September 19, 2017

Clemson University
310 Klugh Avenue
Clemson, South Carolina 29634

Attn: Mr. W. Robert Newberry, IV
E-mail: wnewber@clemson.edu

Re: Limited Indoor Air Quality Investigation
Library Depot
103 Clemson Research Blvd.
Anderson, South Carolina 29625
Terracon Project No. 86127158 Task 94

Dear Mr. Newberry:

Terracon Consultants, Inc. (Terracon) conducted a Limited Indoor Air Quality Investigation in three areas within the offices of the Library Depot located in the Clemson University Research Park located at 103 Clemson Research Boulevard in Anderson, South Carolina. This service was conducted in general accordance with our Master Service Agreement with Clemson University.

**Project Information and Scope of Services**

At the request of Clemson University, and based on a previous inspection and a review of questionnaires completed by Library Depot staff members, Terracon representative Mr. Benjamin Hestir conducted a limited indoor air investigation in three areas within the offices of the Library Depot on August 21, 2017. Occupant complaints appeared to be related to a burning plastic type odor and poor ventilation. The scope was limited to collecting three samples for volatile organic compound (VOC) analysis to aide in the detection of the odor.

**Methods**

Stainless steel 6-liter SUMMA canisters were placed in the three locations for an approximate 8-hour period beginning in the morning of August 21st and ending late afternoon on August 21st by Ben Hestir of Terracon. Indoor sample locations included complaint offices in Room 127 and Room 128, as well as a newer office area that former occupants of Rooms 127 and 128 have been moved to where they have not experienced respiratory irritation or smelled unpleasant odors.

The sample canisters, regulators and analysis were provided by Pace Analytical Laboratory (Pace) of Minneapolis, MN. The samples were analyzed for volatile organic compounds (VOCs) by EPA Method TO-15. At the end of the sampling period, the sample canisters and regulators were shipped to Pace via overnight courier under standard chain of custody.

## Sampling Results

Analytical results from the three indoor air samples collected were compared to the most current version (June 2017 RSLs) of the Environmental Protection Agency's (EPA) Regional Screening Levels (RSLs) for residential air and industrial air. These screening levels were utilized rather than a comparison to OSHA permissible exposure limits as this is an indoor air investigation versus an occupational work task.

Of the fifty-eight (58) VOCs reported in the TO-15 analyte list, a total of eleven (11) VOCs were identified in one or more of the three samples collected. Only one of the constituents detected (ethylbenzene) exceeded either of the RSLs. The ethylbenzene values in Room 127 (2.1 ug/$m^3$) and Room 128 (1.9 ug/$m^3$) exceeded the residential air screening level (1.1 ug/$m^3$), but did not exceed the industrial standard (4.9 ug/$m^3$). For the purposes of differentiating between residential and industrial RSLs, residential is based on 24 hour occupancy and industrial is based on occupancy typical to the work environment of 40 hours per week.

Attachment A is the summary table for the sampling event and Attachment B contains the laboratory analytical report from Pace Analytical.

## Conclusions

The following conclusions are made based on the sampling:

- The EPA has indicated that VOCs, including the constituents identified in the Library Depot, are commonly found in building materials and other commercial products that are routinely used in facility cleaning and equipment maintenance.

- The ethylbenzene values in Room 127 (2.1 ug/$m^3$) and Room 128 (1.9 ug/$m^3$) exceeded the residential air screening level of 1.1 ug/$m^3$, but did not exceed the industrial screening level of 4.9 ug/$m^3$. Since this is a work environment, the screening levels should be compared to the industrial screening levels. Furthermore, According to the Agency for Toxic Substances and Disease Registry (ATSDR), the EPA has determined that lifetime exposure to 3,000 ug/$m^3$ ethylbenzene is not expected to cause any adverse effects.

- Three VOCs (2-butanone, ethylbenzene, and m- and p-xylene) were detected in the complaint offices (Rooms 127 & 128) that were not detected in the non-complaint new office. These VOCs were below RSLs.

## Recommendations

Based on this evaluation, it does not appear the VOCs detected in the samples collected are contributing to the workplace complaints. In some cases slight odors are usually detected well below recommended exposure limits. Increasing fresh air in the work space and ensuring the ventilation system is operating correctly for the space may reduce occupant complaints.

## Closing

Terracon appreciates the opportunity to provide this service to Clemson University. If you have any questions regarding this report, please contact the undersigned at 864-292-2901.

Sincerely,
**Terracon Consultants, Inc.**

Benjamin Hestir, P.E.
Project Industrial Hygienist

Jeffrey A. Gurrie
Senior Industrial Hygienist

CC: Ms. Robin Chambers – Library Depot Facility Manager

Attachment A: Indoor Air Results Summary Table
Attachment B: Pace Analytical Lab Report for August 21, 2017 samples

Library Depot VOC Air Sampling

| **Library Depot August 21, 2017** | **Sample ID** | | | **EPA RSLs for Industrial Air** | | **EPA RSLs for Residential Air** | |
|---|---|---|---|---|---|---|---|
| Parameter | LD-1 Room 128 | LD-2 Room 127 | LD-3 New Office | Carcinogenic Target Risk (TR) = 1E-06 | Noncancer Hazard Index (HI) = 1 | Carcinogenic Target Risk (TR) = 1E-06 | Noncancer Hazard Index (HI) = 1 |
| 2-Butanone (MEK) | 8.2 | 8.4 | ND | | 22,000.00 | | 5,200.00 |
| Acetone | 35.7 | 33.6 | 28.3 | | 140,000.00 | | 32,000.00 |
| Chloromethane | 0.85 | ND | ND | | 390.00 | | 94.00 |
| Dichlorodifluoromethane | ND | ND | 2.9 | | 440.00 | | 100.00 |
| Ethylbenzene | 2.1 | 1.9 | ND | 4.90 | 4,400.00 | **1.10** | 1,000.00 |
| m&p-Xylene | 5.7 | 5.6 | ND | | 440.00 | | 100.00 |
| Methylene Chloride | 34.2 | 31.1 | 55.9 | 1,200.00 | 2,600.00 | 100.00 | 630.00 |
| n-Hexane | 3.2 | 2.7 | 2.9 | | 3,100.00 | | 730.00 |
| Tetrachloroethene | ND | ND | 1.7 | 47.00 | 180.00 | 11.00 | 42.00 |
| Toluene | 5.1 | 5.1 | 5.2 | | 22,000.00 | | 5,200.00 |
| Vinyl acetate | ND | 4 | 3.8 | | 880.00 | | 210.00 |

