

The order of this data package is as follows:

1. Chain-of-Custody/Lab Request
2. Copies of field COCs
3. Validation Report
4. Laboratory analysis

Comments:

[illegible]

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAMO-17-130584

WORK ORDER:

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---------------------------------|---------------|--------------|----------------------|---------------|-----------------|
| Date Collected (MM/DD/YYYY): | 4/13/17 | OK | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | 1242 | | MEDIA: | UA | |
| PRS ID: | OK | | SAMPLE TECH CODE: | RSP | |
| LOCATION ID: | R-37 S1 | | FIELD PREP: | UF | |
| LOCATION TYPE: | Mon | | FIELD QC TYPE: | REG | |
| TOP DEPTH: | OK | | SAMPLE USAGE: | INV | |
| BOTTOM DEPTH: | | | EXCAVATED: | | YES / NO / (NA) |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL/INSTRUCTIONS |
|----------|----------------|--------------------------|---|--------------|---------------|----------------------|
| NA | WSP-8260B-VOA | 40 ML SEPTUM AMBER GLASS | 2 | HCL | Y | NA |
| ↓ | WSP-8270C-SVOA | 1 LITER AMBER GLASS | 2 | ICE | ↓ | ↓ |
| ↓ | WSP-LL-H-3 | 1 LITER POLY | 1 | NONE | ↓ | ↓ |

SAMPLE COMMENTS: Windy + dusty while sampling

LOCATION COMMENTS: None

FIELD PARAMETERS:

| | | | | | | | | |
|------------------|------|------|----------------------|-------|-------|-------------------------------|-------|-------|
| Dissolved Oxygen | 2.05 | mg/L | Flow (in gpm) | 0.81 | GPM | Oxidation-Reduction Potential | 159.3 | mV |
| pH | 8.42 | SU | Specific Conductance | 235.4 | uS/cm | Temperature | 18.0 | deg C |
| Turbidity | 0.15 | NTU | | | | | | |

COLLECTED BY (PRINT): A. Vigil

| | | | |
|---|------------------------------|--|------------------------------|
| RELINQUISHED BY (Printed Name) Andrew Vigil (Signature) [Signature] | Date/Time 4/13/17 1335 | RECEIVED BY (Printed Name) [Signature] (Signature) [Signature] | Date/Time 4/13/17 1335 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date: 03/27/2017

SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 11162

EVENT NAME: Pajarito (TA-54) MY2017 Q3

SAMPLE ID: CAMO-17-130590

WORK ORDER:

| | AS PLANNED | AS COLLECTED | | AS PLANNED | AS COLLECTED |
|---------------------------------|---------------|--------------|----------------------|---------------|---------------|
| Date Collected (MM/DD/YYYY): | 4/13/17 | OK | FIELD MATRIX: | WG | OK |
| TIME COLLECTED (HH:MM): | 1242 | | MEDIA: | UA | |
| PRS ID: | OK | | SAMPLE TECH CODE: | DC | |
| LOCATION ID: | R-37 S1 | | FIELD PREP: | UF | |
| LOCATION TYPE: | Mon | | FIELD QC TYPE: | FTB | |
| TOP DEPTH: | OK | | SAMPLE USAGE: | QC | |
| BOTTOM DEPTH: | | | EXCAVATED: | | YES / NO (NA) |

| PRIORITY | ORDER | CONTAINER | # | PRESERVATIVE | COLLECTED Y/N | SPECIAL INSTRUCTIONS |
|----------|-------------------|-----------------------------|-------------|--------------|---------------|----------------------|
| NA | WSP-8260B- VOA | 40 ML SEPTUM AMBER GLASS | 1 2 3 | HCL | Y | NA |

SAMPLE COMMENTS:

LOCATION COMMENTS:

FIELD PARAMETERS:

45 4/13/17

| | | | | | | | | |
|------------------|-------|------|-------------------------|-------|-------|----------------------------------|-------|-------|
| Dissolved Oxygen | _____ | mg/L | Flow (in gpm) | _____ | GPM | Oxidation-Reduction Potential | _____ | mV |
| pH | _____ | SU | Specific Conductance | _____ | uS/cm | Temperature | _____ | deg C |
| Turbidity | _____ | NTU | | | | | | |

COLLECTED BY (PRINT): A. Vigil

| | | | |
|---|------------------------------|--|------------------------------|
| RELINQUISHED BY (Printed Name) Andrew Vigil (Signature) <i>Andrew Vigil</i> | Date/Time 4/13/17 1335 | RECEIVED BY <i>M. Martin</i> (Printed Name) (Signature) <i>M. Martin</i> | Date/Time 4/13/17 1335 |
| RELINQUISHED BY (Printed Name) (Signature) | Date/Time | RECEIVED BY (Printed Name) (Signature) | Date/Time |

Report Date: 03/27/2017

DATA VALIDATION REPORT

Chain Of Custody No. 2017-1379

1. Distribution Of Samples In EDD.

| SDG | Analytical Method | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks |
|--------|-------------------|-----------------|------------------|-------------|--------------|------------------|
| 420857 | EPA:170.0 | 1 | | 1 | | |
| 420857 | SW-846:8260B | 1 | | 1 | | |
| 420857 | SW-846:8270D | 1 | | | | |

| SDG | Analytical Method | Analysis Lot ID | Prep Lot ID | Regular Samples | Field Duplicates | Trip Blanks | Field Blanks | Equipment Blanks | Method Blanks | Matrix Spikes | Matrix Spike Dups | Analytical Spikes | Post-Digestion Spikes | Lab Control Samples | Lab Control Sample Dups | Blank Spike | Blank Spike Dups | Lab Duplicates | Storage Blanks | Preparation Blanks | Reagent Blanks |
|--------|-------------------|-----------------|-------------|-----------------|------------------|-------------|--------------|------------------|---------------|---------------|-------------------|-------------------|-----------------------|---------------------|-------------------------|-------------|------------------|----------------|----------------|--------------------|----------------|
| 420857 | EPA:170.0 | NA | NA | 1 | | 1 | | | | | | | | | | | | | | | |
| 420857 | SW-846:8260B | 1658891 | 1658891 | 1 | | 1 | | | 3 | | | | | 6 | | | | | | | |
| 420857 | SW-846:8270D | 1657088 | 1657087 | 1 | | | | | 1 | 1 | 1 | | | 1 | | | | | | | |

2. Distribution Of Analytes In EDD.

| Analytical Method | Analytical Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spiked Compounds | TICS |
|-------------------|----------------------------|-----------------|---------------|----------------|-----------------|------------|------------------|------|
| EPA:170.0 | VOC | CAMO-17-130584 | 420857001 | REG | 1 | 0 | 0 | 0 |
| EPA:170.0 | VOC | CAMO-17-130590 | 420857002 | FTB | 1 | 0 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-17-130584 | 420857001 | REG | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | CAMO-17-130590 | 420857002 | FTB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | LCS | 1203774854 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1203774855 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | LCS | 1203774856 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1203774857 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | LCS | 1203776467 | LCS | 0 | 3 | 70 | 0 |
| SW-846:8260B | VOC | LCS | 1203776468 | LCS | 0 | 3 | 10 | 0 |
| SW-846:8260B | VOC | MB | 1203774852 | MB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | MB | 1203774853 | MB | 80 | 3 | 0 | 0 |
| SW-846:8260B | VOC | MB | 1203776466 | MB | 80 | 3 | 0 | 0 |
| SW-846:8270D | SVOC | CAMO-17-130584 | 420857001 | REG | 80 | 6 | 0 | 0 |
| SW-846:8270D | SVOC | LCS | 1203770133 | LCS | 0 | 6 | 76 | 0 |
| SW-846:8270D | SVOC | MB | 1203770132 | MB | 80 | 6 | 0 | 0 |

DATA VALIDATION REPORT

| Analytical Method | Analytical Method Category | Field Sample ID | Lab Sample ID | Sample Purpose | Target Analytes | Surrogates | Spiked Compounds | TICS |
|-------------------|----------------------------|-----------------|---------------|----------------|-----------------|------------|------------------|------|
| SW-846:8270D | SVOC | WST54-17-132515 | 1203770134 | MS | 0 | 6 | 76 | 0 |
| SW-846:8270D | SVOC | WST54-17-132515 | 1203770135 | MSD | 0 | 6 | 76 | 0 |

3. Are any analytes missing?

No.

4. Were any holding times exceeded?

No.

5. Any contaminants in blanks?

| Blank FS ID | Blank Lab Sample | Blank Type | Analytical Method | Sample | Parameter Name | Blank Lab Result | Lab Qualifier | Blank Lab Units | Blank Lab Detection Limit |
|----------------|------------------|------------|-------------------|--------|----------------|------------------|---------------|-----------------|---------------------------|
| CAMO-17-130590 | 420857002 | TRIP BLANK | EPA:170.0 | W | Temperature | 5 | | Deg C | |

No.

