487546004	**TP-7**	TO-15	626996		
10487546005	**TP-3**	TO-15	626996		
10487546006	**TP-10**	TO-15	626996		

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / A

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant f

WO# : 10487546

10487546

46144

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: SCS Engineers	Report To: Robert Langdon	Attention: Robert Langdon
Address: 2830 Dairy Dr Madison, WI 53718	Copy To: —	Company Name: SCS Engineers
Email To: rlangdon@scsengineers.com	Purchase Order No.:	Address:
Phone: Fax:	Project Name: Grace Christian	Pace Quote Reference:
Requested Due Date/TAT: Standard	Project Number: 25216050.01	Pace Project Manager/Sales Rep.
		Pace Profile #: 32630

Program: ☒ DST ☐ 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 X PPMV ___ Other ___

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

Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

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 #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other) *	Pace Lab ID
1	TP-11	LC	75	8/14/19	1030	8/14/19	1100	29	7	1494	1007							X			PID = 75 AOV 001
2	TP-1		60		1045		1115	30	8	0693	0686							X			002
3	TP-6		0		1107		1137	29	6	0533	1650										003
4	TP-9 FIELD		0		1123		1153	29	7	0069	1610										004
5	TP-3		216		1151		1221	30	7	1665	1628										005
6	TP-10		40		1242		1312	31	8	3500	0617										006
7																					
8																					
9																					
10																					
11																					
12																					

Comments:

* Analyze for benzene, ethylbenzene, MTBE, toluene, trimethylbenzenes, xylenes, and naphthalene.

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Robert Langdon/SCS	8/14/19	5:00	Matt [illegible] /Pace	8-15-19	11:10

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Robert Langdon

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM / DD / YY): 8-14-19

SAMPLE CONDITIONS			
Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
4 AMB	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 31Jan2019 Page 1 of 1
	Document No.: F-MN-A-106-rev.18	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: SCS Engineers **Project #:** **WO#: 10487546**

PM: KNH **Due Date: 08/22/19**

CLIENT: SCS Engineer

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Pace ☐ SpeeDee ☐ Commercial **See Exception** ☐

Tracking Number: 1083 0279 5699, 1083 0279 5703

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

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

Temp. (TO17 and TO13 samples only) (°C): — **Corrected Temp (°C):** — **Thermometer Used:** ☐ G87A9170600254 ☐ G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** — **Date & Initials of Person Examining Contents:** 8-15-19 MZ

Type of Ice Received ☐ Blue ☐ Wet ☑ None

			Comments:
Chain of Custody Present?	☑ Yes	☐ No	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No ☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	7.
Sufficient Volume?	☑ Yes	☐ No	8.
Correct Containers Used?	☑ Yes	☐ No	9.
-Pace Containers Used?	☑ Yes	☐ No	
Containers Intact?	☑ Yes	☐ No	10.
Media: (Air Can) Airbag Filter TDT Passive			11. Individually Certified Cans Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	☑ Yes	☐ No	12.
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	☐ Yes	☐ No	13.

Samples Received: Pressure Gauge # ☐ 10AIR34 ☑ 10AIR35

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
TP-11	1494	1000	-7	+5					
TP-1	693	685	-7.5	"					
TP-6	533	1650	-7	"					
TP-9 FTB4	69	1610	-7	"					
TP-3	1665	1628	-6	"					
TP-10	3500	617	-8	"					

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Kirsten Hoffberg **Date:** 8/15/2019

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)

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

Lab Sample No: 10487546001
Client Sample ID: TP-11

ProjSampleNum: 10487546001
Matrix: Air

Date Collected: 08/14/19 11:00
Date Received: 08/15/19 11:10

Parameters	Results	Units	Report Limit	DF	Analyzed	CAS No.	Qualifiers
Air							
TO-15							
1,2,4-Trimethylbenzene	0.7	ppbv	0.34	1.75	08/18/19 21:04 CH1	95-63-6	
1,3,5-Trimethylbenzene	<0.14	ppbv	0.34	1.75	08/18/19 21:04 CH1	108-67-8	
Benzene	<0.083	ppbv	0.18	1.75	08/18/19 21:04 CH1	71-43-2	
Ethylbenzene	0.5	ppbv	0.34	1.75	08/18/19 21:04 CH1	100-41-4	
m&p-Xylene	1.2	ppbv	0.7	1.75	08/18/19 21:04 CH1	179601-23-1	
Methyl-tert-butyl ether	<0.33	ppbv	1.7	1.75	08/18/19 21:04 CH1	1634-04-4	
Naphthalene	<0.43	ppbv	0.88	1.75	08/18/19 21:04 CH1	91-20-3	
o-Xylene	0.5	ppbv	0.34	1.75	08/18/19 21:04 CH1	95-47-6	
Toluene	1.1	ppbv	0.34	1.75	08/18/19 21:04 CH1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

Lab Sample No: 10487546002
Client Sample ID: TP-1

ProjSampleNum: 10487546002
Matrix: Air

Date Collected: 08/14/19 11:15
Date Received: 08/15/19 11:10

Parameters	Results	Units	Report Limit	DF	Analyzed	CAS No.	Qualifiers
Air							
TO-15							
1,2,4-Trimethylbenzene	1.1	ppbv	0.36	1.79	08/18/19 21:35 CH1	95-63-6	
1,3,5-Trimethylbenzene	<0.14	ppbv	0.36	1.79	08/18/19 21:35 CH1	108-67-8	
Benzene	0.4	ppbv	0.18	1.79	08/18/19 21:35 CH1	71-43-2	
Ethylbenzene	0.91	ppbv	0.36	1.79	08/18/19 21:35 CH1	100-41-4	
m&p-Xylene	2.6	ppbv	0.72	1.79	08/18/19 21:35 CH1	179601-23-1	
Methyl-tert-butyl ether	<0.33	ppbv	1.8	1.79	08/18/19 21:35 CH1	1634-04-4	
Naphthalene	1.2	ppbv	0.9	1.79	08/18/19 21:35 CH1	91-20-3	
o-Xylene	0.82	ppbv	0.36	1.79	08/18/19 21:35 CH1	95-47-6	
Toluene	2.2	ppbv	0.37	1.79	08/18/19 21:35 CH1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

Lab Sample No: 10487546003
Client Sample ID: TP-6

ProjSampleNum: 10487546003
Matrix: Air

Date Collected: 08/14/19 11:37
Date Received: 08/15/19 11:10

Parameters	Results	Units	Report Limit	DF	Analyzed	CAS No.	Qualifiers
Air							
TO-15							
1,2,4-Trimethylbenzene	0.92	ppbv	0.34	1.75	08/18/19 22:05 CH1	95-63-6	
1,3,5-Trimethylbenzene	<0.14	ppbv	0.34	1.75	08/18/19 22:05 CH1	108-67-8	
Benzene	0.34	ppbv	0.18	1.75	08/18/19 22:05 CH1	71-43-2	
Ethylbenzene	0.7	ppbv	0.34	1.75	08/18/19 22:05 CH1	100-41-4	
m&p-Xylene	2	ppbv	0.7	1.75	08/18/19 22:05 CH1	179601-23-1	
Methyl-tert-butyl ether	<0.33	ppbv	1.7	1.75	08/18/19 22:05 CH1	1634-04-4	
Naphthalene	1.1	ppbv	0.88	1.75	08/18/19 22:05 CH1	91-20-3	
o-Xylene	0.72	ppbv	0.34	1.75	08/18/19 22:05 CH1	95-47-6	
Toluene	2.3	ppbv	0.34	1.75	08/18/19 22:05 CH1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