All results in ug/m3, ND = not detected, EPA = Environmental Protection Agency, RSLs = Regional Screening Levels

**Pace Analytical Services, LLC**
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

August 31, 2017

Ben Hestir
Terracon
3534 Rutherford Rd
Taylors, SC 29687

RE: Project: Library Depot
Pace Project No.: 92352994

Dear Ben Hestir:
Enclosed are the analytical results for sample(s) received by the laboratory on August 25, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures



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## CERTIFICATIONS

Project: Library Depot
Pace Project No.: 92352994

**Minnesota Certification IDs**

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



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## SAMPLE ANALYTE COUNT

Project: Library Depot
Pace Project No.: 92352994

| Lab ID | Sample ID | Method | Analysts | Analytes Reported | Laboratory |
|---|---|---|---|---|---|
| **92352994001** | **LD-1 - RM 128** | TO-15 | CH1 | 58 | PASI-M |
| **92352994002** | **LD-2 - RM 127** | TO-15 | CH1 | 58 | PASI-M |
| **92352994003** | **LD-3 - New Office** | TO-15 | CH1 | 58 | PASI-M |



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## ANALYTICAL RESULTS

Project: Library Depot
Pace Project No.: 92352994

**Sample: LD-1 - RM 128** **Lab ID: 92352994001** Collected: 08/21/17 16:16 Received: 08/25/17 11:15 Matrix: Air

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **TO15 MSV AIR** | Analytical Method: TO-15 | | | | | | | |
| Acetone | **35.7** | ug/m3 | 4.5 | 1.87 | | 08/28/17 20:13 | 67-64-1 | |
| Benzene | ND | ug/m3 | 0.61 | 1.87 | | 08/28/17 20:13 | 71-43-2 | |
| Bromodichloromethane | ND | ug/m3 | 2.5 | 1.87 | | 08/28/17 20:13 | 75-27-4 | |
| Bromoform | ND | ug/m3 | 3.9 | 1.87 | | 08/28/17 20:13 | 75-25-2 | SS |
| Bromomethane | ND | ug/m3 | 1.5 | 1.87 | | 08/28/17 20:13 | 74-83-9 | |
| 1,3-Butadiene | ND | ug/m3 | 0.84 | 1.87 | | 08/28/17 20:13 | 106-99-0 | |
| 2-Butanone (MEK) | **8.2** | ug/m3 | 5.6 | 1.87 | | 08/28/17 20:13 | 78-93-3 | |
| Carbon disulfide | ND | ug/m3 | 1.2 | 1.87 | | 08/28/17 20:13 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/m3 | 1.2 | 1.87 | | 08/28/17 20:13 | 56-23-5 | |
| Chlorobenzene | ND | ug/m3 | 1.8 | 1.87 | | 08/28/17 20:13 | 108-90-7 | |
| Chloroethane | ND | ug/m3 | 1.0 | 1.87 | | 08/28/17 20:13 | 75-00-3 | |
| Chloroform | ND | ug/m3 | 0.93 | 1.87 | | 08/28/17 20:13 | 67-66-3 | |
| Chloromethane | **0.85** | ug/m3 | 0.79 | 1.87 | | 08/28/17 20:13 | 74-87-3 | |
| Cyclohexane | ND | ug/m3 | 1.3 | 1.87 | | 08/28/17 20:13 | 110-82-7 | |
| Dibromochloromethane | ND | ug/m3 | 3.2 | 1.87 | | 08/28/17 20:13 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/m3 | 2.9 | 1.87 | | 08/28/17 20:13 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/m3 | 2.3 | 1.87 | | 08/28/17 20:13 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/m3 | 2.3 | 1.87 | | 08/28/17 20:13 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/m3 | 5.7 | 1.87 | | 08/28/17 20:13 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/m3 | 1.9 | 1.87 | | 08/28/17 20:13 | 75-71-8 | |
| 1,1-Dichloroethane | ND | ug/m3 | 1.5 | 1.87 | | 08/28/17 20:13 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/m3 | 0.77 | 1.87 | | 08/28/17 20:13 | 107-06-2 | |
| 1,1-Dichloroethene | ND | ug/m3 | 1.5 | 1.87 | | 08/28/17 20:13 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/m3 | 1.5 | 1.87 | | 08/28/17 20:13 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/m3 | 1.5 | 1.87 | | 08/28/17 20:13 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/m3 | 1.8 | 1.87 | | 08/28/17 20:13 | 78-87-5 | |
| cis-1,3-Dichloropropene | ND | ug/m3 | 1.7 | 1.87 | | 08/28/17 20:13 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/m3 | 1.7 | 1.87 | | 08/28/17 20:13 | 10061-02-6 | |
| Dichlorotetrafluoroethane | ND | ug/m3 | 2.7 | 1.87 | | 08/28/17 20:13 | 76-14-2 | |
| Ethyl acetate | ND | ug/m3 | 1.4 | 1.87 | | 08/28/17 20:13 | 141-78-6 | |
| Ethylbenzene | **2.1** | ug/m3 | 1.6 | 1.87 | | 08/28/17 20:13 | 100-41-4 | |
| 4-Ethyltoluene | ND | ug/m3 | 1.9 | 1.87 | | 08/28/17 20:13 | 622-96-8 | |
| n-Heptane | ND | ug/m3 | 1.6 | 1.87 | | 08/28/17 20:13 | 142-82-5 | |
| Hexachloro-1,3-butadiene | ND | ug/m3 | 4.1 | 1.87 | | 08/28/17 20:13 | 87-68-3 | |
| n-Hexane | **3.2** | ug/m3 | 1.3 | 1.87 | | 08/28/17 20:13 | 110-54-3 | |
| 2-Hexanone | ND | ug/m3 | 7.8 | 1.87 | | 08/28/17 20:13 | 591-78-6 | |
| Methylene Chloride | **34.2** | ug/m3 | 6.6 | 1.87 | | 08/28/17 20:13 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/m3 | 7.8 | 1.87 | | 08/28/17 20:13 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/m3 | 6.9 | 1.87 | | 08/28/17 20:13 | 1634-04-4 | |
| Naphthalene | ND | ug/m3 | 5.0 | 1.87 | | 08/28/17 20:13 | 91-20-3 | |
| Propylene | ND | ug/m3 | 1.6 | 1.87 | | 08/28/17 20:13 | 115-07-1 | |
| Styrene | ND | ug/m3 | 1.6 | 1.87 | | 08/28/17 20:13 | 100-42-5 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/m3 | 2.6 | 1.87 | | 08/28/17 20:13 | 79-34-5 | |
| Tetrachloroethene | ND | ug/m3 | 1.3 | 1.87 | | 08/28/17 20:13 | 127-18-4 | |
| Tetrahydrofuran | ND | ug/m3 | 1.1 | 1.87 | | 08/28/17 20:13 | 109-99-9 | |
| Toluene | **5.1** | ug/m3 | 1.4 | 1.87 | | 08/28/17 20:13 | 108-88-3 | |
| 1,2,4-Trichlorobenzene | ND | ug/m3 | 7.0 | 1.87 | | 08/28/17 20:13 | 120-82-1 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Library Depot
Pace Project No.: 92352994