6. Any surrogate recoveries outside the control limits?

No.

7. Any MS/MSD recoveries or RPDs outside the control limits?

No.

8. Any LCS/LCSD or BS/BSD recoveries or RPDs outside the control limits?

DATA VALIDATION REPORT

No.

9. Any Field Duplicate RPDs outside the desired limits?

No.

10. Any Lab Duplicate RPDs outside the desired limits?

No.

11. Any required reporting limits exceeded?

No.

12. Additional Validator's Comments.

13. Display Flagged Data.

None.

Reason Code

Description

J_LAB

The analytical laboratory qualified the detected result as estimated (J) because the result was less the PQL but greater than the MDL

NQ

The analytical laboratory did not qualify the analyte as not detected and/or any other standard qualify. The analyte is detected in the sample.

U_LAB

The analytical laboratory qualified the analyte as not detected.

14. Usable Result Count.

| Field Sample ID | Location ID | Sample Purpose | Analytical Method | No. Unuseable Records | Total Records |
|-----------------|-------------|----------------|-------------------|-----------------------|---------------|
| CAMO-17-130584 | R-37 S1 | REG | EPA:170.0 | 0 | 1 |
| CAMO-17-130584 | R-37 S1 | REG | SW-846:8260B | 0 | 80 |
| CAMO-17-130584 | R-37 S1 | REG | SW-846:8270D | 0 | 80 |
| CAMO-17-130590 | R-37 S1 | FTB | EPA:170.0 | 0 | 1 |
| CAMO-17-130590 | R-37 S1 | FTB | SW-846:8260B | 0 | 80 |



May 09, 2017

Mr. Keith Greene
Los Alamos National Laboratory
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545

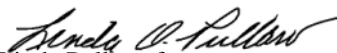
Re: LANL- WQH Water Samples
Work Order: 420857
SDG: 2017-1379

Dear Mr. Greene:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on April 18, 2017, and analyzed for GC/MS Semivolatile and GC/MS Volatile. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,


Linda Pullano for
Valerie Davis
Project Manager

Chain of Custody: 2017-1379
Enclosures



ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Work Order #: 420857
SDG: 2017-1379

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Case Narrative

**Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- WQH Water Samples
Workorder #: 420857
SDG # : 2017-1379**

May 09, 2017

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 18, 2017 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperature was within specification (0 - 6C). Shipping container temperatures were checked, documented, and within specifications. There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

| <u>Laboratory ID</u> | <u>Client ID</u> |
|-----------------------------|-------------------------|
| 420857001 | CAMO-17-130584 |
| 420857002 | CAMO-17-130590 |

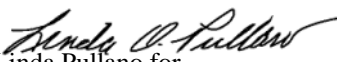
Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: GC/MS Semivolatile and GC/MS Volatile.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.


Linda Pullano for
Valerie Davis
Project Manager

List of current GEL Certifications as of 09 May 2017

| State | Certification |
|--------------------------|------------------------------|
| Alaska | UST-0110 |
| Arkansas | 88-0651 |
| CLIA | 42D0904046 |
| California | 2940 |
| Colorado | SC00012 |
| Connecticut | PH-0169 |
| Delaware | SC00012 |
| DoD ELAP/ ISO17025 A2LA | 2567.01 |
| Florida NELAP | E87156 |
| Foreign Soils Permit | P330-15-00283, P330-15-00253 |
| Georgia | SC00012 |
| Georgia SDWA | 967 |
| Hawaii | SC00012 |
| Idaho Chemistry | SC00012 |
| Idaho Radiochemistry | SC00012 |
| Illinois NELAP | 200029 |
| Indiana | C-SC-01 |
| Kansas NELAP | E-10332 |
| Kentucky SDWA | 90129 |
| Kentucky Wastewater | 90129 |
| Louisiana NELAP | 03046 (AI33904) |
| Louisiana SDWA | LA170010 |
| Maryland | 270 |
| Massachusetts | M-SC012 |
| Michigan | 9976 |
| Mississippi | SC00012 |
| Nebraska | NE-OS-26-13 |
| Nevada | SC000122016-1 |
| New Hampshire NELAP | 205415 |
| New Jersey NELAP | SC002 |
| New Mexico | SC00012 |
| New York NELAP | 11501 |
| North Carolina | 233 |
| North Carolina SDWA | 45709 |
| North Dakota | R-158 |
| Oklahoma | 9904 |
| Pennsylvania NELAP | 68-00485 |
| S.Carolina Radchem | 10120002 |
| South Carolina Chemistry | 10120001 |
| Tennessee | TN 02934 |
| Texas NELAP | T104704235-17-12 |
| Utah NELAP | SC000122017-22 |
| Vermont | VT87156 |
| Virginia NELAP | 460202 |
| Washington | C780 |
| West Virginia | 997404 |

Chain of Custody and Supporting Documentation



Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

| Client: <u>ESHL</u> | | SDG/AR/COC/Work Order: <u>420857</u> | | |
|---|---|--|-------------------------------------|--|
| Received By: <u>ZKW</u> | | Date Received: <u>4/18/17</u> | | |
| Carrier and Tracking Number | | Circle Applicable: <input checked="" type="radio"/> FedEx Express <input type="radio"/> FedEx Ground <input type="radio"/> UPS <input type="radio"/> Field Services <input type="radio"/> Courier <input type="radio"/> Other <u>5908 1781 9640-5c</u> <u>5908 1781 9650(3)-5c</u> <u>5908 1781 9639-20c</u> | | |
| | | | | |
| Suspected Hazard Information | Yes <input type="checkbox"/> No <input type="checkbox"/> | *If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation. | | |
| Shipped as a DOT Hazardous? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Hazard Class Shipped: _____ UN#: _____ | | |
| COC/Samples marked or classified as radioactive? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | Maximum Net Counts Observed* (Observed Counts - Area Background Counts): <u>0</u> <input checked="" type="radio"/> CPM <input type="radio"/> mR/Hr Classified as: Rad 1 Rad 2 Rad 3 | | |
| Is package, COC, and/or Samples marked HAZ? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other: _____ | | |
| Sample Receipt Criteria | Yes | NA | No | Comments/Qualifiers (Required for Non-Conforming Items) |
| 1 Shipping containers received intact and sealed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 2 Chain of custody documents included with shipment? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3 Samples requiring cold preservation within (0 ≤ 6 deg. C)?* | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Preservation Method: <input checked="" type="radio"/> Wet Ice (Ice Packs) <input type="radio"/> Dry ice <input type="radio"/> None <input type="radio"/> Other: _____ *all temperatures are recorded in Celsius TEMP: <u>See Above</u> |
| 4 Daily check performed and passed on IR temperature gun? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Temperature Device Serial #: <u>IR3-16</u> Secondary Temperature Device Serial # (If Applicable): _____ |
| 5 Sample containers intact and sealed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Circle Applicable: Seals broken Damaged container Leaking container Other (describe) |
| 6 Samples requiring chemical preservation at proper pH? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sample ID's and Containers Affected: _____ If Preservation added, Lot#: _____ |
| 7 Do any samples require Volatile Analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | If Yes, Are Encores or Soil Kits present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A _____ (If unknown, select No) VOA vials free of headspace? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A _____ Sample ID's and containers affected: _____ |
| 8 Samples received within holding time? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ID's and tests affected: _____ |
| 9 Sample ID's on COC match ID's on bottles? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sample ID's and containers affected: _____ |
| 10 Date & time on COC match date & time on bottles? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Sample ID's affected: _____ |
| 11 Number of containers received match number indicated on COC? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's affected: <u>*See Below</u> |
| 12 Are sample containers identifiable as GEL provided? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 13 COC form is properly signed in relinquished/received sections? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Comments (Use Continuation Form if needed): <u>*We rec'd 4 cont. for -132516, and only 1 cont. for samples -132519, -132589, -132590, -132591, -132592, -132593, and -132594</u> | | | | |

PM (or PMA) review: Initials

MEVA

Date

4/18/17

Page

1of 1

GL-CHL-SR-001 Rev 5

SHIP DATE: 17APR17
ACTWGT: 24.0 LB MAN
CAD: 0014176/CAFE2916

BILL SENDER

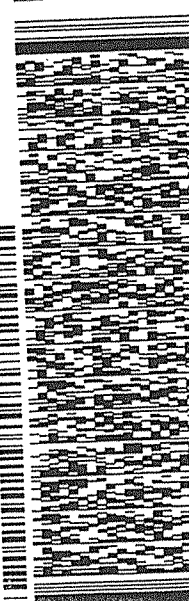
ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 566-8171
REF: P2060ACRF14C01WM00

