

**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Kristoffer Hinskey Arcadis U.S., Inc. 28550 Cabot Drive Suite 500 Novi, Michigan 48377 Generated 3/8/2024 7:25:21 AM

## JOB DESCRIPTION

Ford LTP - Off Site

## **JOB NUMBER**

240-200197-1

Eurofins Cleveland 180 S. Van Buren Avenue Barberton OH 44203





## **Eurofins Cleveland**

## Job Notes

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Authorization

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## Qualifiers

| Qualifiers     |   | 3  |
|----------------|---|----|
| GC/MS VOA      |   |    |
| Qualifier      | Qualifier Description   |    |
| E              | Result exceeded calibration range.  |    |
| U              | Indicates the analyte was analyzed for but not detected.  | 5  |
| Glossary       |   | 6  |
| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |    |
| ¤              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |    |
| %R             | Percent Recovery  |    |
| CFL            | Contains Free Liquid  | 0  |
| CFU            | Colony Forming Unit   | 0  |
| CNF            | Contains No Free Liquid   |    |
| DER            | Duplicate Error Ratio (normalized absolute difference)  | 9  |
| Dil Fac        | Dilution Factor   |    |
| DL             | Detection Limit (DoD/DOE)   |    |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |    |
| DLC            | Decision Level Concentration (Radiochemistry)   |    |
| EDL            | Estimated Detection Limit (Dioxin)  |    |
| LOD            | Limit of Detection (DoD/DOE)  |    |
| LOQ            | Limit of Quantitation (DoD/DOE)   |    |
| MCL            | EPA recommended "Maximum Contaminant Level"   | 13 |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |    |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |    |
| MDI            | Method Detection Limit  |    |

## Glossary

| Abbreviation   | These commonly used abbreviations may or may not be present in this report.                                 |
|----------------|---|
| ¤              | Listed under the "D" column to designate that the result is reported on a dry weight basis                  |
| %R             | Percent Recovery  |
| CFL            | Contains Free Liquid  |
| CFU            | Colony Forming Unit   |
| CNF            | Contains No Free Liquid   |
| DER            | Duplicate Error Ratio (normalized absolute difference)  |
| Dil Fac        | Dilution Factor   |
| DL             | Detection Limit (DoD/DOE)   |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC            | Decision Level Concentration (Radiochemistry)   |
| EDL            | Estimated Detection Limit (Dioxin)  |
| LOD            | Limit of Detection (DoD/DOE)  |
| LOQ            | Limit of Quantitation (DoD/DOE)   |
| MCL            | EPA recommended "Maximum Contaminant Level"   |
| MDA            | Minimum Detectable Activity (Radiochemistry)  |
| MDC            | Minimum Detectable Concentration (Radiochemistry)   |
| MDL            | Method Detection Limit  |
| ML             | Minimum Level (Dioxin)  |
| MPN            | Most Probable Number  |
| MQL            | Method Quantitation Limit   |
| NC             | Not Calculated  |
| ND             | Not Detected at the reporting limit (or MDL or EDL if shown)  |
| NEG            | Negative / Absent   |
| POS            | Positive / Present  |
| PQL            | Practical Quantitation Limit  |
| PRES           | Presumptive   |
| QC             | Quality Control   |
| RER            | Relative Error Ratio (Radiochemistry)   |
| RL             | Reporting Limit or Requested Limit (Radiochemistry)   |
| RPD            | Relative Percent Difference, a measure of the relative difference between two points                        |
| TEF            | Toxicity Equivalent Factor (Dioxin)   |
| TEQ            | Toxicity Equivalent Quotient (Dioxin)   |
| TNTC           | Too Numerous To Count   |
|                |   |

### Job ID: 240-200197-1

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## Job Narrative 240-200197-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 2/29/2024 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.2°C and 2.8°C.

#### GC/MS VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

#### Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site

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| Method    | Method Description                  | Protocol | Laboratory |
|-----------|-------------------------------------|----------|------------|
| 8260D     | Volatile Organic Compounds by GC/MS | SW846    | EET CLE    |
| 8260D SIM | Volatile Organic Compounds (GC/MS)  | SW846    | EET CLE    |
| 5030C     | Purge and Trap                      | SW846    | EET CLE    |

#### Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site

| Lab Sample ID | Client Sample ID | Matrix | Collected      | Received       |
|---------------|------------------|--------|----------------|----------------|
| 240-200197-1  | TRIP BLANK_94    | Water  | 02/27/24 00:00 | 02/29/24 08:00 |
| 240-200197-2  | MW-156S_022724   | Water  | 02/27/24 09:50 | 02/29/24 08:00 |

**Detection Summary** 

## Job ID: 240-200197-1

Lab Sample ID: 240-200197-1

Lab Sample ID: 240-200197-2

## Client Sample ID: TRIP BLANK\_94

Project/Site: Ford LTP - Off Site

No Detections.

Client: Arcadis U.S., Inc.

## Client Sample ID: MW-156S\_022724

No Detections.

**Eurofins Cleveland** 

#### Client Sample ID: TRIP BLANK\_94

Date Collected: 02/27/24 00:00 Date Received: 02/29/24 08:00

| Method: SW846 8260D - Volati | le Organic Comp | ounds by G | C/MS     |      |      |   |          |                |         |
|------------------------------|-----------------|------------|----------|------|------|---|----------|----------------|---------|
| Analyte                      | Result          | Qualifier  | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
| 1,1-Dichloroethene           | 1.0             | U          | 1.0      | 0.49 | ug/L |   |          | 03/01/24 17:51 | 1       |
| cis-1,2-Dichloroethene       | 1.0             | U          | 1.0      | 0.46 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Tetrachloroethene            | 1.0             | U          | 1.0      | 0.44 | ug/L |   |          | 03/01/24 17:51 | 1       |
| trans-1,2-Dichloroethene     | 1.0             | U          | 1.0      | 0.51 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Trichloroethene              | 1.0             | U          | 1.0      | 0.44 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Vinyl chloride               | 1.0             | U          | 1.0      | 0.45 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Surrogate                    | %Recovery       | Qualifier  | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 88              |            | 62 - 137 |      |      | - |          | 03/01/24 17:51 | 1       |
| 4-Bromofluorobenzene (Surr)  | 105             |            | 56 - 136 |      |      |   |          | 03/01/24 17:51 | 1       |
| Toluene-d8 (Surr)            | 92              |            | 78 - 122 |      |      |   |          | 03/01/24 17:51 | 1       |
| Dibromofluoromethane (Surr)  | 86              |            | 73 - 120 |      |      |   |          | 03/01/24 17:51 | 1       |

