# Atmospheric Analysis & Consulting, Inc.

| | |
|---|---|
| Client | : Yorke Engineering |
| Client Project Name | : Ninyo & Moore Odor Sampling & Analysis |
| Client Project No. | : 0357-007-01 |
| AAC Project No. | : 202180 |
| Reporting Date | : 12/07/2020 |

On December 03, 2020, Atmospheric Analysis & Consulting, Inc. received one (1) DNPH impregnated silica gel cartridge for Carbonyls analysis by EPA Method TO-11A. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

| Client Sample ID | AAC Sample ID |
|---|---|
| Inside AAA | 202180-14980 |

**This analysis is accredited under the laboratory's ISO/IEC 17025:2005 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1908.** For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of these samples.

The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data contained in this hardcopy report.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha Parmar, PhD
Technical Director

This report consists of 8 pages.



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*LABORATORY ANALYSIS REPORT*
**Analysis of Carbonyls by EPA Method TO-11A**

| | |
|---|---|
| Client | : Yorke Engineering |
| Client Project Name | : Ninyo &Moore Odor Sampling & Analysis |
| AAC Project No. | : 202180 |
| Analyst | : JD/RS/EG |
| Units | : ug/m3 |

| | |
|---|---|
| Sampling Date (s) | : 11/30/2020 |
| Receiving Date | : 12/03/2020 |
| Analysis Date | : 12/04/2020 |
| Reporting Date | : 12/07/2020 |

| Client ID | AAC Sample ID | Formaldehyde | Acetaldehyde | Acrolein | Acetone | Propionaldehyde | Crotonaldehyde | Methacrolein | MEK & Butyraldehyde | Benzaldehyde | Valeraldehyde | m-Tolualdehyde | Hexaldehyde |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inside AAA | 202180-14980 | 3.66 | 3.48 | 0.016 | 21.2 | 1.06 | 0.182 | 0.776 | 2.21 | 0.469 | 0.556 | 0.105 | 0.361 |
| | SRL (ug/m3) | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 | 0.089 |
| | Qualifier | | | J | | | | | | | | | |

ND - Compound was analyzed for, but was not detected at or above the SDL.
J - Analyte was detected between the SRL and the SDL.

Dr. Sucha Parmar, Ph.D
Technical Director



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## *Quality Control/Quality Assurance Report*

**EPA TO-11A**

*HPLC Calibration Verification of the 04/16/2020 Calibration*

Analysis Date : 12/04/2020
Analyst : JD/EG/RS

Instrument ID : HPLC 01

Opening CCV

| *Standard Concentration (ug/mL)* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2.50** | 2.71 | 2.66 | 2.64 | 2.69 | 2.72 | 2.60 | 2.68 | 5.40 | 2.60 | 2.70 | 2.61 | 2.67 |
| **Accuracy (%)*** | 108 | 106 | 106 | 108 | 109 | 104 | 107 | 108 | 104 | 108 | 104 | 107 |

Continuing CCV

| *Standard Concentration (ug/mL)* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2.50** | 2.62 | 2.56 | 2.53 | 2.60 | 2.64 | 2.55 | 2.57 | 5.16 | 2.56 | 2.57 | 2.52 | 2.55 |
| **Accuracy (%)*** | 105 | 102 | 101 | 104 | 106 | 102 | 103 | 103 | 102 | 103 | 101 | 102 |

Closing CCV

| *Standard Concentration (ug/mL)* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2.50** | 2.64 | 2.62 | 2.55 | 2.66 | 2.65 | 2.62 | 2.62 | 5.23 | 2.61 | 2.59 | 2.53 | 2.60 |
| **Accuracy (%)*** | 106 | 105 | 102 | 106 | 106 | 105 | 105 | 105 | 104 | 104 | 101 | 104 |