FedEx
Express

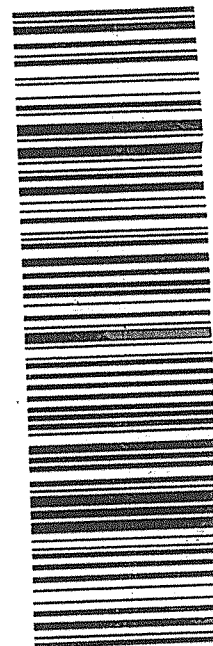


TUE - 18 APR 10:30A
PRIORITY OVERNIGHT

2 of 3
MPS# 5908 1781 9661
Mstr# 5908 1781 9650

X7 CHSA

29407
SC-US CHS



ORIGIN ID:SAFA (505) 665-9966

SHIP DATE: 17APR17
ACTWGT: 48.0 LB MAN
CAD: 0014176/CAFE2916

JOHN GREENE
LOS ALAMOS NATL LAB
TA00 BLDG 1237 DPU 03
LOS ALAMOS, NM 87545
UNITED STATES US

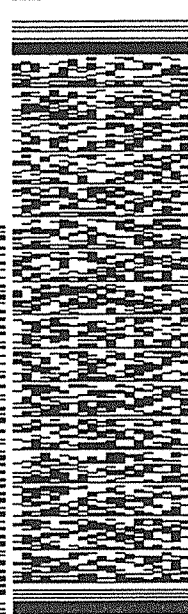
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 566-8171
REF: P2060ACRF14C01WM00

FedEx
Express

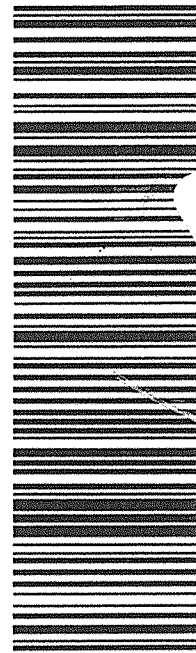


TUE - 18 APR 10:30A
PRIORITY OVERNIGHT

3 of 3
MPS# 5908 1781 9672
Mstr# 5908 1781 9650

X7 CHSA

29407
SC-US CHS



ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17APR17
ACTWGT: 50.0 LB MAN
CAD: 0014176/CAFE2916

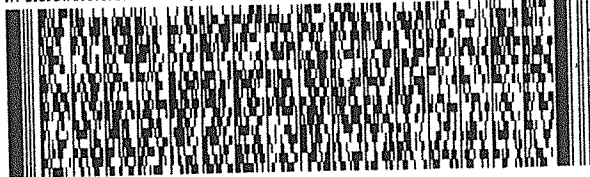
BILL SENDER

0 VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: P2060ACRF14C01WM00



FedEx
Express



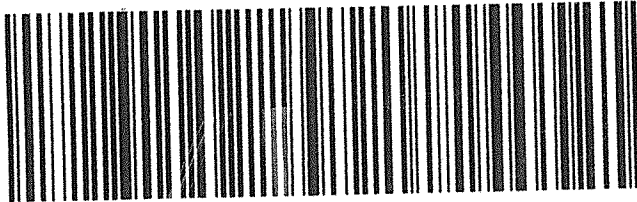
JT15131506130110V

1 of 3
TRK# 5908 1781 9650
0201
MASTER

X7 CHSA

TUE - 18 APR 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS



Part # 156148V-434 RIT2 06/15 ***

ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 17APR17
ACTWGT: 30.0 LB MAN
CAD: 0014176/CAFE2916

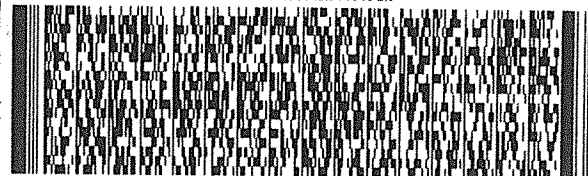
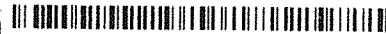
BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0AWE991158W100



FedEx
Express



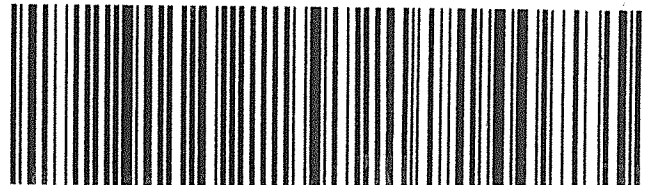
JT15131506130110V

1 of 2
TRK# 5908 1781 9639
0201
MASTER

X7 CHSA

TUE - 18 APR 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS



Part # 156148V-434 RIT2 06/15 ***

SHIP DATE: 17APR17
ACTWGT: 47.0 LB MAN
CAD: 0014176/CAFE2916

BILL SENDER

ORIGIN ID:SAFA (505) 665-9966
KEITH GREENE
LOS ALAMOS NATL LAB.
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545
UNITED STATES US

0 VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

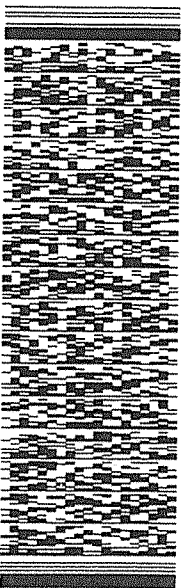
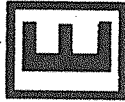
CHARLESTON SC 29407

(843) 666-8171

REF: 21PD0AWE991158W100



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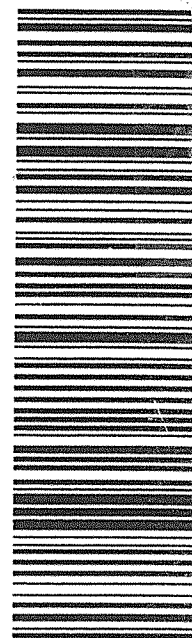
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PRIORITY OVERNIGHT

2 of 2
MPS# 5908 1781 9640
0263

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SC-US CHS



Part # 156148V-434 RIT2 06/15 ***

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

| Qualifier | Explanation |
|-----------|-------------|
|-----------|-------------|

| | |
|-----|---|
| * | A quality control analyte recovery is outside of specified acceptance criteria |
| ** | Analyte is a surrogate compound |
| < | Result is less than value reported |
| > | Result is greater than value reported |
| ^ | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL |
| A | The TIC is a suspected aldol-condensation product |
| B | Target analyte was detected in the associated blank |
| B | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL |
| BD | Results are either below the MDC or tracer recovery is low |
| C | Analyte has been confirmed by GC/MS analysis |
| D | Results are reported from a diluted aliquot of the sample |
| d | 5-day BOD-The 2:1 depletion requirement was not met for this sample |
| E | Organics-Concentration of the target analyte exceeds the instrument calibration range |
| E | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria |
| H | Analytical holding time was exceeded |
| h | Preparation or preservation holding time was exceeded |
| J | Value is estimated |
| N | Metals-The Matrix spike sample recovery is not within specified control limits |
| N | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more |
| ND | Analyte concentration is not detected above the reporting limit |
| UI | Gamma Spectroscopy-Uncertain identification |
| X | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier |
| Y | QC Samples were not spiked with this compound |
| Z | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed. |

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference.
For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

**GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2017-1379
Work Order #: 420857**

Method/Analysis Information

Procedure: Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer

Analytical Method: SW-846:8260B

Analytical Batch Number: 1658891

Sample Analysis

The following client and quality control samples were analyzed to complete this SDG using the methods referenced in the Analysis Information section:

| Sample ID | Client ID |
|------------------|--|
| 420857001 | CAMO-17-130584 |
| 420857002 | CAMO-17-130590 |
| 1203774853 | Method Blank (MB) |
| 1203774856 | Laboratory Control Sample (LCS) |
| 1203774857 | Laboratory Control Sample (LCS) |
| 1203774858 | 420846005(CAPA-17-130757) Post Spike (PS) |
| 1203774859 | 420846005(CAPA-17-130757) Post Spike (PS) |
| 1203774860 | 420846005(CAPA-17-130757) Post Spike Duplicate (PSD) |
| 1203774861 | 420846005(CAPA-17-130757) Post Spike Duplicate (PSD) |
| 1203776466 | Method Blank (MB) |
| 1203776467 | Laboratory Control Sample (LCS) |
| 1203776468 | Laboratory Control Sample (LCS) |

NOTE: For volatile organic analyses the matrix spike designations may be indicated as "PS" or "PSD". The "PS" designation (post spike) indicates that the matrix was fortified prior to analysis but after applying any prep factors, such as a dilution. The laboratory considers the MS/MSD and PS/PSD designations interchangeable.

The data results reported met all SOP and method criteria, unless otherwise discussed below.

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-038 REV# 25.