Lab Sample ID: 240-200197-1 Matrix: Water

Job ID: 240-200197-1

**Eurofins Cleveland** 

#### Client Sample ID: MW-156S\_022724

Date Collected: 02/27/24 09:50 Date Received: 02/29/24 08:00

| Analyte                      | Result           | Qualifier  | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |    |
|------------------------------|------------------|------------|----------|------|------|---|----------|----------------|---------|----|
| 1,4-Dioxane                  | 2.0              | U          | 2.0      | 0.86 | ug/L |   |          | 03/06/24 12:09 | 1       | 1  |
| Surrogate                    | %Recovery        | Qualifier  | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |    |
| 1,2-Dichloroethane-d4 (Surr) | 93               | <u></u>    | 68 - 127 |      |      | - | ricpurcu | 03/06/24 12:09 | 1       |    |
| Method: SW846 8260D - Volat  | ile Organic Comp | ounds by G | C/MS     |      |      |   |          |                |         | ŝ  |
| Analyte                      | · ·              | Qualifier  | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |    |
| 1,1-Dichloroethene           | 1.0              | U          | 1.0      | 0.49 | ug/L |   |          | 03/01/24 18:15 | 1       | 7  |
| cis-1,2-Dichloroethene       | 1.0              | U          | 1.0      | 0.46 | ug/L |   |          | 03/01/24 18:15 | 1       |    |
| Tetrachloroethene            | 1.0              | U          | 1.0      | 0.44 | ug/L |   |          | 03/01/24 18:15 | 1       |    |
| trans-1,2-Dichloroethene     | 1.0              | U          | 1.0      | 0.51 | ug/L |   |          | 03/01/24 18:15 | 1       |    |
| Trichloroethene              | 1.0              | U          | 1.0      | 0.44 | ug/L |   |          | 03/01/24 18:15 | 1       |    |
| Vinyl chloride               | 1.0              | U          | 1.0      | 0.45 | ug/L |   |          | 03/01/24 18:15 | 1       |    |
| Surrogate                    | %Recovery        | Qualifier  | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |    |
| 1,2-Dichloroethane-d4 (Surr) | 89               |            | 62 - 137 |      |      | - |          | 03/01/24 18:15 | 1       |    |
| 4-Bromofluorobenzene (Surr)  | 107              |            | 56 - 136 |      |      |   |          | 03/01/24 18:15 | 1       |    |
| Toluene-d8 (Surr)            | 95               |            | 78 - 122 |      |      |   |          | 03/01/24 18:15 | 1       |    |
| Dibromofluoromethane (Surr)  | 87               |            | 73 - 120 |      |      |   |          | 03/01/24 18:15 | 1       | ÷, |

3/8/2024

Job ID: 240-200197-1

### Lab Sample ID: 240-200197-2 Matrix: Water

## Method: 8260D - Volatile Organic Compounds by GC/MS Matrix: Water

#### Prep Type: Total/NA Percent Surrogate Recovery (Acceptance Limits) DCA BFB TOL DBFM Lab Sample ID **Client Sample ID** (62-137) (56-136) (78-122) (73-120) TRIP BLANK\_94 240-200197-1 88 105 92 86 240-200197-2 MW-156S\_022724 89 107 95 87 240-200247-B-2 MS Matrix Spike 90 111 92 89 240-200247-B-2 MSD Matrix Spike Duplicate 88 107 90 86 LCS 240-604673/6 Lab Control Sample 86 105 90 85 MB 240-604673/12 Method Blank 88 106 94 86 Surrogate Legend DCA = 1,2-Dichloroethane-d4 (Surr) BFB = 4-Bromofluorobenzene (Surr) TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

## Method: 8260D SIM - Volatile Organic Compounds (GC/MS)

#### Matrix: Water

|                    |                        |          | Percent Surrogate Recovery (Acceptance Limits) |
|--------------------|------------------------|----------|--|
|                    |                        | DCA      |  |
| Lab Sample ID      | Client Sample ID       | (68-127) |  |
| 240-200197-2       | MW-156S_022724         | 93       |  |
| 240-200285-B-3 MS  | Matrix Spike           | 98       |  |
| 240-200285-B-3 MSD | Matrix Spike Duplicate | 96       |  |
| LCS 240-605115/4   | Lab Control Sample     | 97       |  |
| MB 240-605115/6    | Method Blank           | 93       |  |

#### Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

3/8/2024

Prep Type: Total/NA

#### Method: 8260D - Volatile Organic Compounds by GC/MS

### Lab Sample ID: MB 240-604673/12

Matrix: Water Analysis Batch: 604673

|                          | MB     | МВ        |     |      |      |   |          |                |         |
|--------------------------|--------|-----------|-----|------|------|---|----------|----------------|---------|
| Analyte                  | Result | Qualifier | RL  | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
| 1,1-Dichloroethene       | 1.0    | U         | 1.0 | 0.49 | ug/L |   |          | 03/01/24 13:49 | 1       |
| cis-1,2-Dichloroethene   | 1.0    | U         | 1.0 | 0.46 | ug/L |   |          | 03/01/24 13:49 | 1       |
| Tetrachloroethene        | 1.0    | U         | 1.0 | 0.44 | ug/L |   |          | 03/01/24 13:49 | 1       |
| trans-1,2-Dichloroethene | 1.0    | U         | 1.0 | 0.51 | ug/L |   |          | 03/01/24 13:49 | 1       |
| Trichloroethene          | 1.0    | U         | 1.0 | 0.44 | ug/L |   |          | 03/01/24 13:49 | 1       |
| Vinyl chloride           | 1.0    | U         | 1.0 | 0.45 | ug/L |   |          | 03/01/24 13:49 | 1       |

|                              | MB        | МВ        |          |       |      |                |         |
|------------------------------|-----------|-----------|----------|-------|------|----------------|---------|
| Surrogate                    | %Recovery | Qualifier | Limits   | Prepa | ared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 88        |           | 62 - 137 |       |      | 03/01/24 13:49 | 1       |
| 4-Bromofluorobenzene (Surr)  | 106       |           | 56 - 136 |       |      | 03/01/24 13:49 | 1       |
| Toluene-d8 (Surr)            | 94        |           | 78 - 122 |       |      | 03/01/24 13:49 | 1       |
| Dibromofluoromethane (Surr)  | 86        |           | 73 - 120 |       |      | 03/01/24 13:49 | 1       |

#### Lab Sample ID: LCS 240-604673/6 Matrix: Water Analysis Batch: 604673

|                          | Spike | LCS    | LCS       |      |   |      | %Rec     |  |
|--------------------------|-------|--------|-----------|------|---|------|----------|--|
| Analyte                  | Added | Result | Qualifier | Unit | D | %Rec | Limits   |  |
| 1,1-Dichloroethene       | 20.0  | 24.4   |           | ug/L |   | 122  | 63 - 134 |  |
| cis-1,2-Dichloroethene   | 20.0  | 22.7   |           | ug/L |   | 113  | 77 - 123 |  |
| Tetrachloroethene        | 20.0  | 22.7   |           | ug/L |   | 113  | 76 - 123 |  |
| trans-1,2-Dichloroethene | 20.0  | 23.0   |           | ug/L |   | 115  | 75 - 124 |  |
| Trichloroethene          | 20.0  | 23.3   |           | ug/L |   | 116  | 70 - 122 |  |
| Vinyl chloride           | 20.0  | 16.3   |           | ug/L |   | 82   | 60 - 144 |  |

|                              | LCS       | LCS       |          |
|------------------------------|-----------|-----------|----------|
| Surrogate                    | %Recovery | Qualifier | Limits   |
| 1,2-Dichloroethane-d4 (Surr) | 86        |           | 62 - 137 |
| 4-Bromofluorobenzene (Surr)  | 105       |           | 56 - 136 |
| Toluene-d8 (Surr)            | 90        |           | 78 - 122 |
| Dibromofluoromethane (Surr)  | 85        |           | 73 - 120 |