Lab Sample No: 10487546004
Client Sample ID: TP-8 7 REL

ProjSampleNum: 10487546004
Matrix: Air

Date Collected: 08/14/19 11:53
Date Received: 08/15/19 11:10

Parameters	Results	Units	Report Limit	DF	Analyzed	CAS No.	Qualifiers
Air							
TO-15							
1,2,4-Trimethylbenzene	1	ppbv	0.34	1.75	08/18/19 22:35 CH1	95-63-6	
1,3,5-Trimethylbenzene	<0.14	ppbv	0.34	1.75	08/18/19 22:35 CH1	108-67-8	
Benzene	0.43	ppbv	0.18	1.75	08/18/19 22:35 CH1	71-43-2	
Ethylbenzene	0.75	ppbv	0.34	1.75	08/18/19 22:35 CH1	100-41-4	
m&p-Xylene	2	ppbv	0.7	1.75	08/18/19 22:35 CH1	179601-23-1	
Methyl-tert-butyl ether	<0.33	ppbv	1.7	1.75	08/18/19 22:35 CH1	1634-04-4	
Naphthalene	1.3	ppbv	0.88	1.75	08/18/19 22:35 CH1	91-20-3	
o-Xylene	0.75	ppbv	0.34	1.75	08/18/19 22:35 CH1	95-47-6	
Toluene	2.3	ppbv	0.34	1.75	08/18/19 22:35 CH1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

Lab Sample No: 10487546005
Client Sample ID: IP-3

ProjSampleNum: 10487546005
Matrix: Air

Date Collected: 08/14/19 12:21
Date Received: 08/15/19 11:10

Parameters	Results	Units	Report Limit	DF	Analyzed	CAS No.	Qualifiers
Air							
TO-15							
1,2,4-Trimethylbenzene	0.86	ppbv	0.34	1.68	08/18/19 23:06 CH1	95-63-6	
1,3,5-Trimethylbenzene	<0.13	ppbv	0.34	1.68	08/18/19 23:06 CH1	108-67-8	
Benzene	0.49	ppbv	0.17	1.68	08/18/19 23:06 CH1	71-43-2	
Ethylbenzene	0.72	ppbv	0.34	1.68	08/18/19 23:06 CH1	100-41-4	
m&p-Xylene	2	ppbv	0.68	1.68	08/18/19 23:06 CH1	179601-23-1	
Methyl-tert-butyl ether	<0.3	ppbv	1.7	1.68	08/18/19 23:06 CH1	1634-04-4	
Naphthalene	1.1	ppbv	0.84	1.68	08/18/19 23:06 CH1	91-20-3	
o-Xylene	0.66	ppbv	0.34	1.68	08/18/19 23:06 CH1	95-47-6	
Toluene	1.8	ppbv	0.34	1.68	08/18/19 23:06 CH1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

SUPPLEMENTAL REPORT

Units Conversion Request

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

Lab Sample No: 10487546006
Client Sample ID: TP-10

ProjSampleNum: 10487546006
Matrix: Air

Date Collected: 08/14/19 13:12
Date Received: 08/15/19 11:10

Parameters	Results	Units	Report Limit	DF	Analyzed	CAS No.	Qualifiers
Air							
TO-15							
1,2,4-Trimethylbenzene	0.94	ppbv	0.36	1.83	08/18/19 23:36 CH1	95-63-6	
1,3,5-Trimethylbenzene	<0.15	ppbv	0.36	1.83	08/18/19 23:36 CH1	108-67-8	
Benzene	0.37	ppbv	0.18	1.83	08/18/19 23:36 CH1	71-43-2	
Ethylbenzene	0.75	ppbv	0.36	1.83	08/18/19 23:36 CH1	100-41-4	
m&p-Xylene	1.9	ppbv	0.72	1.83	08/18/19 23:36 CH1	179601-23-1	
Methyl-tert-butyl ether	<0.33	ppbv	1.8	1.83	08/18/19 23:36 CH1	1634-04-4	
Naphthalene	<0.45	ppbv	0.92	1.83	08/18/19 23:36 CH1	91-20-3	
o-Xylene	0.68	ppbv	0.36	1.83	08/18/19 23:36 CH1	95-47-6	
Toluene	1.8	ppbv	0.37	1.83	08/18/19 23:36 CH1	108-88-3	

DISCLAIMER: These results have been converted to the units shown from the original units of measurement assuming 20 degrees Celsius and 1 atmosphere pressure. Values were not rounded according to EPA rounding rules. THC is quantitated based on the average response factors of several compounds; the nominal molecular weight of THC used for units conversion is the average of the molecular weights of the compounds used for quantitation.

Pace Analytical Services, Inc.
1700 Elm Street – Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

ANALYTICAL RESULTS

Client: SCS Engineers
Phone: 843.746.8525

Lab Project Number: 10487546
Project Name: 25216050.01 Grace Christian

PARAMETER FOOTNOTES

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

March 18, 2019

Thomas Heine
PT Technologies
12221 West Rockne Avenue
Hales Corners, WI 53130

RE: Project: TO-15
Pace Project No.: 10466352

Dear Thomas Heine:
Enclosed are the analytical results for sample(s) received by the laboratory between March 08, 2019 and March 11, 2019. 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,

Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

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

CERTIFICATIONS

Project: TO-15
Pace Project No.: 10466352

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW 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
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
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 Primary 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 DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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

SAMPLE SUMMARY

Project: TO-15
Pace Project No.: 10466352

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10466352001	**2370/17995 C1**	Air	03/07/19 10:05	03/08/19 12:25
10466352002	**3598/17995 CR**	Air	03/07/19 10:10	03/08/19 12:25
10466352003	**844/17995 ER**	Air	03/07/19 10:15	03/11/19 10:15
10466352004	**2343/17995 MB**	Air	03/07/19 10:20	03/11/19 10:15
10466352005	**1689/17995 PO**	Air	03/07/19 10:25	03/11/19 10:15

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

SAMPLE ANALYTE COUNT

Project: TO-15
Pace Project No.: 10466352

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10466352001	**2370/17995 C1**	TO-15	MG2	10	PASI-M
10466352002	**3598/17995 CR**	TO-15	MG2	10	PASI-M
10466352003	**844/17995 ER**	TO-15	MG2	10	PASI-M
10466352004	**2343/17995 MB**	TO-15	MG2	10	PASI-M
10466352005	**1689/17995 PO**	TO-15	MG2	10	PASI-M

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

PROJECT NARRATIVE

Project: TO-15
Pace Project No.: 10466352

Method: **TO-15**
Description: TO15 MSV AIR
Client: PT Technologies
Date: March 18, 2019

General Information:
5 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 593871

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 2370/17995 C1 (Lab ID: 10466352001)
  - THC as Gas
- BLANK (Lab ID: 3210781)
  - THC as Gas
- LCS (Lab ID: 3210782)
  - THC as Gas

QC Batch: 594004

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 1689/17995 PO (Lab ID: 10466352005)
  - THC as Gas
- 2343/17995 MB (Lab ID: 10466352004)
  - THC as Gas

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

PROJECT NARRATIVE

Project: TO-15
Pace Project No.: 10466352

Method: **TO-15**
Description: TO15 MSV AIR
Client: PT Technologies
Date: March 18, 2019

Analyte Comments:

QC Batch: 594004

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 3598/17995 CR (Lab ID: 10466352002)
  - THC as Gas
- 844/17995 ER (Lab ID: 10466352003)
  - THC as Gas
- BLANK (Lab ID: 3211514)
  - THC as Gas
- DUP (Lab ID: 3212268)
  - THC as Gas
- DUP (Lab ID: 3212269)
  - THC as Gas
- LCS (Lab ID: 3211515)
  - THC as Gas

This data package has been reviewed for quality and completeness and is approved for release.