Calibration Information

A complete list of the initial calibration data files with the correct dates and times of analysis are shown in the Calibration History report located in the Standard Data section of the data package. The surrogate compounds were calibrated using a minimum five-point calibration curve. The surrogates were added by the auto sampler at a concentration of 50 ug/L or 20 ug/L for low level analyses. GEL Laboratories LLC will not have surrogate recoveries reported for Dibromofluoromethane. This is due to increased regulations for this analyte and an

industry shortage.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification Requirements

All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Blank (MB) Statement

Target analytes were detected in the blank 1203774853 (MB) below the reporting limit.

Surrogate Recoveries

Surrogate recoveries in all client and quality control samples were within the acceptance limits.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 420846005 (CAPA-17-130757) was designated for spike analysis.

Matrix Spike/Matrix Spike Duplicate Recovery Statement

The matrix spike (MS) and matrix spike duplicate (MSD) recoveries were within the required acceptance limits.

Relative Percent Difference (RPD) Statement

The RPDs between the matrix spike pair met the acceptance limits.

Internal Standard (ISTD) Acceptance

The internal standard responses in all client and quality control samples met the required acceptance criteria.

Technical Information

Holding Time Specifications

All samples in this SDG met the specified holding time. GEL assigns holding times based on the associated methodology, which assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Sample Preservation and Integrity

All samples met the sample preservation and integrity requirements.

Sample Dilutions/Methanol Dilutions

The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis

Sample 420857001 (CAMO-17-130584) was re-analyzed and reported due to possible carry-over from a previously analyzed sample.

Miscellaneous Information

Data Exception (DER) Documentation

A Data exception reports (DERs) was not generated to document procedural anomalies that may deviate from referenced SOP or contractual documents.

Manual Integrations

Data files associated with the initial calibration, continuing calibration check, and samples did not require manual integrations.

TIC Comment

Tentatively identified compounds (TIC) may be requested for samples in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, were included on the Sample Data Summary (Form 1) and included with the sample raw data.

Additional Comments

Additional comments were not required for this SDG.

Residual Chlorine

Residual Chlorine was not detected in any of the samples in this SDG.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description | P & T Trap |
|----------------------|---|-----------------------------|------------------|---------------------------------|-----------------------|
| VOA9.I | Agilent 6890/5973 GC/MS w/ OI Eclipse/Archon Autosampler | HP6890/HP5973 | DB-624 | J&W, 60m x 0.25mm x 1.4um | Trap 10 |

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2017-1379 GEL Work Order: 420857

The Qualifiers in this report are defined as follows:

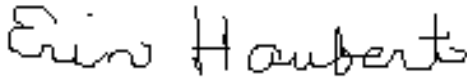
- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- B The target analyte was detected in the associated blank.
- J Value is estimated
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature:



Name: Erin Haubert

Date: 15 MAY 2017

Title: Data Validator

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

| | | |
|------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857001 | Date Received: 04/18/2017 08:55 | |
| Client Sample: SVOA/VOA | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130584 | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/27/2017 13:49 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/27/2017 13:49 | | |
| Data File: 042717V9\9P411.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/13/2017 12:42 | Matrix: | W |
| Lab Sample ID: | 420857001 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | SVOA/VOA | Client: | ARSL004 | Project: | ESHL00114 |
| Client ID: | CAMO-17-130584 | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/27/2017 13:49 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/27/2017 13:49 | | | | |
| Data File: | 042717V9\9P411.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

| | | |
|------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857001 | Date Received: 04/18/2017 08:55 | |
| Client Sample: SVOA/VOA | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130584 | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/27/2017 13:49 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/27/2017 13:49 | | |
| Data File: 042717V9\9P411.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 50.3 | 50.0 | ug/L 101 | (71%-134%) |
| Bromofluorobenzene | 50.0 | 50.0 | ug/L 100 | (70%-131%) |
| Toluene-d8 | 50.0 | 50.0 | ug/L 100 | (74%-124%) |

Tentatively Identified Compound Summary

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---------|---------------------------------------|--------|-----------|-------|-----|------|
| | unknown siloxane | 12.292 | 16.9 | ug/L | 0 | J |
| | unknown siloxane | 14.651 | 22.9 | ug/L | 0 | J |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/13/2017 12:42 | Matrix: | W |
| Lab Sample ID: | 420857002 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | VOA ONLY | Client: | ARSL004 | Project: | ESHL00114 |
| Client ID: | CAMO-17-130590 | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 12:54 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 12:54 | | | | |
| Data File: | 042617V9\9P309.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | BJ | 1.64 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

| | | |
|------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857002 | Date Received: 04/18/2017 08:55 | |
| Client Sample: VOA ONLY | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130590 | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 12:54 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 12:54 | | |
| Data File: 042617V9\9P309.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

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| | | |
|------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857002 | Date Received: 04/18/2017 08:55 | |
| Client Sample: VOA ONLY | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130590 | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 12:54 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 12:54 | | |
| Data File: 042617V9\9P309.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 47.9 | 50.0 | ug/L 96 | (71%-134%) |
| Bromofluorobenzene | 48.6 | 50.0 | ug/L 97 | (70%-131%) |
| Toluene-d8 | 49.1 | 50.0 | ug/L 98 | (74%-124%) |

Tentatively Identified Compound Summary

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---------------------------------------|----|-----------|-------|-----|------|
| No Tentatively Identified Compounds Found | | | | ug/L | | |

Quality Control Summary

Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2017-1379**Matrix Type: LIQUID**

| Sample ID | Client ID | DCED4 %REC | TOL %REC | BFB %REC |
|------------|-----------------------|---------------|-------------|-------------|
| 1203774856 | LCS for batch 1658891 | 93 | 97 | 98 |
| 1203774857 | LCS for batch 1658891 | 95 | 99 | 95 |
| 1203774853 | MB for batch 1658891 | 95 | 98 | 96 |
| 420857002 | CAMO-17-130590 | 96 | 98 | 97 |
| 1203774858 | CAPA-17-130757PS | 104 | 97 | 96 |
| 1203774860 | CAPA-17-130757PSD | 98 | 97 | 96 |
| 1203774859 | CAPA-17-130757PS | 98 | 97 | 98 |
| 1203774861 | CAPA-17-130757PSD | 98 | 96 | 96 |
| 1203776467 | LCS for batch 1658891 | 96 | 99 | 98 |
| 1203776468 | LCS for batch 1658891 | 100 | 98 | 97 |
| 1203776466 | MB for batch 1658891 | 97 | 98 | 100 |
| 420857001 | CAMO-17-130584 | 101 | 100 | 100 |

Surrogate**Acceptance Limits**

DCED4 = 1,2-Dichloroethane-d4 (71%-134%)

TOL = Toluene-d8 (74%-124%)

BFB = Bromofluorobenzene (70%-131%)

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203774856

Instrument: VOA9.I

Analysis Date: 04/26/2017 10:33

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-------------|--------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|
| 179601-23-1 | LCS m,p-Xylenes | 100 | 0.0 | 102 | 102 | 71-127 |
| 75-05-8 | LCS Acetonitrile | 1250 | 0.0 | 1090 | 87 | 61-125 |
| 67-64-1 | LCS Acetone | 250 | 0.0 | 274 | 109 | 48-157 |
| 74-88-4 | LCS Iodomethane | 250 | 0.0 | 260 | 104 | 72-128 |
| 75-15-0 | LCS Carbon disulfide | 250 | 0.0 | 239 | 96 | 69-138 |
| 108-05-4 | LCS Vinyl acetate | 250 | 0.0 | 249 | 100 | 67-125 |
| 78-93-3 | LCS 2-Butanone | 250 | 0.0 | 278 | 111 | 55-138 |
| 108-10-1 | LCS 4-Methyl-2-pentanone | 250 | 0.0 | 236 | 94 | 66-124 |
| 591-78-6 | LCS 2-Hexanone | 250 | 0.0 | 270 | 108 | 56-140 |
| 75-71-8 | LCS Dichlorodifluoromethane | 50.0 | 0.0 | 45.2 | 90 | 40-160 |
| 74-87-3 | LCS Chloromethane | 50.0 | 0.0 | 46.8 | 94 | 58-135 |
| 75-01-4 | LCS Vinyl chloride | 50.0 | 0.0 | 49.4 | 99 | 65-137 |
| 74-83-9 | LCS Bromomethane | 50.0 | 0.0 | 49.8 | 100 | 63-137 |
| 75-00-3 | LCS Chloroethane | 50.0 | 0.0 | 47.5 | 95 | 69-129 |
| 75-69-4 | LCS Trichlorofluoromethane | 50.0 | 0.0 | 46.1 | 92 | 69-138 |
| 60-29-7 | LCS Ethyl ether | 50.0 | 0.0 | 49.9 | 100 | 72-125 |
| 75-35-4 | LCS 1,1-Dichloroethylene | 50.0 | 0.0 | 44.6 | 89 | 66-126 |
| 75-09-2 | LCS Methylene chloride | 50.0 | 0.0 | 48.8 | 98 | 68-119 |
| 1634-04-4 | LCS tert-Butyl methyl ether | 50.0 | 0.0 | 53.2 | 106 | 76-128 |
| 156-60-5 | LCS trans-1,2-Dichloroethylene | 50.0 | 0.0 | 47.2 | 94 | 71-124 |
| 75-34-3 | LCS 1,1-Dichloroethane | 50.0 | 0.0 | 47.1 | 94 | 73-123 |
| 156-59-2 | LCS cis-1,2-Dichloroethylene | 50.0 | 0.0 | 48.0 | 96 | 75-123 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203774856