## Lab Sample ID: 240-200247-B-2 MS Matrix: Water

## Analysis Batch: 604673

|                              | Sample    | Sample    | Spike    | MS     | MS        |      |   |      | %Rec     |  |
|------------------------------|-----------|-----------|----------|--------|-----------|------|---|------|----------|--|
| Analyte                      | Result    | Qualifier | Added    | Result | Qualifier | Unit | D | %Rec | Limits   |  |
| 1,1-Dichloroethene           | 4.0       | U         | 80.0     | 87.3   |           | ug/L |   | 109  | 56 - 135 |  |
| cis-1,2-Dichloroethene       | 210       |           | 80.0     | 292    | E         | ug/L |   | 105  | 66 - 128 |  |
| Tetrachloroethene            | 4.0       | U         | 80.0     | 76.9   |           | ug/L |   | 96   | 62 - 131 |  |
| trans-1,2-Dichloroethene     | 3.7       | J         | 80.0     | 84.7   |           | ug/L |   | 101  | 56 - 136 |  |
| Trichloroethene              | 4.0       | U         | 80.0     | 82.0   |           | ug/L |   | 102  | 61 - 124 |  |
|                              | MS        | MS        |          |        |           |      |   |      |          |  |
| Surrogate                    | %Recovery | Qualifier | Limits   |        |           |      |   |      |          |  |
| 1,2-Dichloroethane-d4 (Surr) | 90        |           | 62 - 137 |        |           |      |   |      |          |  |
| 4-Bromofluorobenzene (Surr)  | 111       |           | 56 - 136 |        |           |      |   |      |          |  |
| Toluene-d8 (Surr)            | 92        |           | 78 - 122 |        |           |      |   |      |          |  |
| Dibromofluoromethane (Surr)  | 89        |           | 73 - 120 |        |           |      |   |      |          |  |

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## Client Sample ID: Method Blank Prep Type: Total/NA

Client Sample ID: Lab Control Sample Prep Type: Total/NA

#### Client Sample ID: Matrix Spike Prep Type: Total/NA

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### Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

| Lab Sample ID: 240-200247-<br>Matrix: Water | -D-2 IVI3D            |            |            |      |      |           |      | Ciler | 11 38 | ampie iL | ): Matrix Sp<br>Prep T |         |         |
|---|-----------------------|------------|------------|------|------|-----------|------|-------|-------|----------|------------------------|---------|---------|
| Analysis Batch: 604673                      |                       |            |            |      |      |           |      |       |       |          | Fieh 1                 | ype. it |         |
|   | Sample                | Sample     | Spike      |      | MSD  | MSD       |      |       |       |          | %Rec                   |         | RPD     |
| Analyte                                     | •                     | Qualifier  | Added      |      |      | Qualifier | Unit |       | D     | %Rec     | Limits                 | RPD     | Limit   |
| 1,1-Dichloroethene                          | 4.0                   | U          | 80.0       |      | 93.5 |           | ug/L |       | —     | 117      | 56 - 135               | 7       | 26      |
| cis-1,2-Dichloroethene                      | 210                   |            | 80.0       |      | 292  | Е         | ug/L |       |       | 105      | 66 - 128               | 0       | 14      |
| Tetrachloroethene                           | 4.0                   | U          | 80.0       |      | 83.8 |           | ug/L |       |       | 105      | 62 - 131               | 9       | 20      |
| trans-1,2-Dichloroethene                    | 3.7                   |            | 80.0       |      | 91.3 |           | ug/L |       |       | 109      | 56 - 136               | 7       | 1:      |
| Trichloroethene                             | 4.0                   |            | 80.0       |      | 90.2 |           | ug/L |       |       | 113      | 61 - 124               | 10      | 1       |
|   |                       |            |            |      |      |           | 5    |       |       |          |                        |         |         |
|   | MSD                   | MSD        |            |      |      |           |      |       |       |          |                        |         |         |
| Surrogate                                   | %Recovery             | Qualifier  | Limits     |      |      |           |      |       |       |          |                        |         |         |
| 1,2-Dichloroethane-d4 (Surr)                | 88                    |            | 62 - 137   |      |      |           |      |       |       |          |                        |         |         |
| 4-Bromofluorobenzene (Surr)                 | 107                   |            | 56 - 136   |      |      |           |      |       |       |          |                        |         |         |
| Toluene-d8 (Surr)                           | 90                    |            | 78 - 122   |      |      |           |      |       |       |          |                        |         |         |
| Dibromofluoromethane (Surr)                 | 86                    |            | 73 - 120   |      |      |           |      |       |       |          |                        |         |         |
| lethod: 8260D SIM - Vol                     | latilo Organio        | Comp       | aunda (CC/ |      |      |           |      |       |       |          |                        |         |         |
| iethou. 8260D Silvi - Vol                   | latile Organit        | , comp     | Sunus (GC/ | vi3) |      |           |      |       |       |          |                        |         |         |
| Lab Sample ID: MB 240-605                   | 115/6                 |            |            |      |      |           |      |       |       | Client S | Sample ID: N           | /lethod | Blan    |
| Matrix: Water                               | 110/0                 |            |            |      |      |           |      |       |       | onent e  | Prep T                 |         |         |
| Analysis Batch: 605115                      |                       |            |            |      |      |           |      |       |       |          | i iep i                | ype. ic |         |
| Analysis Datch. 000110                      |                       | МВ МВ      |            |      |      |           |      |       |       |          |                        |         |         |
| Analyte                                     | R                     | esult Qual | ifior      | RL   |      | MDL Unit  |      | D     | Р     | repared  | Analyze                | he      | Dil Fa  |
| 1,4-Dioxane                                 |                       | 2.0 U      |            | 2.0  |      | 0.86 ug/L |      |       |       | repared  | 03/06/24 1             |         |         |
| I,+-Dioxalle                                |                       | 2.0 0      |            | 2.0  |      | 0.00 ug/L |      |       |       |          | 00/00/24 1             | 0.57    |         |
|   |                       | MB MB      |            |      |      |           |      |       |       |          |                        |         |         |
| Surrogate                                   | %Reco                 | overy Qual | ifier Lim  | its  |      |           |      |       | P     | repared  | Analyze                | əd      | Dil Fa  |
| 1,2-Dichloroethane-d4 (Surr)                |                       | 93         | 68 -       | 127  |      |           |      |       |       |          | 03/06/24 1             | 0:57    |         |
| -   |                       |            |            |      |      |           |      |       |       |          |                        |         |         |
| Lab Sample ID: LCS 240-60                   | 5115/4                |            |            |      |      |           |      | CI    | lient | Sample   | ID: Lab Co             |         |         |
| Matrix: Water                               |                       |            |            |      |      |           |      |       |       |          | Prep T                 | ype: To | otal/N/ |
| Analysis Batch: 605115                      |                       |            |            |      |      |           |      |       |       |          |                        |         |         |
|   |                       |            | Spike      |      | LCS  | LCS       |      |       |       |          | %Rec                   |         |         |
| Analyte                                     |                       |            | Added      |      |      | Qualifier | Unit |       | D     | %Rec     | Limits                 |         |         |
| 1,4-Dioxane                                 |                       |            | 10.0       |      | 8.36 |           | ug/L |       |       | 84       | 75 - 121               |         |         |
|   | 105                   | LCS        |            |      |      |           |      |       |       |          |                        |         |         |
| Surrogate                                   |                       |            | Limits     |      |      |           |      |       |       |          |                        |         |         |
| 1,2-Dichloroethane-d4 (Surr)                | % <i>Recovery</i><br> | quanner    | 68 - 127   |      |      |           |      |       |       |          |                        |         |         |
|   | 97                    |            | 00 - 121   |      |      |           |      |       |       |          |                        |         |         |
| Lab Sample ID: 240-200285                   | -B-3 MS               |            |            |      |      |           |      |       |       | Client   | Sample ID:             | Matrix  | Spike   |
| Matrix: Water                               |                       |            |            |      |      |           |      |       |       |          | Prep T                 |         |         |
| Analysis Batch: 605115                      |                       |            |            |      |      |           |      |       |       |          |                        |         |         |
|   | Sample                | Sample     | Spike      |      | MS   | MS        |      |       |       |          | %Rec                   |         |         |
| Analyte                                     | -                     | Qualifier  | Added      |      |      | Qualifier | Unit |       | D     | %Rec     | Limits                 |         |         |
| 1,4-Dioxane                                 | 2.0                   |            | 10.0       |      | 8.45 |           | ug/L |       | _     | 84       | 20 - 180               |         |         |
|   |                       |            |            |      | -    |           | 5    |       |       | -        |                        |         |         |
|   |                       | MS         |            |      |      |           |      |       |       |          |                        |         |         |
| Surrogate                                   | %Recovery             | Qualifier  | Limits     |      |      |           |      |       |       |          |                        |         |         |
|   | 98                    |            | 68 - 127   |      |      |           |      |       |       |          |                        |         |         |