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

ANALYTICAL RESULTS

Project: TO-15
Pace Project No.: 10466352

Sample: 2370/17995 C1 **Lab ID: 10466352001** Collected: 03/07/19 10:05 Received: 03/08/19 12:25 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.85**	ug/m3	0.47	0.22	1.44		03/15/19 00:01	71-43-2	
Ethylbenzene	**2.9**	ug/m3	1.3	0.44	1.44		03/15/19 00:01	100-41-4	
Methyl-tert-butyl ether	**<0.95**	ug/m3	5.3	0.95	1.44		03/15/19 00:01	1634-04-4	
Naphthalene	**<1.9**	ug/m3	3.8	1.9	1.44		03/15/19 00:01	91-20-3	
THC as Gas	**164**	ug/m3	150	74.7	1.44		03/15/19 00:01		N2
Toluene	**10.0**	ug/m3	1.1	0.51	1.44		03/15/19 00:01	108-88-3	
1,2,4-Trimethylbenzene	**1.8**	ug/m3	1.4	0.65	1.44		03/15/19 00:01	95-63-6	
1,3,5-Trimethylbenzene	**1.7**	ug/m3	1.4	0.57	1.44		03/15/19 00:01	108-67-8	
m&p-Xylene	**11.0**	ug/m3	2.5	1.0	1.44		03/15/19 00:01	179601-23-1	
o-Xylene	**9.1**	ug/m3	1.3	0.50	1.44		03/15/19 00:01	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: TO-15
Pace Project No.: 10466352

Sample: 3598/17995 CR **Lab ID: 10466352002** Collected: 03/07/19 10:10 Received: 03/08/19 12:25 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.59**	ug/m3	0.48	0.23	1.49		03/15/19 16:51	71-43-2	
Ethylbenzene	**4.9**	ug/m3	1.3	0.45	1.49		03/15/19 16:51	100-41-4	
Methyl-tert-butyl ether	**<0.99**	ug/m3	5.5	0.99	1.49		03/15/19 16:51	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.0	2.0	1.49		03/15/19 16:51	91-20-3	
THC as Gas	**1090**	ug/m3	155	77.3	1.49		03/15/19 16:51		N2
Toluene	**5.3**	ug/m3	1.1	0.52	1.49		03/15/19 16:51	108-88-3	
1,2,4-Trimethylbenzene	**<0.67**	ug/m3	1.5	0.67	1.49		03/15/19 16:51	95-63-6	
1,3,5-Trimethylbenzene	**<0.59**	ug/m3	1.5	0.59	1.49		03/15/19 16:51	108-67-8	
m&p-Xylene	**12.7**	ug/m3	2.6	1.0	1.49		03/15/19 16:51	179601-23-1	
o-Xylene	**4.3**	ug/m3	1.3	0.51	1.49		03/15/19 16:51	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: TO-15
Pace Project No.: 10466352

Sample: 844/17995 ER **Lab ID: 10466352003** Collected: 03/07/19 10:15 Received: 03/11/19 10:15 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.55**	ug/m3	0.51	0.24	1.58		03/15/19 17:20	71-43-2	
Ethylbenzene	**3.0**	ug/m3	1.4	0.48	1.58		03/15/19 17:20	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.8	1.0	1.58		03/15/19 17:20	1634-04-4	
Naphthalene	**<2.1**	ug/m3	4.2	2.1	1.58		03/15/19 17:20	91-20-3	
THC as Gas	**981**	ug/m3	164	82.0	1.58		03/15/19 17:20		N2
Toluene	**6.1**	ug/m3	1.2	0.55	1.58		03/15/19 17:20	108-88-3	
1,2,4-Trimethylbenzene	**0.96J**	ug/m3	1.6	0.71	1.58		03/15/19 17:20	95-63-6	
1,3,5-Trimethylbenzene	**<0.63**	ug/m3	1.6	0.63	1.58		03/15/19 17:20	108-67-8	
m&p-Xylene	**8.3**	ug/m3	2.8	1.1	1.58		03/15/19 17:20	179601-23-1	
o-Xylene	**3.8**	ug/m3	1.4	0.54	1.58		03/15/19 17:20	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: TO-15
Pace Project No.: 10466352

Sample: 2343/17995 MB **Lab ID: 10466352004** Collected: 03/07/19 10:20 Received: 03/11/19 10:15 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.60**	ug/m3	0.50	0.24	1.55		03/15/19 17:49	71-43-2	
Ethylbenzene	**3.9**	ug/m3	1.4	0.47	1.55		03/15/19 17:49	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		03/15/19 17:49	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.1	2.0	1.55		03/15/19 17:49	91-20-3	
THC as Gas	**956**	ug/m3	161	80.4	1.55		03/15/19 17:49		N2
Toluene	**6.6**	ug/m3	1.2	0.54	1.55		03/15/19 17:49	108-88-3	
1,2,4-Trimethylbenzene	**0.80J**	ug/m3	1.5	0.70	1.55		03/15/19 17:49	95-63-6	
1,3,5-Trimethylbenzene	**0.69J**	ug/m3	1.5	0.62	1.55		03/15/19 17:49	108-67-8	
m&p-Xylene	**10.6**	ug/m3	2.7	1.1	1.55		03/15/19 17:49	179601-23-1	
o-Xylene	**4.4**	ug/m3	1.4	0.53	1.55		03/15/19 17:49	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: TO-15
Pace Project No.: 10466352

Sample: 1689/17995 PO **Lab ID: 10466352005** Collected: 03/07/19 10:25 Received: 03/11/19 10:15 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.76**	ug/m3	0.50	0.24	1.55		03/15/19 18:18	71-43-2	
Ethylbenzene	**<0.47**	ug/m3	1.4	0.47	1.55		03/15/19 18:18	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		03/15/19 18:18	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.1	2.0	1.55		03/15/19 18:18	91-20-3	
THC as Gas	**984**	ug/m3	161	80.4	1.55		03/15/19 18:18		N2
Toluene	**<0.54**	ug/m3	1.2	0.54	1.55		03/15/19 18:18	108-88-3	
1,2,4-Trimethylbenzene	**<0.70**	ug/m3	1.5	0.70	1.55		03/15/19 18:18	95-63-6	
1,3,5-Trimethylbenzene	**<0.62**	ug/m3	1.5	0.62	1.55		03/15/19 18:18	108-67-8	
m&p-Xylene	**<1.1**	ug/m3	2.7	1.1	1.55		03/15/19 18:18	179601-23-1	
o-Xylene	**<0.53**	ug/m3	1.4	0.53	1.55		03/15/19 18:18	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: TO-15
Pace Project No.: 10466352

QC Batch: 593871 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10466352001

METHOD BLANK: 3210781 Matrix: Air
Associated Lab Samples: 10466352001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	<0.23	0.50	03/14/19 11:48	
1,3,5-Trimethylbenzene	ug/m3	<0.20	0.50	03/14/19 11:48	
Benzene	ug/m3	<0.076	0.16	03/14/19 11:48	
Ethylbenzene	ug/m3	<0.15	0.44	03/14/19 11:48	
m&p-Xylene	ug/m3	<0.35	0.88	03/14/19 11:48	
Methyl-tert-butyl ether	ug/m3	<0.33	1.8	03/14/19 11:48	
Naphthalene	ug/m3	<0.66	1.3	03/14/19 11:48	
o-Xylene	ug/m3	<0.17	0.44	03/14/19 11:48	
THC as Gas	ug/m3	<26.0	52.0	03/14/19 11:48	N2
Toluene	ug/m3	<0.18	0.38	03/14/19 11:48	