Instrument: VOA9.I

Analysis Date: 04/26/2017 10:33

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|------------|---------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|
| 594-20-7 | LCS 2,2-Dichloropropane | 50.0 | 0.0 | 50.1 | 100 | 72-138 |
| 74-97-5 | LCS Bromochloromethane | 50.0 | 0.0 | 51.3 | 103 | 76-125 |
| 67-66-3 | LCS Chloroform | 50.0 | 0.0 | 47.1 | 94 | 76-123 |
| 71-55-6 | LCS 1,1,1-Trichloroethane | 50.0 | 0.0 | 48.3 | 97 | 74-136 |
| 563-58-6 | LCS 1,1-Dichloropropene | 50.0 | 0.0 | 48.4 | 97 | 72-129 |
| 56-23-5 | LCS Carbon tetrachloride | 50.0 | 0.0 | 49.6 | 99 | 72-140 |
| 107-06-2 | LCS 1,2-Dichloroethane | 50.0 | 0.0 | 46.3 | 93 | 74-122 |
| 71-43-2 | LCS Benzene | 50.0 | 0.0 | 48.4 | 97 | 72-121 |
| 79-01-6 | LCS Trichloroethylene | 50.0 | 0.0 | 49.9 | 100 | 74-125 |
| 78-87-5 | LCS 1,2-Dichloropropane | 50.0 | 0.0 | 48.0 | 96 | 73-121 |
| 74-95-3 | LCS Dibromomethane | 50.0 | 0.0 | 49.6 | 99 | 78-123 |
| 75-27-4 | LCS Bromodichloromethane | 50.0 | 0.0 | 52.2 | 104 | 77-131 |
| 10061-01-5 | LCS cis-1,3-Dichloropropylene | 50.0 | 0.0 | 53.4 | 107 | 78-131 |
| 108-88-3 | LCS Toluene | 50.0 | 0.0 | 47.6 | 95 | 71-121 |
| 10061-02-6 | LCS trans-1,3-Dichloropropylene | 50.0 | 0.0 | 52.7 | 105 | 78-131 |
| 79-00-5 | LCS 1,1,2-Trichloroethane | 50.0 | 0.0 | 46.9 | 94 | 74-118 |
| 142-28-9 | LCS 1,3-Dichloropropane | 50.0 | 0.0 | 46.3 | 93 | 74-118 |
| 127-18-4 | LCS Tetrachloroethylene | 50.0 | 0.0 | 47.8 | 96 | 69-129 |
| 124-48-1 | LCS Dibromochloromethane | 50.0 | 0.0 | 56.5 | 113 | 76-137 |
| 106-93-4 | LCS 1,2-Dibromoethane | 50.0 | 0.0 | 51.2 | 102 | 78-122 |
| 108-90-7 | LCS Chlorobenzene | 50.0 | 0.0 | 48.1 | 96 | 74-120 |
| 100-41-4 | LCS Ethylbenzene | 50.0 | 0.0 | 47.6 | 95 | 73-125 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203774856

Instrument: VOA9.I

Analysis Date: 04/26/2017 10:33

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|---------------------------------|----------------------|----------------------|---------------------|---------------|----------------------|
| 95-47-6 | LCS o-Xylene | 50.0 | 0.0 | 51.6 | 103 | 74-126 |
| 100-42-5 | LCS Styrene | 50.0 | 0.0 | 53.0 | 106 | 72-130 |
| 75-25-2 | LCS Bromoform | 50.0 | 0.0 | 58.8 | 118 | 72-136 |
| 98-82-8 | LCS Isopropylbenzene | 50.0 | 0.0 | 51.6 | 103 | 70-130 |
| 79-34-5 | LCS 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 47.3 | 95 | 70-126 |
| 96-18-4 | LCS 1,2,3-Trichloropropane | 50.0 | 0.0 | 48.0 | 96 | 74-122 |
| 108-86-1 | LCS Bromobenzene | 50.0 | 0.0 | 49.4 | 99 | 74-120 |
| 103-65-1 | LCS n-Propylbenzene | 50.0 | 0.0 | 46.2 | 92 | 67-128 |
| 108-67-8 | LCS 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 50.3 | 101 | 70-129 |
| 95-49-8 | LCS 2-Chlorotoluene | 50.0 | 0.0 | 50.1 | 100 | 71-124 |
| 106-43-4 | LCS 4-Chlorotoluene | 50.0 | 0.0 | 46.8 | 94 | 69-125 |
| 98-06-6 | LCS tert-Butylbenzene | 50.0 | 0.0 | 53.8 | 108 | 72-130 |
| 95-63-6 | LCS 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 49.5 | 99 | 70-126 |
| 135-98-8 | LCS sec-Butylbenzene | 50.0 | 0.0 | 50.1 | 100 | 70-131 |
| 99-87-6 | LCS 4-Isopropyltoluene | 50.0 | 0.0 | 50.6 | 101 | 71-131 |
| 541-73-1 | LCS 1,3-Dichlorobenzene | 50.0 | 0.0 | 47.7 | 95 | 72-121 |
| 106-46-7 | LCS 1,4-Dichlorobenzene | 50.0 | 0.0 | 47.1 | 94 | 71-120 |
| 104-51-8 | LCS n-Butylbenzene | 50.0 | 0.0 | 48.0 | 96 | 68-134 |
| 96-12-8 | LCS 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 59.4 | 119 | 68-141 |
| 87-68-3 | LCS Hexachlorobutadiene | 50.0 | 0.0 | 52.9 | 106 | 72-136 |
| 91-20-3 | LCS Naphthalene | 50.0 | 0.0 | 52.9 | 106 | 72-132 |
| 87-61-6 | LCS 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 48.3 | 97 | 70-130 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203774856

Instrument: VOA9.I

Analysis Date: 04/26/2017 10:33

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|-------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 120-82-1 | LCS 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 52.8 | 106 | 71-129 |
| 630-20-6 | LCS 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 50.8 | 102 | 79-127 |
| 95-50-1 | LCS 1,2-Dichlorobenzene | 50.0 | 0.0 | 48.6 | 97 | 74-120 |
| 71-36-3 | LCS n-Butyl alcohol | 5000 | 0.0 | 4880 | 98 | 63-138 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203774857

Instrument: VOA9.I

Analysis Date: 04/26/2017 11:58

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 107-02-8 | LCS Acrolein | 250 | 0.0 | 280 | 112 | 60-140 |
| 76-13-1 | LCS Trichlorotrifluoroethane | 250 | 0.0 | 222 | 89 | 61-148 |
| 107-05-1 | LCS Allyl chloride | 250 | 0.0 | 210 | 84 | 59-125 |
| 107-13-1 | LCS Acrylonitrile | 250 | 0.0 | 225 | 90 | 65-122 |
| 107-12-0 | LCS Propionitrile | 250 | 0.0 | 234 | 94 | 64-124 |
| 126-98-7 | LCS Methacrylonitrile | 250 | 0.0 | 230 | 92 | 64-126 |
| 80-62-6 | LCS Methyl methacrylate | 250 | 0.0 | 237 | 95 | 69-127 |
| 97-63-2 | LCS Ethyl methacrylate | 250 | 0.0 | 229 | 92 | 66-130 |
| 78-83-1 | LCS Isobutyl alcohol | 2500 | 0.0 | 2350 | 94 | 65-135 |
| 126-99-8 | LCS 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 44.5 | 89 | 66-147 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike