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## Method: 8260D SIM - Volatile Organic Compounds (GC/MS) (Continued)

| Lab Sample ID: 240-200285-<br>Matrix: Water | B-3 MSD   |           |          |        |           | (    | Client Sa | ample IC | ): Matrix Sp<br>Prep 1 | oike Dup<br>Type: To |       |
|---|-----------|-----------|----------|--------|-----------|------|-----------|----------|------------------------|----------------------|-------|
| Analysis Batch: 605115                      | Sample    | Sample    | Spike    | MSD    | MSD       |      |           |          | %Rec                   |                      | RPD   |
| Analyte                                     | Result    | Qualifier | Added    | Result | Qualifier | Unit | D         | %Rec     | Limits                 | RPD                  | Limit |
| 1,4-Dioxane                                 | 2.0       | U         | 10.0     | 8.98   |           | ug/L |           | 90       | 20 - 180               | 6                    | 20    |
|   | MSD       | MSD       |          |        |           |      |           |          |                        |                      |       |
| Surrogate                                   | %Recovery | Qualifier | Limits   |        |           |      |           |          |                        |                      |       |
| 1,2-Dichloroethane-d4 (Surr)                | 96        |           | 68 - 127 |        |           |      |           |          |                        |                      |       |

**Eurofins Cleveland** 

8260D SIM

## GC/MS VOA

240-200285-B-3 MSD

Matrix Spike Duplicate

| Analysis | Batch: | 604673 |
|----------|--------|--------|
|----------|--------|--------|

| Lab Sample ID         | Client Sample ID       | Prep Type | Matrix | Method    | Prep Batch |
|-----------------------|------------------------|-----------|--------|-----------|------------|
| 240-200197-1          | TRIP BLANK_94          | Total/NA  | Water  | 8260D     |            |
| 240-200197-2          | MW-156S_022724         | Total/NA  | Water  | 8260D     |            |
| MB 240-604673/12      | Method Blank           | Total/NA  | Water  | 8260D     |            |
| LCS 240-604673/6      | Lab Control Sample     | Total/NA  | Water  | 8260D     |            |
| 240-200247-B-2 MS     | Matrix Spike           | Total/NA  | Water  | 8260D     |            |
| 240-200247-B-2 MSD    | Matrix Spike Duplicate | Total/NA  | Water  | 8260D     |            |
| Analysis Batch: 60511 | 5                      |           |        |           |            |
| Lab Sample ID         | Client Sample ID       | Prep Type | Matrix | Method    | Prep Batch |
| 240-200197-2          | MW-156S_022724         | Total/NA  | Water  | 8260D SIM |            |
| MB 240-605115/6       | Method Blank           | Total/NA  | Water  | 8260D SIM |            |
| LCS 240-605115/4      | Lab Control Sample     | Total/NA  | Water  | 8260D SIM |            |
| 240-200285-B-3 MS     | Matrix Spike           | Total/NA  | Water  | 8260D SIM |            |

Total/NA

Water

### Client Sample ID: TRIP BLANK\_94

| Lab Sample | ID: | 240-200 | 197-1 |
|------------|-----|---------|-------|
|            |     | Matrix: | Water |

#### Date Collected: 02/27/24 00:00 Date Received: 02/29/24 08:00

|          | Batch    | Batch  |     | Dilution | Batch  |         |         | Prepared       |
|----------|----------|--------|-----|----------|--------|---------|---------|----------------|
| rep Type | Туре     | Method | Run | Factor   | Number | Analyst | Lab     | or Analyzed    |
| otal/NA  | Analysis | 8260D  |     | 1        | 604673 | HMB     | EET CLE | 03/01/24 17:51 |

#### Client Sample ID: MW-156S\_022724 Date Collected: 02/27/24 09:50

Date Received: 02/29/24 08:00

|           | Batch    | Batch     |     | Dilution | Batch  |         |         | Prepared       |
|-----------|----------|-----------|-----|----------|--------|---------|---------|----------------|
| Prep Type | Туре     | Method    | Run | Factor   | Number | Analyst | Lab     | or Analyzed    |
| Total/NA  | Analysis | 8260D     |     | 1        | 604673 | HMB     | EET CLE | 03/01/24 18:15 |
| Total/NA  | Analysis | 8260D SIM |     | 1        | 605115 | MDH     | EET CLE | 03/06/24 12:09 |

#### Laboratory References:

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

Matrix: Water

## Accreditation/Certification Summary

Client: Arcadis U.S., Inc. Project/Site: Ford LTP - Off Site

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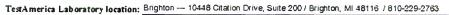
#### Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

| Authority         | Program             | Identification Number | Expiration Date |
|-------------------|---------------------|-----------------------|-----------------|
| California        | State               | 2927                  | 02-27-24 *      |
| Illinois          | NELAP               | 200004                | 07-31-24        |
| lowa              | State               | 421                   | 06-01-25        |
| Kentucky (WW)     | State               | KY98016               | 12-30-24        |
| Minnesota         | NELAP               | 039-999-348           | 12-31-24        |
| New Jersey        | NELAP               | OH001                 | 07-01-24        |
| New York          | NELAP               | 10975                 | 04-01-24        |
| Oregon            | NELAP               | 4062                  | 02-27-25        |
| Pennsylvania      | NELAP               | 68-00340              | 08-31-24        |
| Texas             | NELAP               | T104704517-22-19      | 08-31-24        |
| USDA              | US Federal Programs | P330-18-00281         | 01-05-27        |
| Virginia          | NELAP               | 460175                | 03-06-24        |
| West Virginia DEP | State               | 210                   | 12-31-24        |