**Sample: LD-1 - RM 128** **Lab ID: 92352994001** Collected: 08/21/17 16:16 Received: 08/25/17 11:15 Matrix: Air

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **TO15 MSV AIR** | Analytical Method: TO-15 | | | | | | | |
| 1,1,1-Trichloroethane | ND | ug/m3 | 2.1 | 1.87 | | 08/28/17 20:13 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/m3 | 1.0 | 1.87 | | 08/28/17 20:13 | 79-00-5 | |
| Trichloroethene | ND | ug/m3 | 1.0 | 1.87 | | 08/28/17 20:13 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/m3 | 2.1 | 1.87 | | 08/28/17 20:13 | 75-69-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/m3 | 3.0 | 1.87 | | 08/28/17 20:13 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/m3 | 1.9 | 1.87 | | 08/28/17 20:13 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/m3 | 1.9 | 1.87 | | 08/28/17 20:13 | 108-67-8 | |
| Vinyl acetate | ND | ug/m3 | 1.3 | 1.87 | | 08/28/17 20:13 | 108-05-4 | |
| Vinyl chloride | ND | ug/m3 | 0.97 | 1.87 | | 08/28/17 20:13 | 75-01-4 | |
| m&p-Xylene | **5.7** | ug/m3 | 3.3 | 1.87 | | 08/28/17 20:13 | 179601-23-1 | |
| o-Xylene | ND | ug/m3 | 1.6 | 1.87 | | 08/28/17 20:13 | 95-47-6 | |

**Sample: LD-2 - RM 127** **Lab ID: 92352994002** Collected: 08/21/17 16:16 Received: 08/25/17 11:15 Matrix: Air

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **TO15 MSV AIR** | Analytical Method: TO-15 | | | | | | | |
| Acetone | **33.6** | ug/m3 | 4.7 | 1.94 | | 08/28/17 20:47 | 67-64-1 | |
| Benzene | ND | ug/m3 | 0.63 | 1.94 | | 08/28/17 20:47 | 71-43-2 | |
| Bromodichloromethane | ND | ug/m3 | 2.6 | 1.94 | | 08/28/17 20:47 | 75-27-4 | |
| Bromoform | ND | ug/m3 | 4.1 | 1.94 | | 08/28/17 20:47 | 75-25-2 | SS |
| Bromomethane | ND | ug/m3 | 1.5 | 1.94 | | 08/28/17 20:47 | 74-83-9 | |
| 1,3-Butadiene | ND | ug/m3 | 0.87 | 1.94 | | 08/28/17 20:47 | 106-99-0 | |
| 2-Butanone (MEK) | **8.4** | ug/m3 | 5.8 | 1.94 | | 08/28/17 20:47 | 78-93-3 | |
| Carbon disulfide | ND | ug/m3 | 1.2 | 1.94 | | 08/28/17 20:47 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/m3 | 1.2 | 1.94 | | 08/28/17 20:47 | 56-23-5 | |
| Chlorobenzene | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 20:47 | 108-90-7 | |
| Chloroethane | ND | ug/m3 | 1.0 | 1.94 | | 08/28/17 20:47 | 75-00-3 | |
| Chloroform | ND | ug/m3 | 0.96 | 1.94 | | 08/28/17 20:47 | 67-66-3 | |
| Chloromethane | ND | ug/m3 | 0.81 | 1.94 | | 08/28/17 20:47 | 74-87-3 | |
| Cyclohexane | ND | ug/m3 | 1.4 | 1.94 | | 08/28/17 20:47 | 110-82-7 | |
| Dibromochloromethane | ND | ug/m3 | 3.4 | 1.94 | | 08/28/17 20:47 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/m3 | 3.0 | 1.94 | | 08/28/17 20:47 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/m3 | 2.4 | 1.94 | | 08/28/17 20:47 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/m3 | 2.4 | 1.94 | | 08/28/17 20:47 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/m3 | 5.9 | 1.94 | | 08/28/17 20:47 | 106-46-7 | |
| Dichlorodifluoromethane | ND | ug/m3 | 2.0 | 1.94 | | 08/28/17 20:47 | 75-71-8 | |
| 1,1-Dichloroethane | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 20:47 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/m3 | 0.80 | 1.94 | | 08/28/17 20:47 | 107-06-2 | |
| 1,1-Dichloroethene | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 20:47 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 20:47 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 20:47 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 20:47 | 78-87-5 | |
| cis-1,3-Dichloropropene | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 20:47 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 20:47 | 10061-02-6 | |
| Dichlorotetrafluoroethane | ND | ug/m3 | 2.8 | 1.94 | | 08/28/17 20:47 | 76-14-2 | |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Library Depot
Pace Project No.: 92352994