Client ID: CAPA-17-130757PS

Matrix: W

Lab Sample ID 1203774858

Instrument: VOA9.I

Analysis Date: 04/26/2017 19:35

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-------------|-------------------------------|----------------------|----------------------|---------------------|---------------|----------------------|
| 179601-23-1 | PS m,p-Xylenes | 100 | 0.00 U | 97.0 | 97 | 59-132 |
| 75-05-8 | PS Acetonitrile | 1250 | 0.00 U | 1170 | 93 | 56-131 |
| 67-64-1 | PS Acetone | 250 | 0.00 U | 164 | 65 | 25-155 |
| 74-88-4 | PS Iodomethane | 250 | 0.00 U | 254 | 102 | 66-133 |
| 75-15-0 | PS Carbon disulfide | 250 | 0.00 U | 235 | 94 | 61-141 |
| 108-05-4 | PS Vinyl acetate | 250 | 0.00 U | 266 | 107 | 48-133 |
| 78-93-3 | PS 2-Butanone | 250 | 0.00 U | 207 | 83 | 25-143 |
| 108-10-1 | PS 4-Methyl-2-pentanone | 250 | 0.00 U | 239 | 96 | 61-127 |
| 591-78-6 | PS 2-Hexanone | 250 | 0.00 U | 236 | 94 | 33-138 |
| 75-71-8 | PS Dichlorodifluoromethane | 50.0 | 0.00 U | 58.7 | 117 | 33-164 |
| 74-87-3 | PS Chloromethane | 50.0 | 0.00 U | 51.9 | 104 | 53-139 |
| 75-01-4 | PS Vinyl chloride | 50.0 | 0.00 U | 54.6 | 109 | 58-140 |
| 74-83-9 | PS Bromomethane | 50.0 | 0.00 U | 54.6 | 109 | 59-146 |
| 75-00-3 | PS Chloroethane | 50.0 | 0.00 U | 50.9 | 102 | 65-129 |
| 75-69-4 | PS Trichlorofluoromethane | 50.0 | 0.00 U | 58.6 | 117 | 65-141 |
| 60-29-7 | PS Ethyl ether | 50.0 | 0.00 U | 52.9 | 106 | 69-127 |
| 75-35-4 | PS 1,1-Dichloroethylene | 50.0 | 0.00 U | 44.7 | 89 | 59-130 |
| 75-09-2 | PS Methylene chloride | 50.0 | 0.00 U | 46.3 | 93 | 62-123 |
| 1634-04-4 | PS tert-Butyl methyl ether | 50.0 | 0.00 U | 53.7 | 107 | 69-132 |
| 156-60-5 | PS trans-1,2-Dichloroethylene | 50.0 | 0.00 U | 46.2 | 92 | 65-127 |
| 75-34-3 | PS 1,1-Dichloroethane | 50.0 | 0.00 U | 45.3 | 91 | 67-127 |
| 156-59-2 | PS cis-1,2-Dichloroethylene | 50.0 | 0.00 U | 47.4 | 95 | 69-127 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 8

SDG Number: 2017-1379

Sample Type: Post Spike

Client ID: CAPA-17-130757PS

Matrix: W

Lab Sample ID 1203774858

Instrument: VOA9.I

Analysis Date: 04/26/2017 19:35

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|------------|--------------------------------|----------------------|----------------------|---------------------|---------------|----------------------|
| 594-20-7 | PS 2,2-Dichloropropane | 50.0 | 0.00 U | 50.0 | 100 | 66-137 |
| 74-97-5 | PS Bromochloromethane | 50.0 | 0.00 U | 48.9 | 98 | 71-130 |
| 67-66-3 | PS Chloroform | 50.0 | 0.00 U | 47.7 | 95 | 71-129 |
| 71-55-6 | PS 1,1,1-Trichloroethane | 50.0 | 0.00 U | 50.1 | 100 | 69-139 |
| 563-58-6 | PS 1,1-Dichloropropene | 50.0 | 0.00 U | 47.2 | 94 | 67-130 |
| 56-23-5 | PS Carbon tetrachloride | 50.0 | 0.00 U | 53.4 | 107 | 66-143 |
| 107-06-2 | PS 1,2-Dichloroethane | 50.0 | 0.00 U | 50.3 | 101 | 69-130 |
| 71-43-2 | PS Benzene | 50.0 | 0.00 U | 45.5 | 91 | 66-125 |
| 79-01-6 | PS Trichloroethylene | 50.0 | 0.00 U | 48.4 | 97 | 65-131 |
| 78-87-5 | PS 1,2-Dichloropropane | 50.0 | 0.00 U | 45.9 | 92 | 67-127 |
| 74-95-3 | PS Dibromomethane | 50.0 | 0.00 U | 51.3 | 103 | 72-129 |
| 75-27-4 | PS Bromodichloromethane | 50.0 | 0.00 U | 52.8 | 106 | 70-138 |
| 10061-01-5 | PS cis-1,3-Dichloropropylene | 50.0 | 0.00 U | 50.0 | 100 | 70-134 |
| 108-88-3 | PS Toluene | 50.0 | 0.00 U | 44.7 | 89 | 60-126 |
| 10061-02-6 | PS trans-1,3-Dichloropropylene | 50.0 | 0.00 U | 51.0 | 102 | 69-135 |
| 79-00-5 | PS 1,1,2-Trichloroethane | 50.0 | 0.00 U | 46.2 | 92 | 66-125 |
| 142-28-9 | PS 1,3-Dichloropropane | 50.0 | 0.00 U | 45.7 | 91 | 67-124 |
| 127-18-4 | PS Tetrachloroethylene | 50.0 | 0.00 U | 46.0 | 92 | 60-130 |
| 124-48-1 | PS Dibromochloromethane | 50.0 | 0.00 U | 55.8 | 112 | 68-143 |
| 106-93-4 | PS 1,2-Dibromoethane | 50.0 | 0.00 U | 50.0 | 100 | 71-127 |
| 108-90-7 | PS Chlorobenzene | 50.0 | 0.00 U | 45.3 | 91 | 64-124 |
| 100-41-4 | PS Ethylbenzene | 50.0 | 0.00 U | 46.2 | 92 | 61-130 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike

Client ID: CAPA-17-130757PS

Matrix: W

Lab Sample ID 1203774858

Instrument: VOA9.I

Analysis Date: 04/26/2017 19:35

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|--------------------------------|----------------------|----------------------|---------------------|---------------|----------------------|
| 95-47-6 | PS o-Xylene | 50.0 | 0.00 U | 49.1 | 98 | 62-131 |
| 100-42-5 | PS Styrene | 50.0 | 0.00 U | 51.0 | 102 | 59-135 |
| 75-25-2 | PS Bromoform | 50.0 | 0.00 U | 57.2 | 114 | 64-138 |
| 98-82-8 | PS Isopropylbenzene | 50.0 | 0.00 U | 48.0 | 96 | 55-133 |
| 79-34-5 | PS 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 U | 47.0 | 94 | 62-129 |
| 96-18-4 | PS 1,2,3-Trichloropropane | 50.0 | 0.00 U | 49.3 | 99 | 70-124 |
| 108-86-1 | PS Bromobenzene | 50.0 | 0.00 U | 45.7 | 91 | 62-124 |
| 103-65-1 | PS n-Propylbenzene | 50.0 | 0.00 U | 43.4 | 87 | 50-133 |
| 108-67-8 | PS 1,3,5-Trimethylbenzene | 50.0 | 0.00 U | 47.7 | 95 | 53-135 |
| 95-49-8 | PS 2-Chlorotoluene | 50.0 | 0.00 U | 46.1 | 92 | 56-128 |
| 106-43-4 | PS 4-Chlorotoluene | 50.0 | 0.00 U | 44.0 | 88 | 53-130 |
| 98-06-6 | PS tert-Butylbenzene | 50.0 | 0.00 U | 49.9 | 100 | 55-135 |
| 95-63-6 | PS 1,2,4-Trimethylbenzene | 50.0 | 0.00 U | 47.0 | 94 | 53-132 |
| 135-98-8 | PS sec-Butylbenzene | 50.0 | 0.00 U | 48.2 | 96 | 50-138 |
| 99-87-6 | PS 4-Isopropyltoluene | 50.0 | 0.00 U | 48.0 | 96 | 49-138 |
| 541-73-1 | PS 1,3-Dichlorobenzene | 50.0 | 0.00 U | 44.3 | 89 | 56-126 |
| 106-46-7 | PS 1,4-Dichlorobenzene | 50.0 | 0.00 U | 44.1 | 88 | 55-125 |
| 104-51-8 | PS n-Butylbenzene | 50.0 | 0.00 U | 46.1 | 92 | 43-142 |
| 96-12-8 | PS 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 U | 62.1 | 124 | 62-141 |
| 87-68-3 | PS Hexachlorobutadiene | 50.0 | 0.00 U | 51.5 | 103 | 40-147 |
| 91-20-3 | PS Naphthalene | 50.0 | 0.00 U | 52.7 | 105 | 62-134 |
| 87-61-6 | PS 1,2,3-Trichlorobenzene | 50.0 | 0.00 U | 46.3 | 93 | 52-135 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike