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

### Chain of Custody Record



| Client Contact  | Regulat                 | ory program:  |          | 1        | DW          |          | (     | NPDE               | s        | -             | RCR     | A               | T                       | Other                | •                                  |               |         |           |                |                |    |          |         |                             |
|---|-------------------------|---------------|----------|----------|-------------|----------|-------|--------------------|----------|---------------|---------|-----------------|-------------------------|----------------------|------------------------------------|---------------|---------|-----------|----------------|----------------|----|----------|---------|-----------------------------|
| Company Name: Arcadis   | Client Project N        | lanager: Kris | Hlask    | ey       | -           |          | Site  | Conta              | t: Chi   | ristin        | a Wea   | iv er           |                         |                      | k.al                               | Cont          | act: M  | ike D e   | Monie          | 0              |    |          | _       | stAmerica Laboratories, Inc |
| ddress: 28550 Cabot Drive, Suite 500  |                         |               |          |          |             |          |       |                    |          |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
| Ity/State/Zip: Novi, MI, 48377  | Telephone: 248          | -994-2240     |          |          |             |          |       |                    | : 248-9  |               |         |                 |                         |                      | Te                                 | epiton        | e: 330- | 497-93    |                |                |    |          |         | 1 of 1 COCs                 |
| 'hone: 248-994-2240   | Em all: kristoff        | er.hinskey@ar | cadis.   | com      |             |          |       | Anatys             | is Tur   | 121.0N        | nad N   | me              |                         | -                    |                                    |               |         | A         | nalys          | es             |    |          | Fo      | r lab use only              |
|   | Sampler Name            |               |          |          | -           |          | TAT   | ildiller           | THE FROM |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          | w:      | uk-in client                |
| roject Name: Ford LTP Off-Site  |                         | Marjan        | n        | na       | nai         | ni       | 1     | 0 day              | ~        | 3 we          |         |                 |                         |                      |                                    |               |         |           |                |                |    |          | La      | b sampling                  |
| roject Number: 30167538.402.04  | Method of Ship          | ment/Carrier: |          |          |             |          | 1     |                    | E        | l we<br>2 da  |         |                 | Î                       | 0                    |                                    | 9             |         |           |                | SIM            |    |          |         |                             |
| O # 30167538.402.04   | Shipping/Track          | Jag No:       |          |          |             |          | 1     |                    | -        | l da          | -       |                 | ix a                    | Gag                  | 000                                | 82 60D        |         |           | 82 60D         | 8260D          |    |          | lol     | /SDG Na                     |
|   |                         |               |          | M        | atrix       | -        |       | Conta              | ners S.  | Prese         | ervativ | cs              | ampl                    | 12=4                 | 3260I                              | DOE           | 0       | 0         |                | 1e 82          |    |          |         |                             |
|   |                         |               |          | Aquicous |             | ::       | 8     | 8                  | H        | > E           | s       | er:             | Filtered Sample (Y / N) | Composite=C / Grah=G | 1,1-DCE 8260D<br>ais-1.2-DCE 8260D | Trans-1,2-DCE | 82 600  |           | Vinyl Chloride | 1,4-Dioxane    |    |          |         | Sample Specific Notes /     |
| Sample I dentification  | Sample Date             | Sample Time   | Alt      | Agu      | Solid       | Other:   | H2SO4 | FO NH              | NaOH     | P And<br>NAOH | Unpres  | Other:          | E                       | ŝ                    | -1 -1-<br>OIS-                     | Tra           | PCE     | TCE       | ζυ.<br>ζ       | 1,4-           |    |          |         | Special Instructions:       |
| TRIP BLANK_ 94  |                         |               |          | 1        |             |          |       | •                  | 1        |               |         |                 | N                       | G                    | хx                                 | X             | X       | X         | X              |                |    |          |         | 1 Trip Blank                |
| MW-1565-022724  | 2/27/24                 | 1950          |          | X        |             |          |       | 6                  | 2        |               |         |                 | N                       | Q.                   | xx                                 | x             | X       | x         | x              | X              |    |          |         | 3 VOAs for 8260D            |
| 1111 1303 -022329   | 40167                   | 0.50          |          |          |             |          |       | -                  |          | -             |         |                 |                         | 9                    |                                    | ~             |         |           |                | ^              | -  | $\vdash$ | -       | 3 VOAs for 8260D SIM        |
|   |                         |               |          |          |             |          |       |                    |          |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
|   |                         |               |          |          |             |          |       |                    |          |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
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|   |                         |               |          |          |             |          |       |                    | +        |               | +       |                 |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
|   |                         |               |          |          |             |          |       |                    |          |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          |         | ATTCAN                      |
|   |                         |               |          |          |             |          |       |                    |          |               |         | 240-2           | 019                     | 7 CH                 | nain of                            | Cust          | dy      |           |                |                |    |          | M       | CHIUAI                      |
|   |                         |               |          | +        | +           |          |       | 1                  | +        |               |         | 1               | 1                       |                      |                                    |               | ay      |           |                |                |    |          |         | 190                         |
|   |                         |               | $\vdash$ | _        | +           |          |       |                    | +-       |               |         |                 | _                       | -                    | _                                  | -             | -       | -         | -              | - +            |    | $\vdash$ | -       |                             |
|   |                         |               |          |          |             |          |       |                    |          |               |         | _               |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
| Possible Hazard I dentification   | ant Poiso               | n B r         | Unkn     | 10wn     |             |          | Sa    |                    | Dispos   |               |         | ay be a<br>✓ Di |                         |                      | am ples a                          |               | Archiv  |           | han 1          | month)<br>Moni | hs |          |         |                             |
| pecial Instructions/OC Requirements & Comments:   |                         |               | - And    |          |             |          |       |                    |          |               |         |                 | - 1-0-24                | , L                  |                                    |               |         | -         |                |                |    |          |         |                             |
| ample Address: 12100 Boston Pos<br>Submit all results through Cadena at jiomalia@cadenaco | t 87<br>o.com. Cadena # | E203631       |          |          |             |          |       |                    |          |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
| evel IV Reporting requested.  |                         |               |          |          |             |          |       |                    |          |               |         |                 |                         |                      |                                    |               |         |           |                |                |    |          |         |                             |
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| elinquished by:   | 1.000                   | A /           | -        | Dale/Ti  | 1           |          | -     |                    |          |               | 40      | borato          |                         |                      | ~                                  | _             |         |           | Daffy:         | -1-1-1         | -  |          | Da      |                             |

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THE LEADER IN ENVIRONMENTAL TESTING

191.NC.189 Cooler Jacobs Form Page 2 - Multiple Cooler

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## **DATA VERIFICATION REPORT**



March 08, 2024

Kris Hinskey Arcadis Inc 10559 Citation Ave Suite 100 Brighton, MI 48116

CADENA project ID: E203631 Project: Ford Livonia Transmission Project - OFF-SITE - Soil Gas and Groundwater Project number: 30167538.402.04 Event Specific Scope of Work References: Sample COC Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory submittal: 200197-1 Sample date: 2024-02-27 Report received by CADENA: 2024-03-08 Initial Data Verification completed by CADENA: 2024-03-08 Number of Samples:2 Sample Matrices:Water Test Categories:GCMS VOC Please see attached criteria report or sample result/qualified analytical result summary for qualifier flags assigned to sample data.

There were no significant QC anomalies or exceptions to report.

Sample/MS/MSD Surrogate Recovery, Blank/LCS Surrogate Recovery, LCS/LCD Recovery, Blank Contamination and Hold Time Exception were reviewed as part of our verification.

Data verification for the report specified above was completed using the Ford Motor Company Environmental Laboratory Technical Specification, the CADENA Standard Operating Procedure for the Verification of Environmental Analytical Data and the associated analytical methods as references for evaluating the batch QC, sample data and report content. The EPA National Functional Guidelines for validating organic and inorganic data were used as guidance when addressing out of control QC results and the associated data qualifiers.

The definitions of the qualifiers used for this data package are defined in the analytical report. CADENA valid qualifiers are defined in the table below. To view and download a PDF copy of the laboratory analytical report access the CADENA CLMS at <u>http://clms.cadenaco.com/index.cfm</u>.