**Sample: LD-2 - RM 127** **Lab ID: 92352994002** Collected: 08/21/17 16:16 Received: 08/25/17 11:15 Matrix: Air

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **TO15 MSV AIR** | Analytical Method: TO-15 | | | | | | | |
| Ethyl acetate | ND | ug/m3 | 1.4 | 1.94 | | 08/28/17 20:47 | 141-78-6 | |
| Ethylbenzene | **1.9** | ug/m3 | 1.7 | 1.94 | | 08/28/17 20:47 | 100-41-4 | |
| 4-Ethyltoluene | ND | ug/m3 | 1.9 | 1.94 | | 08/28/17 20:47 | 622-96-8 | |
| n-Heptane | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 20:47 | 142-82-5 | |
| Hexachloro-1,3-butadiene | ND | ug/m3 | 4.2 | 1.94 | | 08/28/17 20:47 | 87-68-3 | |
| n-Hexane | **2.7** | ug/m3 | 1.4 | 1.94 | | 08/28/17 20:47 | 110-54-3 | |
| 2-Hexanone | ND | ug/m3 | 8.1 | 1.94 | | 08/28/17 20:47 | 591-78-6 | |
| Methylene Chloride | **31.1** | ug/m3 | 6.8 | 1.94 | | 08/28/17 20:47 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/m3 | 8.1 | 1.94 | | 08/28/17 20:47 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/m3 | 7.1 | 1.94 | | 08/28/17 20:47 | 1634-04-4 | |
| Naphthalene | ND | ug/m3 | 5.2 | 1.94 | | 08/28/17 20:47 | 91-20-3 | |
| Propylene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 20:47 | 115-07-1 | |
| Styrene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 20:47 | 100-42-5 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/m3 | 2.7 | 1.94 | | 08/28/17 20:47 | 79-34-5 | |
| Tetrachloroethene | ND | ug/m3 | 1.3 | 1.94 | | 08/28/17 20:47 | 127-18-4 | |
| Tetrahydrofuran | ND | ug/m3 | 1.2 | 1.94 | | 08/28/17 20:47 | 109-99-9 | |
| Toluene | **5.1** | ug/m3 | 1.5 | 1.94 | | 08/28/17 20:47 | 108-88-3 | |
| 1,2,4-Trichlorobenzene | ND | ug/m3 | 7.3 | 1.94 | | 08/28/17 20:47 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/m3 | 2.2 | 1.94 | | 08/28/17 20:47 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/m3 | 1.1 | 1.94 | | 08/28/17 20:47 | 79-00-5 | |
| Trichloroethene | ND | ug/m3 | 1.1 | 1.94 | | 08/28/17 20:47 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/m3 | 2.2 | 1.94 | | 08/28/17 20:47 | 75-69-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/m3 | 3.1 | 1.94 | | 08/28/17 20:47 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/m3 | 1.9 | 1.94 | | 08/28/17 20:47 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/m3 | 1.9 | 1.94 | | 08/28/17 20:47 | 108-67-8 | |
| Vinyl acetate | **4.0** | ug/m3 | 1.4 | 1.94 | | 08/28/17 20:47 | 108-05-4 | |
| Vinyl chloride | ND | ug/m3 | 1.0 | 1.94 | | 08/28/17 20:47 | 75-01-4 | |
| m&p-Xylene | **5.6** | ug/m3 | 3.4 | 1.94 | | 08/28/17 20:47 | 179601-23-1 | |
| o-Xylene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 20:47 | 95-47-6 | |

**Sample: LD-3 - New Office** **Lab ID: 92352994003** Collected: 08/21/17 16:16 Received: 08/25/17 11:15 Matrix: Air

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **TO15 MSV AIR** | Analytical Method: TO-15 | | | | | | | |
| Acetone | **28.3** | ug/m3 | 4.7 | 1.94 | | 08/28/17 21:20 | 67-64-1 | |
| Benzene | ND | ug/m3 | 0.63 | 1.94 | | 08/28/17 21:20 | 71-43-2 | |
| Bromodichloromethane | ND | ug/m3 | 2.6 | 1.94 | | 08/28/17 21:20 | 75-27-4 | |
| Bromoform | ND | ug/m3 | 4.1 | 1.94 | | 08/28/17 21:20 | 75-25-2 | SS |
| Bromomethane | ND | ug/m3 | 1.5 | 1.94 | | 08/28/17 21:20 | 74-83-9 | |
| 1,3-Butadiene | ND | ug/m3 | 0.87 | 1.94 | | 08/28/17 21:20 | 106-99-0 | |
| 2-Butanone (MEK) | ND | ug/m3 | 5.8 | 1.94 | | 08/28/17 21:20 | 78-93-3 | |
| Carbon disulfide | ND | ug/m3 | 1.2 | 1.94 | | 08/28/17 21:20 | 75-15-0 | |
| Carbon tetrachloride | ND | ug/m3 | 1.2 | 1.94 | | 08/28/17 21:20 | 56-23-5 | |
| Chlorobenzene | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 21:20 | 108-90-7 | |
| Chloroethane | ND | ug/m3 | 1.0 | 1.94 | | 08/28/17 21:20 | 75-00-3 | |