LABORATORY CONTROL SAMPLE: 3210782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	49.6	99	70-134	
1,3,5-Trimethylbenzene	ug/m3	50	49.1	98	70-132	
Benzene	ug/m3	32.5	30.4	94	70-130	
Ethylbenzene	ug/m3	44.1	43.5	99	67-131	
m&p-Xylene	ug/m3	88.3	85.3	97	70-132	
Methyl-tert-butyl ether	ug/m3	36.6	35.1	96	70-130	
Naphthalene	ug/m3	53.3	45.7	86	56-130	
o-Xylene	ug/m3	44.1	42.0	95	70-130	
THC as Gas	ug/m3	4890	5440	111	64-140	N2
Toluene	ug/m3	38.3	36.7	96	70-130	

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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: TO-15
Pace Project No.: 10466352

QC Batch: 594004 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10466352002, 10466352003, 10466352004, 10466352005

METHOD BLANK: 3211514 Matrix: Air
Associated Lab Samples: 10466352002, 10466352003, 10466352004, 10466352005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	<0.23	0.50	03/15/19 09:16	
1,3,5-Trimethylbenzene	ug/m3	<0.20	0.50	03/15/19 09:16	
Benzene	ug/m3	<0.076	0.16	03/15/19 09:16	
Ethylbenzene	ug/m3	<0.15	0.44	03/15/19 09:16	
m&p-Xylene	ug/m3	<0.35	0.88	03/15/19 09:16	
Methyl-tert-butyl ether	ug/m3	<0.33	1.8	03/15/19 09:16	
Naphthalene	ug/m3	<0.66	1.3	03/15/19 09:16	
o-Xylene	ug/m3	<0.17	0.44	03/15/19 09:16	
THC as Gas	ug/m3	<26.0	52.0	03/15/19 09:16	N2
Toluene	ug/m3	<0.18	0.38	03/15/19 09:16	

LABORATORY CONTROL SAMPLE: 3211515

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	52.3	105	70-134	
1,3,5-Trimethylbenzene	ug/m3	50	54.5	109	70-132	
Benzene	ug/m3	32.5	31.9	98	70-130	
Ethylbenzene	ug/m3	44.1	48.5	110	67-131	
m&p-Xylene	ug/m3	88.3	93.0	105	70-132	
Methyl-tert-butyl ether	ug/m3	36.6	38.2	104	70-130	
Naphthalene	ug/m3	53.3	51.9	97	56-130	
o-Xylene	ug/m3	44.1	46.6	105	70-130	
THC as Gas	ug/m3	4890	5440	111	64-140	N2
Toluene	ug/m3	38.3	38.9	101	70-130	

SAMPLE DUPLICATE: 3212268

Parameter	Units	10466351001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	41.1	40.6	1	25	
1,3,5-Trimethylbenzene	ug/m3	15.8	16.1	2	25	
Benzene	ug/m3	8.2	8.5	3	25	
Ethylbenzene	ug/m3	34.8	33.8	3	25	
m&p-Xylene	ug/m3	78.8	78.9	0	25	
Methyl-tert-butyl ether	ug/m3	<1.2	<1.2		25	
Naphthalene	ug/m3	2.7J	2.9J		25	
o-Xylene	ug/m3	28.9	28.9	0	25	
THC as Gas	ug/m3	5330	5820	9	25	N2
Toluene	ug/m3	182	186	2	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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: TO-15
Pace Project No.: 10466352

SAMPLE DUPLICATE: 3212269

Parameter	Units	10466351002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	11.1	11.1	0	25	
1,3,5-Trimethylbenzene	ug/m3	4.1	4.0	3	25	
Benzene	ug/m3	36.7	36.5	1	25	
Ethylbenzene	ug/m3	24.0	24.2	1	25	
m&p-Xylene	ug/m3	35.6	36.1	1	25	
Methyl-tert-butyl ether	ug/m3	<1.2	<1.2		25	
Naphthalene	ug/m3	<2.4	<2.4		25	
o-Xylene	ug/m3	13.2	12.9	2	25	
THC as Gas	ug/m3	5730	5960	4	25	N2
Toluene	ug/m3	153	154	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.

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: TO-15
Pace Project No.: 10466352

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, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

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

ANALYTE QUALIFIERS

N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TO-15
Pace Project No.: 10466352

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10466352001	**2370/17995 C1**	TO-15	593871		
10466352002	**3598/17995 CR**	TO-15	594004		
10466352003	**844/17995 ER**	TO-15	594004		
10466352004	**2343/17995 MB**	TO-15	594004		
10466352005	**1689/17995 PO**	TO-15	594004		

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY / Ana

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields

WO# : 10466352

10466352

38097

Page: of

Section A
Required Client Information:

Company: RA ENVIRONMENTAL
Address: 12221 W. ROCKNE AVE
HALES CORNERS, WI 53130
Email To: radabt1@wi.rr.com
Phone: 414 303-4038 Fax: —
Requested Due Date/TAT:

Section B
Required Project Information:

Report To: TOM HEINE
Copy To: RA ENVIRONMENTAL
Purchase Order No.:
Project Name:
Project Number:

Section C
Invoice Information:

Attention: TOM HEINE
Company Name: RA ENVIRONMENTA
Address: 12221 W. ROCKNE AVE HALE CORNER WI 53130
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #: 39778

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

Location of Sampling by State

Reporting Units
ug/m³ mg/m³
PPBV PPMV
Other

Report Level II. III. IV. Other

'Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

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 #	CAN ID / BATCH	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE - END/GRAB DATE	COMPOSITE - END/GRAB TIME	Canister Pressure (Initial Field - In Hg)	Canister Pressure (Final Field - In Hg)	Summa Can Number	Flow Control Number	Method:	Pace Lab ID
1	2370/17995 C1			3/6/19	10:05 AM	3/7/19	10:05 AM			2370			001
2	3598/17995 CR			3/6/19	10:10 AM	3/7/19	10:10 AM			3595			002
3	844/17995 ER			3/6/19	10:15 AM	3/7/19	10:15 AM			844			003
4	2343/17995 MB			3/6/19	10:20 AM	3/7/19	10:20 AM			2343			004
5	1689/17995 PO			3/6/19	10:25 AM	3/7/19	10:25 AM			1689			005
6													
7													
8													
9													
10													
11													
12													

Method: PM10 | 3C - Fixed Gas (%) | TO-3 BTEX | TO-3M (Methane) | TO-14 | TO-15 Full List VOCs | TO-15 Short List BTEX | TO-15 Short List Chlorinated | TO-15 Short List (other)

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
			[signature]	3/8/19	12:25
			[signature] RA	3-11-19	1015

SAMPLE CONDITIONS

	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	AM	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: TOM HEINE
SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY)

ORIGINAL

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 31Jan2019 Page 1 of 1
	Document No.: F-MN-A-106-rev.18	Issuing Authority:

Air Sample Condition Upon Receipt

Client Name: IZA Env. **Project #:** **WO#: 10466352**

PM: KNH **Due Date: 03/15/19**

CLIENT: PT Tech

Courier: ☐Fed Ex ☐UPS ☐USPS ☐Client ☐Pace ☐SpeeDee ☐Commercial **See Exception** ☐

Tracking Number: 4545 9910 2120 /2131

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

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 **Thermometer Used:** ☐G87A9170600254 ☐G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** X **Date & Initials of Person Examining Contents:** 3-11-19 AA

Type of ice Received ☐Blue ☐Wet ☒None

			Comments:
Chain of Custody Present?	☒Yes	☐No	1.
Chain of Custody Filled Out?	☒Yes	☐No	2.
Chain of Custody Relinquished?	☐Yes	☒No	3.
Sampler Name and/or Signature on COC?	☒Yes	☐No ☐N/A	4.
Samples Arrived within Hold Time?	☒Yes	☐No	5.
Short Hold Time Analysis (<72 hr)?	☐Yes	☒No	6.
Rush Turn Around Time Requested?	☐Yes	☒No	7.
Sufficient Volume?	☒Yes	☐No	8.
Correct Containers Used?	☒Yes	☐No	9.
-Pace Containers Used?	☒Yes	☐No	
Containers Intact?	☒Yes	☐No	10.
Media: (Air Can) Airbag Filter TDT Passive			11. Individually Certified Cans Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	☒Yes	☐No	12.
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	☒Yes	☐No	13. NO analysis on COC, TO15 on media order

Samples Received: C1 & CR recd 3-8-19 @ 1225 ER, MB, & PO recd 3-11-19 @ 1015 Pressure Gauge # ☐10AIR34 ☒10AIR35

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
C1	2370	1377	-2	+5					
CR	3598	0342	-3	"					
ER	0844	1454	-4.5	"					
MB	2343	0272	-4	"					
PO	1689	1433	-4	"					

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: Samples collected in WI.