Please contact me if you have any questions.

Sincerely,

Jim Tomalia

Project Scientist

CADENA Inc, 1099 Highland Drive, Suite E, Ann Arbor, MI 48108 517-819-0356

## **CADENA Valid Qualifiers**

| Valid<br>Qualifiers | Description  |
|---------------------|--|
| <                   | Less than the reported concentration.  |
| >                   | Greater than the reported concentration.   |
| В                   | The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was greater than the RDL and less than 5x (or 10x for common lab contaminates) the blank concentration and is considered non-detect at the reported concentration. For Inorganic methods the sample concentration was greater than the RDL and less than 10x the blank concentration and is considered non-detect at the reported concentration. |
| Е                   | The analyte / Compound reported exceeds the calibration range and is considered estimated.   |
| EMPC                | Estimated Minimum Potential Contamination - Dioxin/Furan analyses only.  |
| J                   | Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of an analyte / compound but the result is less than the sample Quantitation limit, but greater than zero. The flag is also used in data validation to indicate a reported value should be considered estimated due to associated quality assurance deficiencies.                     |
| J-                  | The result is an estimated quantity, but the result may be biased low.   |
| JB                  | NON-DETECT AT THE CONCENTRATION REPORTED AND ESTIMATED   |
| JH                  | The sample result is considered estimated and is potentially biased high.  |
| JL                  | The sample result is considered estimated and is potentially biased low.   |
| JUB                 | NON-DETECT AT THE REPORTING LIMIT AND ESTIMATED  |
| NJ                  | Tentatively identified compound with approximated concentration.   |
| R                   | Indicates the value is considered to be unusable. (Note: The analyte / compound may or may not be present.)  |
| TNTC                | Too Numerous to Count - Asbestos and Microbiological Results.  |
| U                   | Indicates that the analyte / compound was analyzed for, but not detected.  |
| UB                  | The analyte / compound was detected in the associated blank. For Organic methods the sample concentration was less than the RDL and less than $5x$ (or $10x$ for common lab contaminates) the blank concentration and is considered non-detect at the RDL. For Inorganic methods the sample concentration was less than the RDL and less than $10x$ the blank concentration and is considered non-detect at the RDL.                                       |
| UJ                  | The analyte / compound was not detected above the reported sample Quantitation limit. However, the Quantitation limit is considered to be approximate due to associated quality assurance results and may or may not represent the actual limit of Quantitation to accurately and precisely report the analyte in the sample.  |

## Analytical Results Summary

CADENA Project ID: E203631

Laboratory: Eurofins Environment Testing LLC - Cleveland Laboratory Submittal: 200197-1

|                 |                          | Sample Name:<br>Lab Sample ID:<br>Sample Date: | TRIP BLA<br>2402001<br>2/27/202 | 971    |       |           | MW-156S_022724<br>2402001972<br>2/27/2024 |        |       |           |  |
|-----------------|--------------------------|--|---------------------------------|--------|-------|-----------|---|--------|-------|-----------|--|
|                 |                          | <b>.</b>                                       | <b>.</b>                        | Report |       | Valid     | <b>-</b>                                  | Report |       | Valid     |  |
|                 | Analyte                  | Cas No.  | Result                          | Limit  | Units | Qualifier | Result                                    | Limit  | Units | Qualifier |  |
| GC/MS VOC       |                          |  |                                 |        |       |           |   |        |       |           |  |
| <u>OSW-8260</u> | <u>ID</u>                |  |                                 |        |       |           |   |        |       |           |  |
|                 | 1,1-Dichloroethene       | 75-35-4  | ND                              | 1.0    | ug/l  |           | ND  | 1.0    | ug/l  |           |  |
|                 | cis-1,2-Dichloroethene   | 156-59-2                                       | ND                              | 1.0    | ug/l  |           | ND  | 1.0    | ug/l  |           |  |
|                 | Tetrachloroethene        | 127-18-4                                       | ND                              | 1.0    | ug/l  |           | ND  | 1.0    | ug/l  |           |  |
|                 | trans-1,2-Dichloroethene | 156-60-5                                       | ND                              | 1.0    | ug/l  |           | ND  | 1.0    | ug/l  |           |  |
|                 | Trichloroethene          | 79-01-6  | ND                              | 1.0    | ug/l  |           | ND  | 1.0    | ug/l  |           |  |
|                 | Vinyl chloride           | 75-01-4  | ND                              | 1.0    | ug/l  |           | ND  | 1.0    | ug/l  |           |  |
| <u>OSW-8260</u> | <u>IDSIM</u>             |  |                                 |        |       |           |   |        |       |           |  |
|                 | 1,4-Dioxane              | 123-91-1                                       |                                 |        |       |           | ND  | 2.0    | ug/l  |           |  |



## Ford Motor Company – Livonia Transmission Project

# **Data Review**

## Livonia, Michigan

Volatile Organic Compounds (VOC) Analysis

SDG # 240-200197-1 CADENA Verification Report: 2024-03-08

Analyses Performed By: Eurofins Cleveland Barberton, Ohio

Report # 53356R Review Level: Tier III Project: 30167538.402.02

## **SUMMARY**

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 240-200197-1 for samples collected in association with the Ford – Livonia, Michigan site. The review was conducted as a Tier III validation in addition to a verification/Tier II validation review performed by CADENA Inc. and included review of level IV laboratory data package completeness. Only elements of a Tier III validation effort (Tier III) include a detailed review of laboratory raw data to check for errors in calculation, calibration review, internal standard review and compound identification) and omitted deviations from the CADENA verification/Tier II report are documented in this report. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

| Sample ID      | Lab ID       | Matrix | Sample          | Barant Sampla | Anal<br>VOC | lysis   |  |
|----------------|--------------|--------|-----------------|---------------|-------------|---------|--|
| Sample ID      |              | Matrix | Collection Date | Parent Sample | VOC         | VOC SIM |  |
| TRIP BLANK_94  | 240-200197-1 | Water  | 02/27/2024      |               | Х           |         |  |
| MW-156S_022724 | 240-200197-2 | Water  | 02/27/2024      |               | Х           | Х       |  |

## DATA REVIEW

### ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

|     | Items Reviewed   | Rep | orted |    | mance<br>otable | Not<br>Required |
|-----|--|-----|-------|----|-----------------|-----------------|
|     |  | No  | Yes   | No | Yes             | Required        |
| 1.  | Sample receipt condition   |     | Х     |    | Х               |                 |
| 2.  | Requested analyses and sample results                              |     | Х     |    | Х               |                 |
| 3.  | Master tracking list   |     | Х     |    | Х               |                 |
| 4.  | Methods of analysis  |     | Х     |    | X               |                 |
| 5.  | Reporting limits   |     | Х     |    | Х               |                 |
| 6.  | Sample collection date   |     | Х     |    | Х               |                 |
| 7.  | Laboratory sample received date                                    |     | Х     |    | X               |                 |
| 8.  | Sample preservation verification (as applicable)                   |     | Х     |    | Х               |                 |
| 9.  | Sample preparation/extraction/analysis dates                       |     | Х     |    | Х               |                 |
| 10. | Fully executed Chain-of-Custody (COC) form                         |     | Х     |    | Х               |                 |
| 11. | Narrative summary of Quality Assurance or sample problems provided |     | х     |    | х               |                 |
| 12. | Data Package Completeness and Compliance                           |     | Х     |    | Х               |                 |

### **ORGANIC ANALYSIS INTRODUCTION**

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260D and 8260D SIM. Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-20-005, November 2020 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999), as appropriate.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
  - UJ The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

### VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

#### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

| Method                 | Matrix | Holding Time                        | Preservation                    |
|------------------------|--------|-------------------------------------|---------------------------------|
| SW-846 8260D/8260D-SIM | Water  | 14 days from collection to analysis | Cool to < 6 °C; pH < 2 with HCI |

All samples were analyzed within the specified holding time criteria.