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## ANALYTICAL RESULTS

Project: Library Depot
Pace Project No.: 92352994

**Sample: LD-3 - New Office** **Lab ID: 92352994003** Collected: 08/21/17 16:16 Received: 08/25/17 11:15 Matrix: Air

| Parameters | Results | Units | Report Limit | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|
| **TO15 MSV AIR** | Analytical Method: TO-15 | | | | | | | |
| Chloroform | ND | ug/m3 | 0.96 | 1.94 | | 08/28/17 21:20 | 67-66-3 | |
| Chloromethane | ND | ug/m3 | 0.81 | 1.94 | | 08/28/17 21:20 | 74-87-3 | |
| Cyclohexane | ND | ug/m3 | 1.4 | 1.94 | | 08/28/17 21:20 | 110-82-7 | |
| Dibromochloromethane | ND | ug/m3 | 3.4 | 1.94 | | 08/28/17 21:20 | 124-48-1 | |
| 1,2-Dibromoethane (EDB) | ND | ug/m3 | 3.0 | 1.94 | | 08/28/17 21:20 | 106-93-4 | |
| 1,2-Dichlorobenzene | ND | ug/m3 | 2.4 | 1.94 | | 08/28/17 21:20 | 95-50-1 | |
| 1,3-Dichlorobenzene | ND | ug/m3 | 2.4 | 1.94 | | 08/28/17 21:20 | 541-73-1 | |
| 1,4-Dichlorobenzene | ND | ug/m3 | 5.9 | 1.94 | | 08/28/17 21:20 | 106-46-7 | |
| Dichlorodifluoromethane | **2.9** | ug/m3 | 2.0 | 1.94 | | 08/28/17 21:20 | 75-71-8 | |
| 1,1-Dichloroethane | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 21:20 | 75-34-3 | |
| 1,2-Dichloroethane | ND | ug/m3 | 0.80 | 1.94 | | 08/28/17 21:20 | 107-06-2 | |
| 1,1-Dichloroethene | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 21:20 | 75-35-4 | |
| cis-1,2-Dichloroethene | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 21:20 | 156-59-2 | |
| trans-1,2-Dichloroethene | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 21:20 | 156-60-5 | |
| 1,2-Dichloropropane | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 21:20 | 78-87-5 | |
| cis-1,3-Dichloropropene | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 21:20 | 10061-01-5 | |
| trans-1,3-Dichloropropene | ND | ug/m3 | 1.8 | 1.94 | | 08/28/17 21:20 | 10061-02-6 | |
| Dichlorotetrafluoroethane | ND | ug/m3 | 2.8 | 1.94 | | 08/28/17 21:20 | 76-14-2 | |
| Ethyl acetate | ND | ug/m3 | 1.4 | 1.94 | | 08/28/17 21:20 | 141-78-6 | |
| Ethylbenzene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 21:20 | 100-41-4 | |
| 4-Ethyltoluene | ND | ug/m3 | 1.9 | 1.94 | | 08/28/17 21:20 | 622-96-8 | |
| n-Heptane | ND | ug/m3 | 1.6 | 1.94 | | 08/28/17 21:20 | 142-82-5 | |
| Hexachloro-1,3-butadiene | ND | ug/m3 | 4.2 | 1.94 | | 08/28/17 21:20 | 87-68-3 | |
| n-Hexane | **2.9** | ug/m3 | 1.4 | 1.94 | | 08/28/17 21:20 | 110-54-3 | |
| 2-Hexanone | ND | ug/m3 | 8.1 | 1.94 | | 08/28/17 21:20 | 591-78-6 | |
| Methylene Chloride | **55.9** | ug/m3 | 6.8 | 1.94 | | 08/28/17 21:20 | 75-09-2 | |
| 4-Methyl-2-pentanone (MIBK) | ND | ug/m3 | 8.1 | 1.94 | | 08/28/17 21:20 | 108-10-1 | |
| Methyl-tert-butyl ether | ND | ug/m3 | 7.1 | 1.94 | | 08/28/17 21:20 | 1634-04-4 | |
| Naphthalene | ND | ug/m3 | 5.2 | 1.94 | | 08/28/17 21:20 | 91-20-3 | |
| Propylene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 21:20 | 115-07-1 | |
| Styrene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 21:20 | 100-42-5 | |
| 1,1,2,2-Tetrachloroethane | ND | ug/m3 | 2.7 | 1.94 | | 08/28/17 21:20 | 79-34-5 | |
| Tetrachloroethene | **1.7** | ug/m3 | 1.3 | 1.94 | | 08/28/17 21:20 | 127-18-4 | |
| Tetrahydrofuran | ND | ug/m3 | 1.2 | 1.94 | | 08/28/17 21:20 | 109-99-9 | |
| Toluene | **5.2** | ug/m3 | 1.5 | 1.94 | | 08/28/17 21:20 | 108-88-3 | |
| 1,2,4-Trichlorobenzene | ND | ug/m3 | 7.3 | 1.94 | | 08/28/17 21:20 | 120-82-1 | |
| 1,1,1-Trichloroethane | ND | ug/m3 | 2.2 | 1.94 | | 08/28/17 21:20 | 71-55-6 | |
| 1,1,2-Trichloroethane | ND | ug/m3 | 1.1 | 1.94 | | 08/28/17 21:20 | 79-00-5 | |
| Trichloroethene | ND | ug/m3 | 1.1 | 1.94 | | 08/28/17 21:20 | 79-01-6 | |
| Trichlorofluoromethane | ND | ug/m3 | 2.2 | 1.94 | | 08/28/17 21:20 | 75-69-4 | |
| 1,1,2-Trichlorotrifluoroethane | ND | ug/m3 | 3.1 | 1.94 | | 08/28/17 21:20 | 76-13-1 | |
| 1,2,4-Trimethylbenzene | ND | ug/m3 | 1.9 | 1.94 | | 08/28/17 21:20 | 95-63-6 | |
| 1,3,5-Trimethylbenzene | ND | ug/m3 | 1.9 | 1.94 | | 08/28/17 21:20 | 108-67-8 | |
| Vinyl acetate | **3.8** | ug/m3 | 1.4 | 1.94 | | 08/28/17 21:20 | 108-05-4 | |
| Vinyl chloride | ND | ug/m3 | 1.0 | 1.94 | | 08/28/17 21:20 | 75-01-4 | |
| m&p-Xylene | ND | ug/m3 | 3.4 | 1.94 | | 08/28/17 21:20 | 179601-23-1 | |
| o-Xylene | ND | ug/m3 | 1.7 | 1.94 | | 08/28/17 21:20 | 95-47-6 | |

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## QUALITY CONTROL DATA

Project: Library Depot
Pace Project No.: 92352994

QC Batch: 493729 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 92352994001, 92352994002, 92352994003

METHOD BLANK: 2685852 Matrix: Air
Associated Lab Samples: 92352994001, 92352994002, 92352994003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/m3 | ND | 1.1 | 08/28/17 13:00 | |
| 1,1,2,2-Tetrachloroethane | ug/m3 | ND | 1.4 | 08/28/17 13:00 | |
| 1,1,2-Trichloroethane | ug/m3 | ND | 0.55 | 08/28/17 13:00 | |
| 1,1,2-Trichlorotrifluoroethane | ug/m3 | ND | 1.6 | 08/28/17 13:00 | |
| 1,1-Dichloroethane | ug/m3 | ND | 0.82 | 08/28/17 13:00 | |
| 1,1-Dichloroethene | ug/m3 | ND | 0.81 | 08/28/17 13:00 | |
| 1,2,4-Trichlorobenzene | ug/m3 | ND | 3.8 | 08/28/17 13:00 | MN |
| 1,2,4-Trimethylbenzene | ug/m3 | ND | 1.0 | 08/28/17 13:00 | |
| 1,2-Dibromoethane (EDB) | ug/m3 | ND | 1.6 | 08/28/17 13:00 | |
| 1,2-Dichlorobenzene | ug/m3 | ND | 1.2 | 08/28/17 13:00 | |
| 1,2-Dichloroethane | ug/m3 | ND | 0.41 | 08/28/17 13:00 | |
| 1,2-Dichloropropane | ug/m3 | ND | 0.94 | 08/28/17 13:00 | |
| 1,3,5-Trimethylbenzene | ug/m3 | ND | 1.0 | 08/28/17 13:00 | |
| 1,3-Butadiene | ug/m3 | ND | 0.45 | 08/28/17 13:00 | |
| 1,3-Dichlorobenzene | ug/m3 | ND | 1.2 | 08/28/17 13:00 | |
| 1,4-Dichlorobenzene | ug/m3 | ND | 3.1 | 08/28/17 13:00 | |
| 2-Butanone (MEK) | ug/m3 | ND | 3.0 | 08/28/17 13:00 | |
| 2-Hexanone | ug/m3 | ND | 4.2 | 08/28/17 13:00 | |
| 4-Ethyltoluene | ug/m3 | ND | 1.0 | 08/28/17 13:00 | |
| 4-Methyl-2-pentanone (MIBK) | ug/m3 | ND | 4.2 | 08/28/17 13:00 | |
| Acetone | ug/m3 | ND | 2.4 | 08/28/17 13:00 | |
| Benzene | ug/m3 | ND | 0.32 | 08/28/17 13:00 | |
| Bromodichloromethane | ug/m3 | ND | 1.4 | 08/28/17 13:00 | |
| Bromoform | ug/m3 | ND | 2.1 | 08/28/17 13:00 | MN,SS |
| Bromomethane | ug/m3 | ND | 0.79 | 08/28/17 13:00 | |
| Carbon disulfide | ug/m3 | ND | 0.63 | 08/28/17 13:00 | |
| Carbon tetrachloride | ug/m3 | ND | 0.64 | 08/28/17 13:00 | |
| Chlorobenzene | ug/m3 | ND | 0.94 | 08/28/17 13:00 | |
| Chloroethane | ug/m3 | ND | 0.54 | 08/28/17 13:00 | |
| Chloroform | ug/m3 | ND | 0.50 | 08/28/17 13:00 | |
| Chloromethane | ug/m3 | ND | 0.42 | 08/28/17 13:00 | |
| cis-1,2-Dichloroethene | ug/m3 | ND | 0.81 | 08/28/17 13:00 | |
| cis-1,3-Dichloropropene | ug/m3 | ND | 0.92 | 08/28/17 13:00 | |
| Cyclohexane | ug/m3 | ND | 0.70 | 08/28/17 13:00 | |
| Dibromochloromethane | ug/m3 | ND | 1.7 | 08/28/17 13:00 | |
| Dichlorodifluoromethane | ug/m3 | ND | 1.0 | 08/28/17 13:00 | |
| Dichlorotetrafluoroethane | ug/m3 | ND | 1.4 | 08/28/17 13:00 | |
| Ethyl acetate | ug/m3 | ND | 0.73 | 08/28/17 13:00 | |
| Ethylbenzene | ug/m3 | ND | 0.88 | 08/28/17 13:00 | |
| Hexachloro-1,3-butadiene | ug/m3 | ND | 2.2 | 08/28/17 13:00 | MN |
| m&p-Xylene | ug/m3 | ND | 1.8 | 08/28/17 13:00 | |