Project Manager Review: Kristen Hoffberg **Date:** 3/11/2019

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)

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

April 01, 2019

Thomas Heine
PT Technologies
12221 West Rockne Avenue
Hales Corners, WI 53130

RE: Project: 18083
Pace Project No.: 10467249

Dear Thomas Heine:
Enclosed are the analytical results for sample(s) received by the laboratory on March 19, 2019. 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,

Kirsten Hogberg
kirsten.hogberg@pacelabs.com
(612)607-1700
Project Manager

Enclosures

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

CERTIFICATIONS

Project: 18083
Pace Project No.: 10467249

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW 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
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
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 Primary 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 DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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

SAMPLE SUMMARY

Project: 18083
Pace Project No.: 10467249

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10467249001	**Can ID 3316 Batch 18083 PO**	Air	03/15/19 10:40	03/19/19 10:00
10467249002	**Can ID 2159 Batch 18083 CI**	Air	03/15/19 10:45	03/19/19 10:00
10467249003	**Can ID 2355 Batch 18083 CR**	Air	03/15/19 10:50	03/19/19 10:00
10467249004	**Can ID 2373 Batch 18083 ER**	Air	03/15/19 10:50	03/19/19 10:00
10467249005	**Can ID 972 Batch 18083 MB**	Air	03/15/19 10:55	03/19/19 10:00
10467249006	**Can ID 2720 Batch 18083 CN**	Air	03/15/19 10:55	03/19/19 10:00
10467249007	**Can ID 2091 Batch 18083 EXT**	Air	03/15/19 11:05	03/19/19 10:00

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

SAMPLE ANALYTE COUNT

Project: 18083
Pace Project No.: 10467249

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10467249001	**Can ID 3316 Batch 18083 PO**	TO-15	MG2	10	PASI-M
10467249002	**Can ID 2159 Batch 18083 CI**	TO-15	MG2	10	PASI-M
10467249003	**Can ID 2355 Batch 18083 CR**	TO-15	MG2	10	PASI-M
10467249004	**Can ID 2373 Batch 18083 ER**	TO-15	MG2	10	PASI-M
10467249005	**Can ID 972 Batch 18083 MB**	TO-15	MG2	10	PASI-M
10467249006	**Can ID 2720 Batch 18083 CN**	TO-15	MG2	10	PASI-M
10467249007	**Can ID 2091 Batch 18083 EXT**	TO-15	MG2	10	PASI-M

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

PROJECT NARRATIVE

Project: 18083
Pace Project No.: 10467249

Method: **TO-15**
Description: TO15 MSV AIR
Client: PT Technologies
Date: April 01, 2019

General Information:
7 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 596326

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 3223963)
  - THC as Gas
- Can ID 2091 Batch 18083 EXT (Lab ID: 10467249007)
  - THC as Gas
- Can ID 2159 Batch 18083 CI (Lab ID: 10467249002)
  - THC as Gas
- Can ID 2355 Batch 18083 CR (Lab ID: 10467249003)
  - THC as Gas
- Can ID 2373 Batch 18083 ER (Lab ID: 10467249004)
  - THC as Gas
- Can ID 2720 Batch 18083 CN (Lab ID: 10467249006)
  - THC as Gas

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

PROJECT NARRATIVE

Project: 18083
Pace Project No.: 10467249

Method: **TO-15**
Description: TO15 MSV AIR
Client: PT Technologies
Date: April 01, 2019

Analyte Comments:

QC Batch: 596326

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- Can ID 3316 Batch 18083 PO (Lab ID: 10467249001)
  - THC as Gas
- Can ID 972 Batch 18083 MB (Lab ID: 10467249005)
  - THC as Gas
- DUP (Lab ID: 3225220)
  - THC as Gas
- DUP (Lab ID: 3225221)
  - THC as Gas
- LCS (Lab ID: 3223964)
  - THC as Gas

This data package has been reviewed for quality and completeness and is approved for release.

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 3316 Batch 18083 PO **Lab ID: 10467249001** Collected: 03/15/19 10:40 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.54**	ug/m3	0.50	0.24	1.55		03/28/19 16:29	71-43-2	
Ethylbenzene	**1.4J**	ug/m3	1.4	0.47	1.55		03/28/19 16:29	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		03/28/19 16:29	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.1	2.0	1.55		03/28/19 16:29	91-20-3	
THC as Gas	**169**	ug/m3	161	80.4	1.55		03/28/19 16:29		N2
Toluene	**6.6**	ug/m3	1.2	0.54	1.55		03/28/19 16:29	108-88-3	
1,2,4-Trimethylbenzene	**2.0**	ug/m3	1.5	0.70	1.55		03/28/19 16:29	95-63-6	
1,3,5-Trimethylbenzene	**1.3J**	ug/m3	1.5	0.62	1.55		03/28/19 16:29	108-67-8	
m&p-Xylene	**5.1**	ug/m3	2.7	1.1	1.55		03/28/19 16:29	179601-23-1	
o-Xylene	**3.3**	ug/m3	1.4	0.53	1.55		03/28/19 16:29	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 2159 Batch 18083 CI **Lab ID: 10467249002** Collected: 03/15/19 10:45 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.56**	ug/m3	0.50	0.24	1.55		03/28/19 16:58	71-43-2	
Ethylbenzene	**1.4**	ug/m3	1.4	0.47	1.55		03/28/19 16:58	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		03/28/19 16:58	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.1	2.0	1.55		03/28/19 16:58	91-20-3	
THC as Gas	**175**	ug/m3	161	80.4	1.55		03/28/19 16:58		N2
Toluene	**6.9**	ug/m3	1.2	0.54	1.55		03/28/19 16:58	108-88-3	
1,2,4-Trimethylbenzene	**2.0**	ug/m3	1.5	0.70	1.55		03/28/19 16:58	95-63-6	
1,3,5-Trimethylbenzene	**1.2J**	ug/m3	1.5	0.62	1.55		03/28/19 16:58	108-67-8	
m&p-Xylene	**5.3**	ug/m3	2.7	1.1	1.55		03/28/19 16:58	179601-23-1	
o-Xylene	**3.4**	ug/m3	1.4	0.53	1.55		03/28/19 16:58	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 2355 Batch 18083 CR **Lab ID: 10467249003** Collected: 03/15/19 10:50 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.50J**	ug/m3	0.52	0.25	1.61		03/28/19 17:27	71-43-2	
Ethylbenzene	**0.99J**	ug/m3	1.4	0.49	1.61		03/28/19 17:27	100-41-4	
Methyl-tert-butyl ether	**<1.1**	ug/m3	5.9	1.1	1.61		03/28/19 17:27	1634-04-4	
Naphthalene	**<2.1**	ug/m3	4.3	2.1	1.61		03/28/19 17:27	91-20-3	
THC as Gas	**241**	ug/m3	167	83.6	1.61		03/28/19 17:27		N2
Toluene	**6.0**	ug/m3	1.2	0.57	1.61		03/28/19 17:27	108-88-3	
1,2,4-Trimethylbenzene	**1.5J**	ug/m3	1.6	0.73	1.61		03/28/19 17:27	95-63-6	
1,3,5-Trimethylbenzene	**0.94J**	ug/m3	1.6	0.64	1.61		03/28/19 17:27	108-67-8	
m&p-Xylene	**3.6**	ug/m3	2.8	1.1	1.61		03/28/19 17:27	179601-23-1	
o-Xylene	**2.4**	ug/m3	1.4	0.55	1.61		03/28/19 17:27	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 2373 Batch 18083 ER **Lab ID: 10467249004** Collected: 03/15/19 10:50 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.53**	ug/m3	0.48	0.23	1.49		03/28/19 17:56	71-43-2	
Ethylbenzene	**1.0J**	ug/m3	1.3	0.45	1.49		03/28/19 17:56	100-41-4	
Methyl-tert-butyl ether	**<0.99**	ug/m3	5.5	0.99	1.49		03/28/19 17:56	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.0	2.0	1.49		03/28/19 17:56	91-20-3	
THC as Gas	**204**	ug/m3	155	77.3	1.49		03/28/19 17:56		N2
Toluene	**6.0**	ug/m3	1.1	0.52	1.49		03/28/19 17:56	108-88-3	
1,2,4-Trimethylbenzene	**1.6**	ug/m3	1.5	0.67	1.49		03/28/19 17:56	95-63-6	
1,3,5-Trimethylbenzene	**0.90J**	ug/m3	1.5	0.59	1.49		03/28/19 17:56	108-67-8	
m&p-Xylene	**3.7**	ug/m3	2.6	1.0	1.49		03/28/19 17:56	179601-23-1	
o-Xylene	**2.2**	ug/m3	1.3	0.51	1.49		03/28/19 17:56	95-47-6	