#### 2. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

#### 3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

#### 3.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (20%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

All compounds associated with the initial calibrations were within the specified control limits.

#### 3.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (20%) and RRF value greater than control limit (0.05).

All compounds associated with the continuing calibrations were within the specified control limits.

#### 4. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

All internal standard responses were within control limits.

#### 5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

A field duplicate sample was not collected for samples from this SDG.

#### DATA REVIEW

#### 6. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

No compounds were detected in the samples within this SDG.

### 7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

#### DATA REVIEW

### DATA VALIDATION CHECKLIST FOR VOCs

| VOCs: 8260D/8260D-SIM                                       | Rep   | orted |    | rmance<br>ptable | Not      |
|---|-------|-------|----|------------------|----------|
|   | No    | Yes   | No | Yes              | Required |
| GAS CHROMATOGRAPHY/MASS SPECTROMETRY (G                     | C/MS) |       |    |                  |          |
| Tier II Validation  |       |       |    |                  |          |
| Holding times/Preservation                                  |       | Х     |    | X                |          |
| Tier III Validation   |       |       |    | 1                | 1        |
| System performance and column resolution                    |       | Х     |    | X                |          |
| Initial calibration %RSDs                                   |       | Х     |    | Х                |          |
| Continuing calibration RRFs                                 |       | Х     |    | Х                |          |
| Continuing calibration %Ds                                  |       | Х     |    | Х                |          |
| Instrument tune and performance check                       |       | Х     |    | Х                |          |
| Ion abundance criteria for each instrument used             |       | Х     |    | Х                |          |
| Field Duplicate RPD   | Х     |       |    |                  | Х        |
| Internal standard   |       | Х     |    | Х                |          |
| Compound identification and quantitation                    |       |       |    |                  |          |
| A. Reconstructed ion chromatograms                          |       | Х     |    | Х                |          |
| B. Quantitation Reports                                     |       | Х     |    | Х                |          |
| C. RT of sample compounds within the established RT windows |       | Х     |    | Х                |          |
| D. Transcription/calculation errors present                 |       | Х     |    | Х                |          |
| E. Reporting limits adjusted to reflect sample dilutions    |       | Х     |    | Х                |          |

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

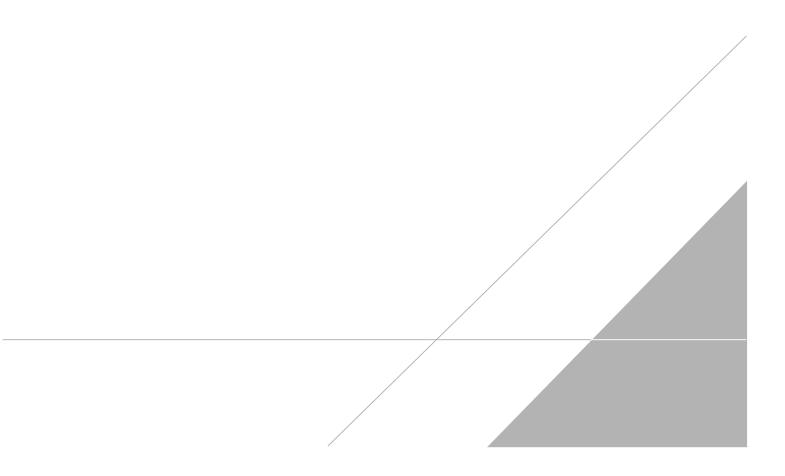
%D Percent difference

| VALIDATION PERFORMED BY: | Dilip Kumar    |
|--------------------------|----------------|
| SIGNATURE:               | Perting        |
| DATE:                    | March 23, 2024 |

PEER REVIEW: Andrew Korycinski

DATE: April 2, 2024

# NO CORRECTIONS/QUALIFERS ADDED TO SAMPLE ANALYSIS DATA SHEETS



# CHAIN OF CUSTODY CORRECTED SAMPLE ANALYSIS DATA SHEETS



## Chain of Custody Record



| TestAmerica Laboratory location: | Brighton | 10448 Citation Drive, | Suite 200 / Brighto | n, MI 48116 / 810-229-2763 |
|----------------------------------|----------|-----------------------|---------------------|----------------------------|