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## QUALITY CONTROL DATA

Project: Library Depot
Pace Project No.: 92352994

METHOD BLANK: 2685852 Matrix: Air
Associated Lab Samples: 92352994001, 92352994002, 92352994003

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Methyl-tert-butyl ether | ug/m3 | ND | 3.7 | 08/28/17 13:00 | |
| Methylene Chloride | ug/m3 | ND | 3.5 | 08/28/17 13:00 | |
| n-Heptane | ug/m3 | ND | 0.83 | 08/28/17 13:00 | |
| n-Hexane | ug/m3 | ND | 0.72 | 08/28/17 13:00 | |
| Naphthalene | ug/m3 | ND | 2.7 | 08/28/17 13:00 | |
| o-Xylene | ug/m3 | ND | 0.88 | 08/28/17 13:00 | |
| Propylene | ug/m3 | ND | 0.88 | 08/28/17 13:00 | |
| Styrene | ug/m3 | ND | 0.87 | 08/28/17 13:00 | |
| Tetrachloroethene | ug/m3 | ND | 0.69 | 08/28/17 13:00 | |
| Tetrahydrofuran | ug/m3 | ND | 0.60 | 08/28/17 13:00 | |
| Toluene | ug/m3 | ND | 0.77 | 08/28/17 13:00 | |
| trans-1,2-Dichloroethene | ug/m3 | ND | 0.81 | 08/28/17 13:00 | |
| trans-1,3-Dichloropropene | ug/m3 | ND | 0.92 | 08/28/17 13:00 | |
| Trichloroethene | ug/m3 | ND | 0.55 | 08/28/17 13:00 | |
| Trichlorofluoromethane | ug/m3 | ND | 1.1 | 08/28/17 13:00 | |
| Vinyl acetate | ug/m3 | ND | 0.72 | 08/28/17 13:00 | |
| Vinyl chloride | ug/m3 | ND | 0.52 | 08/28/17 13:00 | |

LABORATORY CONTROL SAMPLE: 2685853

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/m3 | 55.5 | 58.1 | 105 | 70-134 | |
| 1,1,2,2-Tetrachloroethane | ug/m3 | 69.8 | 63.7 | 91 | 70-130 | |
| 1,1,2-Trichloroethane | ug/m3 | 55.5 | 57.7 | 104 | 70-130 | |
| 1,1,2-Trichlorotrifluoroethane | ug/m3 | 77.9 | 92.2 | 118 | 70-130 | |
| 1,1-Dichloroethane | ug/m3 | 41.1 | 36.7 | 89 | 70-130 | |
| 1,1-Dichloroethene | ug/m3 | 40.3 | 42.0 | 104 | 70-130 | |
| 1,2,4-Trichlorobenzene | ug/m3 | 75.4 | 64.8 | 86 | 60-150 | |
| 1,2,4-Trimethylbenzene | ug/m3 | 50 | 51.2 | 103 | 70-136 | |
| 1,2-Dibromoethane (EDB) | ug/m3 | 78.1 | 83.4 | 107 | 70-130 | |
| 1,2-Dichlorobenzene | ug/m3 | 61.1 | 76.0 | 124 | 70-139 | |
| 1,2-Dichloroethane | ug/m3 | 41.1 | 36.7 | 89 | 70-130 | |
| 1,2-Dichloropropane | ug/m3 | 47 | 44.6 | 95 | 70-131 | |
| 1,3,5-Trimethylbenzene | ug/m3 | 50 | 52.6 | 105 | 70-133 | |
| 1,3-Butadiene | ug/m3 | 22.5 | 19.2 | 85 | 70-130 | |
| 1,3-Dichlorobenzene | ug/m3 | 61.1 | 78.6 | 129 | 70-144 | |
| 1,4-Dichlorobenzene | ug/m3 | 61.1 | 63.3 | 104 | 70-139 | |
| 2-Butanone (MEK) | ug/m3 | 30 | 32.9 | 110 | 70-130 | |
| 2-Hexanone | ug/m3 | 104 | 81.6 | 78 | 70-138 | |
| 4-Ethyltoluene | ug/m3 | 50 | 54.8 | 110 | 70-135 | |
| 4-Methyl-2-pentanone (MIBK) | ug/m3 | 104 | 79.1 | 76 | 70-130 | |
| Acetone | ug/m3 | 121 | 105 | 87 | 64-130 | |
| Benzene | ug/m3 | 32.5 | 32.2 | 99 | 70-130 | |
| Bromodichloromethane | ug/m3 | 68.1 | 72.6 | 107 | 70-134 | |