Client ID: CAPA-17-130757PS

Matrix: W

Lab Sample ID 1203774858

Instrument: VOA9.I

Analysis Date: 04/26/2017 19:35

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 120-82-1 | PS 1,2,4-Trichlorobenzene | 50.0 | 0.00 U | 47.7 | 95 | 50-133 |
| 630-20-6 | PS 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 U | 50.5 | 101 | 71-133 |
| 95-50-1 | PS 1,2-Dichlorobenzene | 50.0 | 0.00 U | 46.0 | 92 | 60-125 |
| 71-36-3 | PS n-Butyl alcohol | 5000 | 0.00 U | 5790 | 116 | 60-140 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130757PSD

Matrix: W

Lab Sample ID 1203774860

Instrument: VOA9.I

Analysis Date: 04/26/2017 20:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|-------------|--------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|----------|-------------------|
| 179601-23-1 | PSD m,p-Xylenes | 100 | 0.00 U | 102 | 102 | 59-132 | 5 | 0-20 |
| 75-05-8 | PSD Acetonitrile | 1250 | 0.00 U | 1160 | 93 | 56-131 | 1 | 0-20 |
| 67-64-1 | PSD Acetone | 250 | 0.00 U | 156 | 62 | 25-155 | 5 | 0-20 |
| 74-88-4 | PSD Iodomethane | 250 | 0.00 U | 261 | 105 | 66-133 | 3 | 0-20 |
| 75-15-0 | PSD Carbon disulfide | 250 | 0.00 U | 239 | 96 | 61-141 | 2 | 0-20 |
| 108-05-4 | PSD Vinyl acetate | 250 | 0.00 U | 260 | 104 | 48-133 | 3 | 0-20 |
| 78-93-3 | PSD 2-Butanone | 250 | 0.00 U | 206 | 82 | 25-143 | 0 | 0-20 |
| 108-10-1 | PSD 4-Methyl-2-pentanone | 250 | 0.00 U | 242 | 97 | 61-127 | 1 | 0-20 |
| 591-78-6 | PSD 2-Hexanone | 250 | 0.00 U | 229 | 92 | 33-138 | 3 | 0-20 |
| 75-71-8 | PSD Dichlorodifluoromethane | 50.0 | 0.00 U | 56.4 | 113 | 33-164 | 4 | 0-20 |
| 74-87-3 | PSD Chloromethane | 50.0 | 0.00 U | 51.9 | 104 | 53-139 | 0 | 0-20 |
| 75-01-4 | PSD Vinyl chloride | 50.0 | 0.00 U | 55.1 | 110 | 58-140 | 1 | 0-20 |
| 74-83-9 | PSD Bromomethane | 50.0 | 0.00 U | 53.1 | 106 | 59-146 | 3 | 0-20 |
| 75-00-3 | PSD Chloroethane | 50.0 | 0.00 U | 50.8 | 102 | 65-129 | 0 | 0-20 |
| 75-69-4 | PSD Trichlorofluoromethane | 50.0 | 0.00 U | 55.0 | 110 | 65-141 | 6 | 0-20 |
| 60-29-7 | PSD Ethyl ether | 50.0 | 0.00 U | 53.2 | 106 | 69-127 | 1 | 0-20 |
| 75-35-4 | PSD 1,1-Dichloroethylene | 50.0 | 0.00 U | 45.6 | 91 | 59-130 | 2 | 0-20 |
| 75-09-2 | PSD Methylene chloride | 50.0 | 0.00 U | 49.0 | 98 | 62-123 | 6 | 0-20 |
| 1634-04-4 | PSD tert-Butyl methyl ether | 50.0 | 0.00 U | 55.8 | 112 | 69-132 | 4 | 0-20 |
| 156-60-5 | PSD trans-1,2-Dichloroethylene | 50.0 | 0.00 U | 48.0 | 96 | 65-127 | 4 | 0-20 |
| 75-34-3 | PSD 1,1-Dichloroethane | 50.0 | 0.00 U | 47.7 | 95 | 67-127 | 5 | 0-20 |
| 156-59-2 | PSD cis-1,2-Dichloroethylene | 50.0 | 0.00 U | 49.6 | 99 | 69-127 | 5 | 0-20 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130757PSD

Matrix: W

Lab Sample ID 1203774860

Instrument: VOA9.I

Analysis Date: 04/26/2017 20:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|------------|---------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|----------|-------------------|
| 594-20-7 | PSD 2,2-Dichloropropane | 50.0 | 0.00 U | 50.7 | 101 | 66-137 | 1 | 0-20 |
| 74-97-5 | PSD Bromochloromethane | 50.0 | 0.00 U | 51.9 | 104 | 71-130 | 6 | 0-20 |
| 67-66-3 | PSD Chloroform | 50.0 | 0.00 U | 49.5 | 99 | 71-129 | 4 | 0-20 |
| 71-55-6 | PSD 1,1,1-Trichloroethane | 50.0 | 0.00 U | 50.9 | 102 | 69-139 | 2 | 0-20 |
| 563-58-6 | PSD 1,1-Dichloropropene | 50.0 | 0.00 U | 49.0 | 98 | 67-130 | 4 | 0-20 |
| 56-23-5 | PSD Carbon tetrachloride | 50.0 | 0.00 U | 54.0 | 108 | 66-143 | 1 | 0-20 |
| 107-06-2 | PSD 1,2-Dichloroethane | 50.0 | 0.00 U | 51.2 | 102 | 69-130 | 2 | 0-20 |
| 71-43-2 | PSD Benzene | 50.0 | 0.00 U | 48.0 | 96 | 66-125 | 5 | 0-20 |
| 79-01-6 | PSD Trichloroethylene | 50.0 | 0.00 U | 50.1 | 100 | 65-131 | 4 | 0-20 |
| 78-87-5 | PSD 1,2-Dichloropropane | 50.0 | 0.00 U | 48.1 | 96 | 67-127 | 5 | 0-20 |
| 74-95-3 | PSD Dibromomethane | 50.0 | 0.00 U | 52.4 | 105 | 72-129 | 2 | 0-20 |
| 75-27-4 | PSD Bromodichloromethane | 50.0 | 0.00 U | 55.2 | 110 | 70-138 | 5 | 0-20 |
| 10061-01-5 | PSD cis-1,3-Dichloropropylene | 50.0 | 0.00 U | 52.8 | 106 | 70-134 | 5 | 0-20 |
| 108-88-3 | PSD Toluene | 50.0 | 0.00 U | 46.9 | 94 | 60-126 | 5 | 0-20 |
| 10061-02-6 | PSD trans-1,3-Dichloropropylene | 50.0 | 0.00 U | 53.7 | 107 | 69-135 | 5 | 0-20 |
| 79-00-5 | PSD 1,1,2-Trichloroethane | 50.0 | 0.00 U | 48.4 | 97 | 66-125 | 5 | 0-20 |
| 142-28-9 | PSD 1,3-Dichloropropane | 50.0 | 0.00 U | 48.0 | 96 | 67-124 | 5 | 0-20 |
| 127-18-4 | PSD Tetrachloroethylene | 50.0 | 0.00 U | 47.6 | 95 | 60-130 | 4 | 0-20 |
| 124-48-1 | PSD Dibromochloromethane | 50.0 | 0.00 U | 58.3 | 117 | 68-143 | 4 | 0-20 |
| 106-93-4 | PSD 1,2-Dibromoethane | 50.0 | 0.00 U | 52.3 | 105 | 71-127 | 4 | 0-20 |
| 108-90-7 | PSD Chlorobenzene | 50.0 | 0.00 U | 47.9 | 96 | 64-124 | 5 | 0-20 |
| 100-41-4 | PSD Ethylbenzene | 50.0 | 0.00 U | 48.0 | 96 | 61-130 | 4 | 0-20 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130757PSD