Second Source

| *Standard Concentration (ug/mL)* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5.00** | 5.50 | 5.40 | 5.29 | 5.49 | 5.59 | 5.32 | 5.41 | 10.9 | 5.36 | 5.46 | 5.35 | 5.42 |
| **Accuracy (%)*** | 110 | 108 | 106 | 110 | 112 | 106 | 108 | 109 | 107 | 109 | 107 | 108 |

*Must be 100 ± 10%
Second Source must be 85 - 115 %

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## *Quality Control/Quality Assurance Report*

**EPA TO-11A**

*Laboratory Control Spike Analysis*

Analysis Date : 12/04/2020 Analyst : JD/EG/RS Instrument ID : HPLC 01

*Laboratory Control Spike (LCS)*

| *Analytes* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Concentration (ug/mL) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Spike Concentration (ug/mL) | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 2.50 | 1.25 | 1.25 | 1.25 | 1.25 |
| Spiked Sample Concentration (ug/mL) | 1.33 | 1.29 | 1.26 | 1.31 | 1.33 | 1.27 | 1.28 | 2.59 | 1.27 | 1.29 | 1.24 | 1.27 |
| Duplicate Spiked Sample Concentration (ug/mL) | 1.32 | 1.28 | 1.25 | 1.30 | 1.32 | 1.26 | 1.28 | 2.59 | 1.26 | 1.29 | 1.24 | 1.27 |
| Spike Recovery (%)* | 106 | 103 | 101 | 105 | 106 | 102 | 102 | 104 | 102 | 103 | 99.2 | 102 |
| Duplicate Spike Recovery (%)* | 106 | 102 | 100 | 104 | 106 | 101 | 102 | 104 | 101 | 103 | 99.2 | 102 |
| RPD** | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 |

*Must be 100 ± 15%

** Must be ≤ 25%

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## *Quality Control/Quality Assurance Report*

**EPA TO-11A**

*Matrix Spike Analysis*

Analysis Date : 12/04/2020
Sample ID 202177-14975

Analyst : JD/EG/RS

Instrument ID : HPLC 01

| *Analytes* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Sample Concentration (ug/mL)* | 0.608 | 0.953 | 0.022 | 1.19 | 0.091 | 0.003 | 0.025 | 0.195 | 0.053 | 0.054 | 0.004 | 0.029 |
| *Spike Concentration (ug/mL)* | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 2.50 | 1.25 | 1.25 | 1.25 | 1.25 |
| Spiked Sample Concentration (ug/mL) | 1.92 | 2.29 | 1.31 | 2.61 | 1.47 | 1.31 | 1.40 | 2.83 | 1.36 | 1.42 | 1.30 | 1.35 |
| Duplicate Spiked Sample Concentration (ug/mL) | 1.85 | 2.21 | 1.26 | 2.51 | 1.41 | 1.26 | 1.35 | 2.68 | 1.30 | 1.35 | 1.24 | 1.30 |
| Spike Recovery (%)* | 105 | 107 | 103 | 114 | 110 | 105 | 110 | 105 | 105 | 109 | 104 | 106 |
| Dulicate Spike Recovery (%)* | 99.4 | 101 | 99.0 | 106 | 106 | 101 | 106 | 99.4 | 100 | 104 | 98.9 | 102 |
| RPD** | 3.7 | 3.6 | 3.9 | 3.9 | 4.2 | 3.9 | 3.6 | 5.4 | 4.5 | 5.1 | 4.7 | 3.8 |

*Must be 100± 25%
** Must be ≤ 25%

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## *Quality Control/Quality Assurance Report*