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 972 Batch 18083 MB **Lab ID: 10467249005** Collected: 03/15/19 10:55 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.54**	ug/m3	0.50	0.24	1.55		03/28/19 18:24	71-43-2	
Ethylbenzene	**0.98J**	ug/m3	1.4	0.47	1.55		03/28/19 18:24	100-41-4	
Methyl-tert-butyl ether	**<1.0**	ug/m3	5.7	1.0	1.55		03/28/19 18:24	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.1	2.0	1.55		03/28/19 18:24	91-20-3	
THC as Gas	**112J**	ug/m3	161	80.4	1.55		03/28/19 18:24		N2
Toluene	**5.2**	ug/m3	1.2	0.54	1.55		03/28/19 18:24	108-88-3	
1,2,4-Trimethylbenzene	**1.4J**	ug/m3	1.5	0.70	1.55		03/28/19 18:24	95-63-6	
1,3,5-Trimethylbenzene	**0.83J**	ug/m3	1.5	0.62	1.55		03/28/19 18:24	108-67-8	
m&p-Xylene	**3.3**	ug/m3	2.7	1.1	1.55		03/28/19 18:24	179601-23-1	
o-Xylene	**1.9**	ug/m3	1.4	0.53	1.55		03/28/19 18:24	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 2720 Batch 18083 CN **Lab ID: 10467249006** Collected: 03/15/19 10:55 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.53**	ug/m3	0.48	0.23	1.49		03/28/19 18:53	71-43-2	
Ethylbenzene	**1.3J**	ug/m3	1.3	0.45	1.49		03/28/19 18:53	100-41-4	
Methyl-tert-butyl ether	**<0.99**	ug/m3	5.5	0.99	1.49		03/28/19 18:53	1634-04-4	
Naphthalene	**<2.0**	ug/m3	4.0	2.0	1.49		03/28/19 18:53	91-20-3	
THC as Gas	**90.1J**	ug/m3	155	77.3	1.49		03/28/19 18:53		N2
Toluene	**6.4**	ug/m3	1.1	0.52	1.49		03/28/19 18:53	108-88-3	
1,2,4-Trimethylbenzene	**1.9**	ug/m3	1.5	0.67	1.49		03/28/19 18:53	95-63-6	
1,3,5-Trimethylbenzene	**1.2J**	ug/m3	1.5	0.59	1.49		03/28/19 18:53	108-67-8	
m&p-Xylene	**4.8**	ug/m3	2.6	1.0	1.49		03/28/19 18:53	179601-23-1	
o-Xylene	**3.2**	ug/m3	1.3	0.51	1.49		03/28/19 18:53	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 18083
Pace Project No.: 10467249

Sample: Can ID 2091 Batch 18083 EXT **Lab ID: 10467249007** Collected: 03/15/19 11:05 Received: 03/19/19 10:00 Matrix: Air

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15								
Benzene	**0.54**	ug/m3	0.45	0.21	1.39		03/28/19 19:21	71-43-2	
Ethylbenzene	**<0.42**	ug/m3	1.2	0.42	1.39		03/28/19 19:21	100-41-4	
Methyl-tert-butyl ether	**<0.92**	ug/m3	5.1	0.92	1.39		03/28/19 19:21	1634-04-4	
Naphthalene	**<1.8**	ug/m3	3.7	1.8	1.39		03/28/19 19:21	91-20-3	
THC as Gas	**<72.1**	ug/m3	145	72.1	1.39		03/28/19 19:21		N2
Toluene	**0.73J**	ug/m3	1.1	0.49	1.39		03/28/19 19:21	108-88-3	
1,2,4-Trimethylbenzene	**<0.63**	ug/m3	1.4	0.63	1.39		03/28/19 19:21	95-63-6	
1,3,5-Trimethylbenzene	**<0.55**	ug/m3	1.4	0.55	1.39		03/28/19 19:21	108-67-8	
m&p-Xylene	**<0.97**	ug/m3	2.5	0.97	1.39		03/28/19 19:21	179601-23-1	
o-Xylene	**<0.48**	ug/m3	1.2	0.48	1.39		03/28/19 19:21	95-47-6	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 18083
Pace Project No.: 10467249

QC Batch: 596326 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10467249001, 10467249002, 10467249003, 10467249004, 10467249005, 10467249006, 10467249007

METHOD BLANK: 3223963 Matrix: Air
Associated Lab Samples: 10467249001, 10467249002, 10467249003, 10467249004, 10467249005, 10467249006, 10467249007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	<0.45	1.0	03/28/19 14:59	
1,3,5-Trimethylbenzene	ug/m3	<0.40	1.0	03/28/19 14:59	
Benzene	ug/m3	<0.15	0.32	03/28/19 14:59	
Ethylbenzene	ug/m3	<0.30	0.88	03/28/19 14:59	
m&p-Xylene	ug/m3	<0.70	1.8	03/28/19 14:59	
Methyl-tert-butyl ether	ug/m3	<0.66	3.7	03/28/19 14:59	
Naphthalene	ug/m3	<1.3	2.7	03/28/19 14:59	
o-Xylene	ug/m3	<0.34	0.88	03/28/19 14:59	
THC as Gas	ug/m3	<51.9	104	03/28/19 14:59	N2
Toluene	ug/m3	<0.35	0.77	03/28/19 14:59	

LABORATORY CONTROL SAMPLE: 3223964

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	53	52.9	100	70-134	
1,3,5-Trimethylbenzene	ug/m3	53.5	50.7	95	70-132	
Benzene	ug/m3	34.4	30.6	89	70-130	
Ethylbenzene	ug/m3	45.5	45.5	100	67-131	
m&p-Xylene	ug/m3	45.9	50.7	111	70-132	
Methyl-tert-butyl ether	ug/m3	37.4	34.3	92	70-130	
Naphthalene	ug/m3	52.7	42.0	80	56-130	
o-Xylene	ug/m3	44.1	44.1	100	70-130	
THC as Gas	ug/m3	4890	5400	110	64-140	N2
Toluene	ug/m3	39.4	36.9	94	70-130	