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## QUALITY CONTROL DATA

Project: Library Depot
Pace Project No.: 92352994

LABORATORY CONTROL SAMPLE: 2685853

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Bromoform | ug/m3 | 105 | 118 | 112 | 70-150 | SS |
| Bromomethane | ug/m3 | 39.5 | 47.7 | 121 | 70-130 | |
| Carbon disulfide | ug/m3 | 31.6 | 35.7 | 113 | 70-134 | |
| Carbon tetrachloride | ug/m3 | 64 | 71.3 | 112 | 68-150 | |
| Chlorobenzene | ug/m3 | 46.8 | 48.5 | 104 | 70-132 | |
| Chloroethane | ug/m3 | 26.8 | 28.5 | 106 | 70-132 | |
| Chloroform | ug/m3 | 49.6 | 50.7 | 102 | 70-130 | |
| Chloromethane | ug/m3 | 21 | 19.5 | 93 | 70-130 | |
| cis-1,2-Dichloroethene | ug/m3 | 40.3 | 40.3 | 100 | 70-133 | |
| cis-1,3-Dichloropropene | ug/m3 | 46.1 | 45.9 | 99 | 70-137 | |
| Cyclohexane | ug/m3 | 35 | 26.4 | 75 | 70-130 | |
| Dibromochloromethane | ug/m3 | 86.6 | 89.1 | 103 | 70-144 | |
| Dichlorodifluoromethane | ug/m3 | 50.3 | 53.8 | 107 | 70-130 | |
| Dichlorotetrafluoroethane | ug/m3 | 71 | 75.6 | 106 | 70-130 | |
| Ethyl acetate | ug/m3 | 36.6 | 29.1 | 80 | 70-130 | |
| Ethylbenzene | ug/m3 | 44.1 | 42.0 | 95 | 70-134 | |
| Hexachloro-1,3-butadiene | ug/m3 | 108 | 109 | 100 | 45-150 | |
| m&p-Xylene | ug/m3 | 88.3 | 84.8 | 96 | 70-130 | |
| Methyl-tert-butyl ether | ug/m3 | 91.6 | 103 | 112 | 66-148 | |
| Methylene Chloride | ug/m3 | 177 | 158 | 89 | 67-133 | |
| n-Heptane | ug/m3 | 41.6 | 30.4 | 73 | 70-130 | |
| n-Hexane | ug/m3 | 35.8 | 28.1 | 78 | 67-132 | |
| Naphthalene | ug/m3 | 53.3 | 51.2 | 96 | 53-150 | |
| o-Xylene | ug/m3 | 44.1 | 41.9 | 95 | 70-130 | |
| Propylene | ug/m3 | 17.5 | 14.8 | 85 | 70-135 | |
| Styrene | ug/m3 | 43.3 | 45.7 | 105 | 70-139 | |
| Tetrachloroethene | ug/m3 | 68.9 | 67.8 | 98 | 70-130 | |
| Tetrahydrofuran | ug/m3 | 30 | 23.8 | 79 | 70-130 | |
| Toluene | ug/m3 | 38.3 | 38.9 | 102 | 70-130 | |
| trans-1,2-Dichloroethene | ug/m3 | 40.3 | 52.2 | 129 | 70-131 | |
| trans-1,3-Dichloropropene | ug/m3 | 46.1 | 47.2 | 102 | 70-142 | |
| Trichloroethene | ug/m3 | 54.6 | 58.4 | 107 | 70-130 | |
| Trichlorofluoromethane | ug/m3 | 57.1 | 71.1 | 124 | 70-130 | |
| Vinyl acetate | ug/m3 | 35.8 | 29.8 | 83 | 70-137 | |
| Vinyl chloride | ug/m3 | 26 | 25.6 | 99 | 70-130 | |

SAMPLE DUPLICATE: 2686567

| Parameter | Units | 10400744001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | ug/m3 | ND | ND | | |
| 1,1,2,2-Tetrachloroethane | ug/m3 | ND | ND | | |
| 1,1,2-Trichloroethane | ug/m3 | ND | ND | | |
| 1,1,2-Trichlorotrifluoroethane | ug/m3 | ND | ND | | |
| 1,1-Dichloroethane | ug/m3 | ND | ND | | |
| 1,1-Dichloroethene | ug/m3 | ND | ND | | |

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## QUALITY CONTROL DATA

Project: Library Depot
Pace Project No.: 92352994

SAMPLE DUPLICATE: 2686567

| Parameter | Units | 10400744001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| 1,2,4-Trichlorobenzene | ug/m3 | ND | ND | | |
| 1,2,4-Trimethylbenzene | ug/m3 | 2.2 | 1.9 | 15 | |
| 1,2-Dibromoethane (EDB) | ug/m3 | ND | ND | | |
| 1,2-Dichlorobenzene | ug/m3 | ND | ND | | |
| 1,2-Dichloroethane | ug/m3 | ND | ND | | |
| 1,2-Dichloropropane | ug/m3 | ND | ND | | |
| 1,3,5-Trimethylbenzene | ug/m3 | ND | ND | | |
| 1,3-Butadiene | ug/m3 | ND | ND | | |
| 1,3-Dichlorobenzene | ug/m3 | ND | ND | | |
| 1,4-Dichlorobenzene | ug/m3 | ND | ND | | |
| 2-Butanone (MEK) | ug/m3 | ND | ND | | |
| 2-Hexanone | ug/m3 | ND | ND | | |
| 4-Ethyltoluene | ug/m3 | ND | ND | | |
| 4-Methyl-2-pentanone (MIBK) | ug/m3 | ND | ND | | |
| Acetone | ug/m3 | 217 | 196 | 10 | |
| Benzene | ug/m3 | 1.2 | 1.1 | 3 | |
| Bromodichloromethane | ug/m3 | ND | ND | | |
| Bromoform | ug/m3 | ND | ND | | SS |
| Bromomethane | ug/m3 | ND | ND | | |
| Carbon disulfide | ug/m3 | ND | ND | | |
| Carbon tetrachloride | ug/m3 | ND | ND | | |
| Chlorobenzene | ug/m3 | ND | ND | | |
| Chloroethane | ug/m3 | ND | ND | | |
| Chloroform | ug/m3 | ND | ND | | |
| Chloromethane | ug/m3 | 1.0 | ND | | |
| cis-1,2-Dichloroethene | ug/m3 | ND | ND | | |
| cis-1,3-Dichloropropene | ug/m3 | ND | ND | | |
| Cyclohexane | ug/m3 | 2.6 | 2.3 | 13 | |
| Dibromochloromethane | ug/m3 | ND | ND | | |
| Dichlorodifluoromethane | ug/m3 | 4.2 | 4.3 | 2 | |
| Dichlorotetrafluoroethane | ug/m3 | ND | ND | | |
| Ethyl acetate | ug/m3 | ND | ND | | |
| Ethylbenzene | ug/m3 | ND | .96J | | |
| Hexachloro-1,3-butadiene | ug/m3 | ND | ND | | |
| m&p-Xylene | ug/m3 | 3.5 | 2.6J | | |
| Methyl-tert-butyl ether | ug/m3 | ND | ND | | |
| Methylene Chloride | ug/m3 | 248 | 269 | 8 | |
| n-Heptane | ug/m3 | 2.4 | 1.2J | | |
| n-Hexane | ug/m3 | 25.7 | 28.7 | 11 | |
| Naphthalene | ug/m3 | ND | ND | | |
| o-Xylene | ug/m3 | ND | .73J | | |
| Propylene | ug/m3 | ND | ND | | |
| Styrene | ug/m3 | 1.5 | 1.2J | | |
| Tetrachloroethene | ug/m3 | ND | ND | | |
| Tetrahydrofuran | ug/m3 | ND | ND | | |
| Toluene | ug/m3 | 12.1 | 12.1 | 0 | |
| trans-1,2-Dichloroethene | ug/m3 | ND | ND | | |