**EPA TO-11A**

*Duplicate Analysis*

Analysis Date : 12/04/2020
Analyst : JD/EG/RS

Instrument ID : HPLC 01

| *Analyte* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | 202177-14975 | | | | | | | | | | | |
| Sample Concentration (ug/mL) | 1.22 | 1.91 | 0.044 | 2.38 | 0.182 | <SRL | 0.051 | 0.390 | 0.106 | 0.107 | <SRL | 0.058 |
| Duplicate Sample Concentration (ug/mL) | 1.23 | 1.94 | 0.045 | 2.40 | 0.189 | <SRL | 0.052 | 0.390 | 0.103 | 0.109 | <SRL | 0.054 |
| RPD** | 1.3 | 1.6 | 1.3 | 0.9 | 3.8 | NA | 2.1 | 0.1 | 2.7 | 1.7 | NA | 6.6 |
| Sample ID | 202178-14976 | | | | | | | | | | | |
| Sample Concentration (ug/mL) | 0.312 | 0.183 | <SRL | 0.237 | <SRL | <SRL | <SRL | 0.051 | 0.031 | <SRL | <SRL | 0.026 |
| Duplicate Sample Concentration (ug/mL) | 0.314 | 0.182 | <SRL | 0.236 | <SRL | <SRL | <SRL | 0.051 | 0.030 | <SRL | <SRL | 0.026 |
| RPD** | 0.4 | 0.3 | NA | 0.4 | NA | NA | NA | 0.2 | 2.3 | NA | NA | 1.6 |

ND = Not Detected
NA=Not Applicable
** Must be <20%

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## *Quality Control/Quality Assurance Report*

**EPA TO-11A**

*System and Method Blank Analysis*

Analysis Date : 12/04/2020
Analyst : JD/EG/RS

Instrument ID : HPLC 01

| *Analyte* | *Formaldehyde (ug/mL)* | *Acetaldehyde (ug/mL)* | *Acrolein (ug/mL)* | *Acetone (ug/mL)* | *Propionaldehyde (ug/mL)* | *Crotonaldehyde (ug/mL)* | *Methacrolein (ug/mL)* | *MEK & Butyraldehyde (ug/mL)* | *Benzaldehyde (ug/mL)* | *Valeraldehyde (ug/mL)* | *m-Tolualdehyde (ug/mL)* | *Hexaldehyde (ug/mL)* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Opening Acetonitrile Blank | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL |
| Method Blank 12/02/20 | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL |
| Continuing Acetonitrile Blank | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL |
| Method Blank 12/03/20 | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL |
| Closing Acetonitrile Blank | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL | <RL |
| Reporting Limit | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 |

RL= Reporting Limit
<RL=less than the Reporting Limit

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AAC Project No. 202180



# CHAIN OF CUSTODY/ ANALYSIS REQUEST FORM

Client Name Ninyo & Moore

Project Name Odor Sampling & Analysis

Project Mgr (Print Name) Keith Gilbert

Project Number 0357-007-01

Sampler's Name (Print Name) Bipul Saraf

Sampler's Signature: Bipul K. Saraf

| AAC Sample No. | Date Sampled | Time Sampled | Sample Type | Client Sample ID/Description | Type/No. of Containers | Analysis Requested: EPA TO-15 | AQMD 307-91 | EPA TO-11A | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14979 | 11/30-12/01 | 12:24 for 24h | Canister ID 1458 | Inside AAA | 1 | X | X | | | | |
| 14980 | 11/30-12/01 | 14:10 for 24h | Air | Inside AAA Cartridge PN – WAT037500 | 1 | | | x | | | |
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Send report:
Bipul Saraf
BSaraf@YorkeEngr.com
Attn:
Phone#:
Fax#:

Send invoice to:
Accounting@YorkeEngr.com
Attn:
P.O. #

Turnaround Time
24-Hr ____ 48-Hr ____
5 Day ____ Normal X
Other (Specify) ____

Special Instructions/remarks:
-include all compounds per EPA TO-15
- include all compounds per EPA TO-11A
- Include all compounds per SCAQMD m307-91

| | | | |
|---|---|---|---|
| Relinquished by (Signature): Bipul K. Saraf | Print Name: Bipul Saraf | Date/Time 12/2/20 12:20 | Received by (signature): Print Name |
| Relinquished by (Signature): | Print Name: | Date/Time 12/3/20 1137 | Received by (signature): Gabriel Rayles Print Name |