SAMPLE DUPLICATE: 3225220

Parameter	Units	10467162010 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	58.9	59.6	1	25	
1,3,5-Trimethylbenzene	ug/m3	16.2	16.0	1	25	
Benzene	ug/m3	54.0	53.5	1	25	
Ethylbenzene	ug/m3	41.8	42.0	0	25	
m&p-Xylene	ug/m3	148	147	1	25	
Methyl-tert-butyl ether	ug/m3	ND	<1.3		25	
Naphthalene	ug/m3	6.1	7.2	18	25	
o-Xylene	ug/m3	53.2	53.1	0	25	
THC as Gas	ug/m3	4450	4780	7	25	N2
Toluene	ug/m3	276	273	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.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 18083
Pace Project No.: 10467249

SAMPLE DUPLICATE: 3225221

Parameter	Units	10467162004 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	1.2J		25	
1,3,5-Trimethylbenzene	ug/m3	ND	<0.75		25	
Benzene	ug/m3	ND	0.35J		25	
Ethylbenzene	ug/m3	ND	1.3J		25	
m&p-Xylene	ug/m3	4.5	4.2	8	25	
Methyl-tert-butyl ether	ug/m3	ND	<1.2		25	
Naphthalene	ug/m3	ND	<2.5		25	
o-Xylene	ug/m3	ND	1.4J		25	
THC as Gas	ug/m3	727	723	1	25	N2
Toluene	ug/m3	3.0	2.9	6	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.

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 18083
Pace Project No.: 10467249

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, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

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

ANALYTE QUALIFIERS

N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 18083
Pace Project No.: 10467249

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10467249001	**Can ID 3316 Batch 18083 PO**	TO-15	596326		
10467249002	**Can ID 2159 Batch 18083 CI**	TO-15	596326		
10467249003	**Can ID 2355 Batch 18083 CR**	TO-15	596326		
10467249004	**Can ID 2373 Batch 18083 ER**	TO-15	596326		
10467249005	**Can ID 972 Batch 18083 MB**	TO-15	596326		
10467249006	**Can ID 2720 Batch 18083 CN**	TO-15	596326		
10467249007	**Can ID 2091 Batch 18083 EXT**	TO-15	596326		

Pace Analytical®
www.pacelabs.com

AIR: CHAIN-OF-CUSTODY

The Chain-of-Custody is a LEGAL DOCUMENT. All rele

WO# : 10467249

10467249

38270

Page: of

Section A Required Client Information:

Company: RA ENVIRONMENTAL
Address: 12221 W. ROCKNE AVE
HALES CORNERS, WI 53130
Email To: radlabtl@wi.rr.com
Phone: 414 303-4038 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: TOM HEINE
Copy To: RA ENVIRONMENTAL
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:

Attention: TOM HEINE
Company Name: RA ENVIRONMENTAL
Address: 12221 W. ROCKNE AVE HALES CORNERS WI 53130
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #: 39778

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

Location of Sampling by State

Reporting Units
ug/m³ mg/m³
PPBV PPMV
Other

Report Level II. III. IV. Other

Section D Required Client Information

AIR SAMPLE ID
Sample IDs MUST BE UNIQUE

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 #	CAN ID	BATCH		MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE - END/GRAB DATE	COMPOSITE - END/GRAB TIME	Canister Pressure (Initial Field - in Hg)	Canister Pressure (Final Field - in Hg)	Summa Can Number	Flow Control Number	Method: PM10	3C - Fixed Gas (%)	TO-3 BTEX	TO-3M (Methane)	TO-14	TO-15 Full List VOCs	TO-15 Short List BTEX	TO-15 Short List Chlorinated	TO-15 Short List (other)	Pace Lab ID
1	3316	18083	PO			3/14/19	10:40 AM	3/15/19	10:40 AM			3316											001
2	2159	18083	CI			3/14/19	10:45 AM	3/15/19	10:45 AM			2159											002
3	2355	18083	CR			3/14/19	10:50 AM	3/15/19	10:50 AM			2355											003
4	2373	18083	ER			3/14/19	10:50 AM	3/15/19	10:50 AM			2373											004
5	9172	18083	MB			3/14/19	10:55 AM	3/15/19	10:55 AM			9172											005
6	2720	18083	CN			3/14/19	10:55 AM	3/15/19	10:55 AM			2720											006
7	2091	18083	EXT			3/14/19	11:05 AM	3/15/19	11:05 AM			2091											007
8																							
9																							
10																							
11																							
12																							

Comments :

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
				3/19/19	10:00

SAMPLE CONDITIONS

ANS	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: TOM HEINE

SIGNATURE of SAMPLER:

DATE Signed (MM / DD / YY): 031419

ORIGINAL

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Pace Analytical	Document Name: Air Sample Condition Upon Receipt	Document Revised: 31Jan2019 Page 1 of 1
	Document No.: F-MN-A-106-rev.18	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt **Client Name:** RA Env. **Project #:** **WO#: 10467249**

PM: KNH **Due Date: 03/26/19**

CLIENT: PT Tech

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Pace [ ] SpeeDee [ ] Commercial **See Exception** [ ]

Tracking Number: 4545 9910 5336 ; 5325

Custody Seal on Cooler/Box Present? [ ] Yes [X] No **Seals Intact?** [ ] Yes [X] No

Packing Material: [ ] Bubble Wrap [ ] Bubble Bags [X] Foam [ ] None [ ] Tin Can [ ] Other: _____ **Temp Blank rec:** [ ] Yes [X] No

Temp. (TO17 and TO13 samples only) (°C): - **Corrected Temp (°C):** -

Thermometer Used: [ ] G87A9170600254 [ ] G87A9155100842

Temp should be above freezing to 6°C **Correction Factor:** AMB **Date & Initials of Person Examining Contents:** CMT 3/19/19

Type of ice Received [ ] Blue [ ] Wet [X] None

		Comments:
Chain of Custody Present?	[X] Yes [ ] No	1.
Chain of Custody Filled Out?	[ ] Yes [X] No	2.
Chain of Custody Relinquished?	[ ] Yes [X] No	3.
Sampler Name and/or Signature on COC?	[X] Yes [ ] No [ ] N/A	4.
Samples Arrived within Hold Time?	[X] Yes [ ] No	5.
Short Hold Time Analysis (<72 hr)?	[ ] Yes [X] No	6.
Rush Turn Around Time Requested?	[ ] Yes [X] No	7.
Sufficient Volume?	[X] Yes [ ] No	8.
Correct Containers Used?	[X] Yes [ ] No	9.
-Pace Containers Used?	[X] Yes [ ] No	
Containers Intact?	[X] Yes [ ] No	10.
Media: (Air Can) Airbag Filter TDT Passive		11. Individually Certified Cans Y (N) (list which samples)
Is sufficient information available to reconcile samples to the COC?	[X] Yes [ ] No	12. MAC 3/19/19
Do cans need to be pressurized (3C and ASTM 1946 DO NOT PRESSURIZE)?	[X] Yes [ ] No	13.