| Client Contact  | Regulat                   | ory program   | :             |                     | DW              | (     | PDES               |        | RC                       | RA        | 0                     | ther          |                         |               |                  |           |                      |                       |   | Texture in the extension in                      |
|---|---------------------------|---------------|---------------|---------------------|-----------------|-------|--------------------|--------|--------------------------|-----------|-----------------------|---------------|-------------------------|---------------|------------------|-----------|----------------------|-----------------------|---|--|
|   | Client Project N          | lanager: Kris | Hinsk         | ley                 |                 | Site  | ontact:            | Chri   | istin a W                | eaver     |                       |               | Lab                     | Conta         | et: MI           | ke D el   | Monic                | 0                     |   | TestAmerica Laboratories, Ir<br>COC Noc          |
| ddress: 28550 Cabot Dirive, Suite 500   | Telephone: 248            | -994-2240     |               |                     |                 | Teler | hone: 24           | 48-99  | 4-2240                   |           |                       |               | Telephone: 330-497-9396 |               |                  |           |                      |                       |   |  |
| lty/State/Zlp: Novi, MI, 48377  |                           |               |               |                     |                 |       |                    |        |                          |           |                       | _             |                         | -             |                  |           |                      |                       |   | 1 of 1 COCs                                      |
| None: 248-994-2240  | Em all: kristoff          | er.hlnskey@ar | rcadis.       | .com                |                 |       | natysis            | Tura   | around                   | Time      |                       | H             | 1                       | -             | T                | A         | nalys                | es                    |   | For lab use only                                 |
|   | Sampler Name              |               |               | , ,                 |                 | TAT   | l dillerent l      |        |                          |           |                       |               |                         |               |                  |           |                      |                       |   | Walk-in client                                   |
| roject Name: Ford LTP Off-Site  |                           | Marjar        | $m \parallel$ | Mai                 | nani            | 10    | day                |        | 3 weeks<br>2 weeks       |           |                       |               |                         |               |                  |           |                      |                       |   | Lab sampling                                     |
| roject Number: 30167538.402.04  | Method of Ship            | ment/Carrier: |               |                     |                 |       |                    |        | l week<br>2 days         |           | 2 C                   |               |                         | 0             |                  |           | ~                    | Ng                    |   |  |
| 0 # 301 67538.402.04  | Shipping/Track            | Jag No:       |               |                     |                 |       |                    |        | l day                    |           | le (Y/N               |               | 8260D                   | 82 60D        |                  |           | 82 60L               | 260D                  |   | Job/SDG Na                                       |
|   |                           |               |               | Ma                  | trix            |       | Centaine           | rs & 1 | Preserval                | ives      | dub                   | 3260          | E 8                     | -DCE          | 0                | 9         | ride                 | 8                     |   |  |
| Sample I dentification  | Sample Date               | Sample Time   | Aír           | Aquéors<br>Sedément | Solid<br>Other: | H2SOM | HN 03              | NaOH   | Zed d<br>NeOH<br>U uptes | Olber:    | Filtered Sample (Y/N) | 1,1-DCE 8260D | cis-1,2-DCE             | Trans-1,2-DCE | PCE 82 600       | TCE 82600 | Vinyl Chloride & 60D | 1,4-Diorane 82600 SIM |   | Sample Specific Notes /<br>Special Instructions: |
| TRIP BLANK_ 94  |                           |               |               | 1                   |                 |       | 1                  |        |                          |           | NC                    | 3 X           | X                       | X             | X                | X         | Х                    |                       |   | 1 Trip Blank                                     |
| W-1565-022724   | 2/27/24                   | 0950          |               | X                   |                 | -     | 6                  |        |                          |           | NO                    | ą x           | x                       | x             | x                |           | x                    | ×                     |   | 3 VOAs for 8260D                                 |
|   |                           |               |               |                     |                 |       |                    |        |                          |           |                       | 1             |                         |               |                  | ×         |                      |                       |   | 3 VOAs for 8260D SIM                             |
|   |                           |               |               |                     |                 |       |                    |        | _                        |           |                       | <br>          |                         | 11811 8.81    |                  |           |                      |                       |   |  |
|   |                           |               |               |                     |                 |       |                    |        |                          | 240-20    | 00197                 | Cha           | in of C                 | Custo         | dy               |           |                      |                       | N | ICHIGAN  |
|   |                           |               |               |                     |                 |       |                    |        |                          |           |                       |               |                         |               |                  |           |                      |                       |   | 190  |
|   |                           |               |               |                     |                 |       |                    |        |                          |           |                       |               |                         |               |                  |           |                      |                       |   |  |
| Possible Hazard Identification   Image: Non-Hazard Flammable Skin Image: Skin Image | itant Poiso               | n B [         | Unkn          | nown                |                 | Sa    | n pie Dis<br>Retur |        |                          | may be an |                       |               |                         |               | ned lo<br>rchive |           | han 1                | month)<br>Months      |   |  |
| pectal Instructions/QC Requirements & Comments:<br>semple Address: 12100 BOSTON Po-<br>ubmit all results through Cadena at jtomalia@cadena<br>evel IV Reporting requested.  | St 87<br>co.com. Cadena # |               |               |                     |                 |       |                    |        |                          |           |                       |               |                         |               | <u> </u>         |           |                      |                       |   |  |
| stinguished by: Maryam Manai  | Company:<br>Arcade        | 1             |               | Date Tin            | 124             | 17C   | Ò                  | Rece   | ived by:<br>OVI          | Cold      | 87                    | ord           | مە                      |               |                  | Comp      |                      | lie                   |   | 2/27/24 1702                                     |
| slinguished by: Jammer Sur  | Comany:<br>Hr Ca          | dis           |               | Dale Tin            | s/24 (          |       | 0                  | Rece   | ived by:                 | R         | A                     | En            | 5                       |               |                  | Comp      |                      | -CA-                  |   | Date Time:                                       |
| elinquished by:   | Company.                  | 11-           |               | Dale/Tin            | RDU             |       |                    | Rice   | ived y                   | abbrato   | A py:                 |               |                         |               |                  | Comp      | afiy:                |                       |   | Date Time:                                       |

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## Client Sample ID: TRIP BLANK\_94

### Date Collected: 02/27/24 00:00

Date Received: 02/29/24 08:00

| Analyte                  | Result | Qualifier | RL  | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|--------------------------|--------|-----------|-----|------|------|---|----------|----------------|---------|
| 1,1-Dichloroethene       | 1.0    | U         | 1.0 | 0.49 | ug/L |   |          | 03/01/24 17:51 | 1       |
| cis-1,2-Dichloroethene   | 1.0    | U         | 1.0 | 0.46 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Tetrachloroethene        | 1.0    | U         | 1.0 | 0.44 | ug/L |   |          | 03/01/24 17:51 | 1       |
| trans-1,2-Dichloroethene | 1.0    | U         | 1.0 | 0.51 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Trichloroethene          | 1.0    | U         | 1.0 | 0.44 | ug/L |   |          | 03/01/24 17:51 | 1       |
| Vinyl chloride           | 1.0    | U         | 1.0 | 0.45 | ug/L |   |          | 03/01/24 17:51 | 1       |
|                          |        |           |     |      |      |   |          |                |         |

| Surrogate                    | %Recovery | Qualifier | Limits   | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|----------|----------------|---------|
| 1,2-Dichloroethane-d4 (Surr) | 88        |           | 62 - 137 |          | 03/01/24 17:51 | 1       |
| 4-Bromofluorobenzene (Surr)  | 105       |           | 56 - 136 |          | 03/01/24 17:51 | 1       |
| Toluene-d8 (Surr)            | 92        |           | 78 - 122 |          | 03/01/24 17:51 | 1       |
| Dibromofluoromethane (Surr)  | 86        |           | 73 - 120 |          | 03/01/24 17:51 | 1       |

### Client Sample ID: MW-156S\_022724 Date Collected: 02/27/24 09:50 Date Received: 02/29/24 08:00

Toluene-d8 (Surr)

Dibromofluoromethane (Surr)

Lab Sample ID: 240-200197-2

Matrix: Water

| Analyte                      | Result    | Qualifier | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|------|------|---|----------|----------------|---------|
| 1,4-Dioxane                  | 2.0       | U         | 2.0      | 0.86 | ug/L |   |          | 03/06/24 12:09 | 1       |
| Surrogate                    | %Recovery | Qualifier | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 93        | ·         | 68 - 127 |      |      |   |          | 03/06/24 12:09 | 1       |

#### Method: SW846 8260D - Volatile Organic Compounds by GC/MS

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| Analyte                      | Result    | Qualifier | RL       | MDL  | Unit | D | Prepared | Analyzed       | Dil Fac |
|------------------------------|-----------|-----------|----------|------|------|---|----------|----------------|---------|
| 1,1-Dichloroethene           | 1.0       | U         | 1.0      | 0.49 | ug/L |   |          | 03/01/24 18:15 | 1       |
| cis-1,2-Dichloroethene       | 1.0       | U         | 1.0      | 0.46 | ug/L |   |          | 03/01/24 18:15 | 1       |
| Tetrachloroethene            | 1.0       | U         | 1.0      | 0.44 | ug/L |   |          | 03/01/24 18:15 | 1       |
| trans-1,2-Dichloroethene     | 1.0       | U         | 1.0      | 0.51 | ug/L |   |          | 03/01/24 18:15 | 1       |
| Trichloroethene              | 1.0       | U         | 1.0      | 0.44 | ug/L |   |          | 03/01/24 18:15 | 1       |
| Vinyl chloride               | 1.0       | U         | 1.0      | 0.45 | ug/L |   |          | 03/01/24 18:15 | 1       |
| Surrogate                    | %Recovery | Qualifier | Limits   |      |      |   | Prepared | Analyzed       | Dil Fac |
| 1,2-Dichloroethane-d4 (Surr) | 89        |           | 62 - 137 |      |      | - |          | 03/01/24 18:15 | 1       |
| 4-Bromofluorobenzene (Surr)  | 107       |           | 56 - 136 |      |      |   |          | 03/01/24 18:15 | 1       |

78 - 122

73 - 120

03/01/24 18:15

03/01/24 18:15

1

1

## Lab Sample ID: 240-200197-1 Matrix: Water