**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

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**Pace Analytical Services, LLC**
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

## QUALITY CONTROL DATA

Project: Library Depot
Pace Project No.: 92352994

SAMPLE DUPLICATE: 2686567

| Parameter | Units | 10400744001 Result | Dup Result | RPD | Qualifiers |
|---|---|---|---|---|---|
| trans-1,3-Dichloropropene | ug/m3 | ND | ND | | |
| Trichloroethene | ug/m3 | ND | ND | | |
| Trichlorofluoromethane | ug/m3 | ND | ND | | |
| Vinyl acetate | ug/m3 | ND | ND | | |
| Vinyl chloride | ug/m3 | ND | ND | | |

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

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# QUALIFIERS

Project: Library Depot
Pace Project No.: 92352994

## 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 adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

| | |
|---|---|
| MN | The reporting limit has been raised in accordance with Minnesota Statutes 4740.2100 Subpart 8. C, D. Reporting Limit Evaluation Rule. |
| SS | This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value. |



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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Library Depot
Pace Project No.: 92352994

| Lab ID | Sample ID | QC Batch Method | QC Batch | Analytical Method | Analytical Batch |
|---|---|---|---|---|---|
| **92352994001** | **LD-1 - RM 128** | TO-15 | 493729 | | |
| **92352994002** | **LD-2 - RM 127** | TO-15 | 493729 | | |
| **92352994003** | **LD-3 - New Office** | TO-15 | 493729 | | |



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

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

27810

Page: 1 of 1

**Section A** Required Client Information:

Company: Terracon
Address: 72 Pointe Circle
Greenville, SC 29615
Email To: ben.hestir@terracon.com
Phone: 864-293-7348 Fax
Requested Due Date/TAT: 8/31/17

**Section B** Required Project Information:

Report To: Ben Hestir
Copy To:
Purchase Order No.:
Project Name: Library Depot
Project Number: 86127158-Task94

**Section C** Invoice Information:

Attention: Terracon Corp. Office
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager/Sales Rep.
Pace Profile #:

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

Location of Sampling by State: SC

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

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

| ITEM # | 'Section D Required Client Information AIR SAMPLE ID (Sample IDs MUST BE UNIQUE) | Description | MEDIA CODE | PID Reading (Client only) | COLLECTED COMPOSITE START END/GRAB DATE | TIME | COMPOSITE - DATE | TIME | Canister Pressure (Initial Field - psig) | Canister Pressure (Final Field - psig) | Summa Can Number | Flow Control Number | Method: PM10 | 3C: Fixed Gas (%) | TO-3 | TO-3M (Methane) | TO-4 (PCBs) | TO-13 (PAH) | TO-14 | TO-15 | TO15 Short List* | Pace Lab ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LA-1 | Rm 128 | AIR | | 8/21/17 | 0844 | 8/21/17 | 1616 | -28 | -2 | 29276 | F C6326 | | | | | | | ✓ | | | |
| 2 | LA-2 | Rm 127 | AIR | | 8/21/17 | 0845 | 8/21/17 | 1616 | -28 | -2 | 22711 | F C0211 | | | | | | | ✓ | | | |
| 3 | LA-3 | New office | AIR | | 8/21/17 | 0847 | 8/21/17 | 1616 | -27 | -2 | 25933 | F C0148 | | | | | | | ✓ | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | |

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

Comments :

| RELINQUISHED BY / AFFILIATION | DATE | TIME | ACCEPTED BY / AFFILIATION | DATE | TIME |
|---|---|---|---|---|---|
| Ben Hestir / Terracon | 8/22/17 | 1130 | FEDEX | 8/25/17 | 11:15 |
| | | | | | |
| | | | | | |

SAMPLE CONDITIONS

| | Temp in °C | Received on Ice | Custody Sealed Cooler | Samples Intact |
|---|---|---|---|---|
| AMB | | 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: Ben Hestir

SIGNATURE of SAMPLER: Ben Hestir

DATE Signed (MM / DD / YY): 08/22/17

ORIGINAL

| Pace Analytical | Document Name: **Air Sample Condition Upon Receipt** | Document Revised: 26APR2016 Page 1 of 1 |
|---|---|---|
| | Document No.: **F-MN-A-106-rev.11** | Issuing Authority: Pace Minnesota Quality Office |

**Air Sample Condition Upon Receipt**

**Client Name:** Terracon

**Project #:**

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

**Tracking Number:** 7476 3001 0898

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

**Optional:** Proj. Due Date: Proj. Name:

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

**Temp. (TO17 and TO13 samples only) (°C):** ____ **Corrected Temp (°C):** ____ **Thermom. Used:** ☐ B88A912167504 ☐ B88A0143310098 ☐ 151401163 ☐ 151401164

Temp should be above freezing to 6°C **Correction Factor:** ____ **Date & Initials of Person Examining Contents:** MDS 8/25/17

**Type of Ice Received** ☐ Blue ☐ Wet ☑ None

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

Samples Received: RFFT

| Canisters | | | Canisters | | |
|---|---|---|---|---|---|
| Sample Number | Can ID | Flow Controller ID | Sample Number | Can ID | Flow Controller ID |
| | | | | | |
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**CLIENT NOTIFICATION/RESOLUTION** **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

**Project Manager Review:** _____ **Date:** _____

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)