Samples Received: Pressure Gauge # [ ] 10AIR34 [X] 10AIR35

Canisters					Canisters				
Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure	Sample Number	Can ID	Flow Controller	Initial Pressure	Final Pressure
3316 180B5-BD	3316	1024	-4	-5					
2159 " " -CL	2159	0454	-4	+5					
2355 " " -MK	2355	2035	-5	+5					
2373 " " -ER	2373	2034	-3	+5					
992 " " -MB	0992	2038	-4	+5					
2720 " " -DW	2720	2092	-3	+5					
2091 " " -EM	2091	2098	-1	+5					

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** [ ] Yes [ ] No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Kristen Hoffberg **Date:** 3/19/2019

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)

Attachment D

Sub-Slab Sample Field Sheets

Vapor Assessment
Sample Collection Log

Project:	Grace Christian Fellowship	**Sample ID: TP-** 1	**Type** (Circle One)*:	SS IA OA
Project #:	25216050.01	**Sample Intake Height:**		NA for SS
Location:	9900 W Capitol Dr., Milwaukee	**Approx. Purge Volume:**	1 Liter	NA for IA/OA
Sampler:	Robert Langdon	**Approx. Sampling Depth:**	6"	NA for IA/OA
Sub-Slab Sample Kit #:	2			NA for IA/OA
Sub-Slab Sample Manifold #:	2			NA for IA/OA
PID #:	ppbRAE			

Instrument Readings:

Date	Time	Canister Vacuum (" of Hg)	PID Reading (ppm/ppb)
8/14/2019	1045	30	60
8/14/2019	1115	8	—

Summa Canister Information:

Canister Size:	1L	6L
Canister ID#	693	
Flow Controller ID#	0686	

Sub-Slab Tests Passed?

Water Dam:	Yes	No
Shut-In:	Yes	No

General Notes/Observations:

Abbreviations:

NA = Not Applicable
SS = Sub-Slab
IA = Indoor Air
OA = Outdoor Air

Vapor Assessment
Sample Collection Log

Project:	Grace Christian Fellowship	**Sample ID: TP-** 3	**Type** (Circle One)*: (SS) IA OA	
Project #:	25216050.01	**Sample Intake Height:**		(NA) for SS
Location:	9900 W Capitol Dr., Milwaukee	**Approx. Purge Volume:**	1 Liter	**NA for IA/OA**
Sampler:	Robert Langdon	**Approx. Sampling Depth:**	~ 6"	**NA for IA/OA**
Sub-Slab Sample Kit #:	1			**NA for IA/OA**
Sub-Slab Sample Manifold #:	1			**NA for IA/OA**
PID #:	ppbRAE			

Instrument Readings:

Date	Time	Canister Vacuum (" of Hg)	PID Reading (ppm/ppb)
8/14/2019	1151	30	216
8/14/2019	1221	7	—

Summa Canister Information:

Canister Size:	1L	(6L)
Canister ID#	1665	
Flow Controller ID#	1628	

Sub-Slab Tests Passed?

Water Dam:	(Yes)	**No**
Shut-In:	(Yes)	**No**

General Notes/Observations:

TP-3 is a clean out port to one of the sub-slab vapor mitigation system pick-up points.

Abbreviations:

NA = Not Applicable
SS = Sub-Slab
IA = Indoor Air
OA = Outdoor Air

Vapor Assessment
Sample Collection Log

Project:	Grace Christian Fellowship	**Sample ID: TP-** 6'	**Type** (Circle One)*	SS IA OA
Project #:	25216050.01	**Sample Intake Height:**		NA for SS
Location:	9900 W Capitol Dr., Milwaukee	**Approx. Purge Volume:**	1 Liter	NA for IA/OA
Sampler:	Robert Langdon	**Approx. Sampling Depth:**	6"	NA for IA/OA
Sub-Slab Sample Kit #:	1			NA for IA/OA
Sub-Slab Sample Manifold #:	1			NA for IA/OA
PID #:	ppbRAE			

Instrument Readings:

Date	Time	Canister Vacuum (" of Hg)	PID Reading (ppm/ppb)
8/14/2019	1107	28	0
8/14/2019	1137	6	–

Summa Canister Information:

Canister Size:	1L	6L
Canister ID#	0533	
Flow Controller ID#	1650	

Sub-Slab Tests Passed?

Water Dam:	Yes	No
Shut-In:	Yes	No

General Notes/Observations:

Abbreviations:

NA = Not Applicable
SS = Sub-Slab
IA = Indoor Air
OA = Outdoor Air

Vapor Assessment
Sample Collection Log

Project:	Grace Christian Fellowship	**Sample ID: TP-** ~~9~~ 7 RAE L	**Type** (Circle One)*:	(SS) IA OA
Project #:	25216050.01	**Sample Intake Height:**		(NA) for SS
Location:	9900 W Capitol Dr., Milwaukee	**Approx. Purge Volume:**	1 Liter	NA for IA/OA
Sampler:	Robert Langdon	**Approx. Sampling Depth:**	6"	NA for IA/OA
Sub-Slab Sample Kit #:	2			NA for IA/OA
Sub-Slab Sample Manifold #:	2			NA for IA/OA
PID #:	ppbRAE			

Instrument Readings:

Date	Time	Canister Vacuum (" of Hg)	PID Reading (ppm/(ppb))
8/14/2019	1123	29	0
8/14/2019	1153	7	—

Summa Canister Information:

Canister Size:	1L	(6L)
Canister ID#	0069	
Flow Controller ID#	1610	

Sub-Slab Tests Passed?

Water Dam:	(Yes)	No
Shut-In:	(Yes)	No

General Notes/Observations:

Abbreviations:

NA = Not Applicable
SS = Sub-Slab
IA = Indoor Air
OA = Outdoor Air

Vapor Assessment
Sample Collection Log

Project:	Grace Christian Fellowship	**Sample ID: TP-** 10	**Type** (Circle One): SS IA OA	
Project #:	25216050.01	**Sample Intake Height:**		NA for SS
Location:	9900 W Capitol Dr., Milwaukee	**Approx. Purge Volume:**	1 Liter	NA for IA/OA
Sampler:	Robert Langdon	**Approx. Sampling Depth:**	6'	NA for IA/OA
Sub-Slab Sample Kit #:	2			NA for IA/OA
Sub-Slab Sample Manifold #:	2			NA for IA/OA
PID #:	ppbRAE			

Instrument Readings:

Date	Time	Canister Vacuum (" of Hg)	PID Reading (ppm/ppb)
8/14/2019	1242	31	40
8/14/2019	1312	8	—

Summa Canister Information:

Canister Size:	1L	6L
Canister ID#	3500	
Flow Controller ID#	0617	

Sub-Slab Tests Passed?

Water Dam:	Yes	No
Shut-In:	Yes	No

General Notes/Observations:

Abbreviations:

NA = Not Applicable
SS = Sub-Slab
IA = Indoor Air
OA = Outdoor Air

Vapor Assessment
Sample Collection Log

Project:	Grace Christian Fellowship	**Sample ID: TP-** 11	**Type** (Circle One)*:	SS IA OA
Project #:	25216050.01	**Sample Intake Height:**		NA for SS
Location:	9900 W Capitol Dr., Milwaukee	**Approx. Purge Volume:**	1 Liter	NA for IA/OA
Sampler:	Robert Langdon	**Approx. Sampling Depth:**	6"	NA for IA/OA
Sub-Slab Sample Kit #:	1			NA for IA/OA
Sub-Slab Sample Manifold #:	1			NA for IA/OA
PID #:	ppbRAE			

Instrument Readings:

Date	Time	Canister Vacuum (" of Hg)	PID Reading (ppm/ppb)
8/14/2019	1030	28	75
8/14/2019	1100	7	—

Summa Canister Information:

Canister Size:	1L	6L
Canister ID#	1494	
Flow Controller ID#	1000	

Sub-Slab Tests Passed?

Water Dam:	Yes	No
Shut-In:	Yes	No

General Notes/Observations:

Abbreviations:

NA = Not Applicable
SS = Sub-Slab
IA = Indoor Air
OA = Outdoor Air