Matrix: W

Lab Sample ID 1203774860

Instrument: VOA9.I

Analysis Date: 04/26/2017 20:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|----------|---------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|----------|-------------------|
| 95-47-6 | PSD o-Xylene | 50.0 | 0.00 U | 51.6 | 103 | 62-131 | 5 | 0-20 |
| 100-42-5 | PSD Styrene | 50.0 | 0.00 U | 53.0 | 106 | 59-135 | 4 | 0-20 |
| 75-25-2 | PSD Bromoform | 50.0 | 0.00 U | 59.5 | 119 | 64-138 | 4 | 0-20 |
| 98-82-8 | PSD Isopropylbenzene | 50.0 | 0.00 U | 50.7 | 101 | 55-133 | 5 | 0-20 |
| 79-34-5 | PSD 1,1,2,2-Tetrachloroethane | 50.0 | 0.00 U | 48.0 | 96 | 62-129 | 2 | 0-20 |
| 96-18-4 | PSD 1,2,3-Trichloropropane | 50.0 | 0.00 U | 49.3 | 99 | 70-124 | 0 | 0-20 |
| 108-86-1 | PSD Bromobenzene | 50.0 | 0.00 U | 48.4 | 97 | 62-124 | 6 | 0-20 |
| 103-65-1 | PSD n-Propylbenzene | 50.0 | 0.00 U | 45.6 | 91 | 50-133 | 5 | 0-20 |
| 108-67-8 | PSD 1,3,5-Trimethylbenzene | 50.0 | 0.00 U | 49.9 | 100 | 53-135 | 5 | 0-20 |
| 95-49-8 | PSD 2-Chlorotoluene | 50.0 | 0.00 U | 48.9 | 98 | 56-128 | 6 | 0-20 |
| 106-43-4 | PSD 4-Chlorotoluene | 50.0 | 0.00 U | 46.5 | 93 | 53-130 | 6 | 0-20 |
| 98-06-6 | PSD tert-Butylbenzene | 50.0 | 0.00 U | 52.7 | 105 | 55-135 | 5 | 0-20 |
| 95-63-6 | PSD 1,2,4-Trimethylbenzene | 50.0 | 0.00 U | 49.2 | 98 | 53-132 | 5 | 0-20 |
| 135-98-8 | PSD sec-Butylbenzene | 50.0 | 0.00 U | 49.8 | 100 | 50-138 | 3 | 0-20 |
| 99-87-6 | PSD 4-Isopropyltoluene | 50.0 | 0.00 U | 50.1 | 100 | 49-138 | 4 | 0-20 |
| 541-73-1 | PSD 1,3-Dichlorobenzene | 50.0 | 0.00 U | 46.5 | 93 | 56-126 | 5 | 0-20 |
| 106-46-7 | PSD 1,4-Dichlorobenzene | 50.0 | 0.00 U | 46.8 | 94 | 55-125 | 6 | 0-20 |
| 104-51-8 | PSD n-Butylbenzene | 50.0 | 0.00 U | 48.4 | 97 | 43-142 | 5 | 0-20 |
| 96-12-8 | PSD 1,2-Dibromo-3-chloropropane | 50.0 | 0.00 U | 61.4 | 123 | 62-141 | 1 | 0-20 |
| 87-68-3 | PSD Hexachlorobutadiene | 50.0 | 0.00 U | 53.2 | 106 | 40-147 | 3 | 0-20 |
| 91-20-3 | PSD Naphthalene | 50.0 | 0.00 U | 55.2 | 110 | 62-134 | 5 | 0-20 |
| 87-61-6 | PSD 1,2,3-Trichlorobenzene | 50.0 | 0.00 U | 49.0 | 98 | 52-135 | 6 | 0-20 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130757PSD

Matrix: W

Lab Sample ID 1203774860

Instrument: VOA9.I

Analysis Date: 04/26/2017 20:03

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|----------|-------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|----------|----------------------|
| 120-82-1 | PSD 1,2,4-Trichlorobenzene | 50.0 | 0.00 U | 51.4 | 103 | 50-133 | 7 | 0-20 |
| 630-20-6 | PSD 1,1,1,2-Tetrachloroethane | 50.0 | 0.00 U | 53.2 | 106 | 71-133 | 5 | 0-20 |
| 95-50-1 | PSD 1,2-Dichlorobenzene | 50.0 | 0.00 U | 48.5 | 97 | 60-125 | 5 | 0-20 |
| 71-36-3 | PSD n-Butyl alcohol | 5000 | 0.00 U | 5470 | 109 | 60-140 | 6 | 0-20 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Post Spike

Client ID: CAPA-17-130757PS

Matrix: W

Lab Sample ID 1203774859

Instrument: VOA9.I

Analysis Date: 04/26/2017 20:32

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|-----------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 107-02-8 | PS Acrolein | 250 | 0.00 U | 249 | 100 | 49-141 |
| 76-13-1 | PS Trichlorotrifluoroethane | 250 | 0.00 U | 237 | 95 | 57-149 |
| 107-05-1 | PS Allyl chloride | 250 | 0.00 U | 226 | 90 | 54-128 |
| 107-13-1 | PS Acrylonitrile | 250 | 0.00 U | 231 | 92 | 59-129 |
| 107-12-0 | PS Propionitrile | 250 | 0.00 U | 238 | 95 | 58-131 |
| 126-98-7 | PS Methacrylonitrile | 250 | 0.00 U | 244 | 98 | 59-134 |
| 80-62-6 | PS Methyl methacrylate | 250 | 0.00 U | 249 | 100 | 62-135 |
| 97-63-2 | PS Ethyl methacrylate | 250 | 0.00 U | 235 | 94 | 60-136 |
| 78-83-1 | PS Isobutyl alcohol | 2500 | 0.00 U | 2430 | 97 | 60-143 |
| 126-99-8 | PS 2-Chloro-1,3-butadiene | 50.0 | 0.00 U | 47.4 | 95 | 63-146 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 2

SDG Number: 2017-1379

Sample Type: Post Spike Duplicate

Client ID: CAPA-17-130757PSD

Matrix: W

Lab Sample ID 1203774861

Instrument: VOA9.I

Analysis Date: 04/26/2017 21:01

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|----------|------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|----------|----------------------|
| 107-02-8 | PSD Acrolein | 250 | 0.00 U | 288 | 115 | 49-141 | 14 | 0-20 |
| 76-13-1 | PSD Trichlorotrifluoroethane | 250 | 0.00 U | 255 | 102 | 57-149 | 7 | 0-20 |
| 107-05-1 | PSD Allyl chloride | 250 | 0.00 U | 238 | 95 | 54-128 | 5 | 0-20 |
| 107-13-1 | PSD Acrylonitrile | 250 | 0.00 U | 256 | 102 | 59-129 | 10 | 0-20 |
| 107-12-0 | PSD Propionitrile | 250 | 0.00 U | 266 | 107 | 58-131 | 11 | 0-20 |
| 126-98-7 | PSD Methacrylonitrile | 250 | 0.00 U | 262 | 105 | 59-134 | 7 | 0-20 |
| 80-62-6 | PSD Methyl methacrylate | 250 | 0.00 U | 264 | 106 | 62-135 | 6 | 0-20 |
| 97-63-2 | PSD Ethyl methacrylate | 250 | 0.00 U | 249 | 100 | 60-136 | 6 | 0-20 |
| 78-83-1 | PSD Isobutyl alcohol | 2500 | 0.00 U | 2700 | 108 | 60-143 | 11 | 0-20 |
| 126-99-8 | PSD 2-Chloro-1,3-butadiene | 50.0 | 0.00 U | 49.6 | 99 | 63-146 | 5 | 0-20 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203776467

Instrument: VOA9.I

Analysis Date: 04/27/2017 10:32

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-------------|--------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|
| 179601-23-1 | LCS m,p-Xylenes | 100 | 0.0 | 106 | 106 | 71-127 |
| 75-05-8 | LCS Acetonitrile | 1250 | 0.0 | 1160 | 93 | 61-125 |
| 67-64-1 | LCS Acetone | 250 | 0.0 | 288 | 115 | 48-157 |
| 74-88-4 | LCS Iodomethane | 250 | 0.0 | 259 | 104 | 72-128 |
| 75-15-0 | LCS Carbon disulfide | 250 | 0.0 | 239 | 96 | 69-138 |
| 108-05-4 | LCS Vinyl acetate | 250 | 0.0 | 263 | 105 | 67-125 |
| 78-93-3 | LCS 2-Butanone | 250 | 0.0 | 296 | 119 | 55-138 |
| 108-10-1 | LCS 4-Methyl-2-pentanone | 250 | 0.0 | 269 | 107 | 66-124 |
| 591-78-6 | LCS 2-Hexanone | 250 | 0.0 | 299 | 119 | 56-140 |
| 75-71-8 | LCS Dichlorodifluoromethane | 50.0 | 0.0 | 49.7 | 99 | 40-160 |
| 74-87-3 | LCS Chloromethane | 50.0 | 0.0 | 48.7 | 97 | 58-135 |
| 75-01-4 | LCS Vinyl chloride | 50.0 | 0.0 | 51.7 | 103 | 65-137 |
| 74-83-9 | LCS Bromomethane | 50.0 | 0.0 | 50.6 | 101 | 63-137 |
| 75-00-3 | LCS Chloroethane | 50.0 | 0.0 | 48.9 | 98 | 69-129 |
| 75-69-4 | LCS Trichlorofluoromethane | 50.0 | 0.0 | 49.5 | 99 | 69-138 |
| 60-29-7 | LCS Ethyl ether | 50.0 | 0.0 | 51.4 | 103 | 72-125 |
| 75-35-4 | LCS 1,1-Dichloroethylene | 50.0 | 0.0 | 45.3 | 91 | 66-126 |
| 75-09-2 | LCS Methylene chloride | 50.0 | 0.0 | 48.6 | 97 | 68-119 |
| 1634-04-4 | LCS tert-Butyl methyl ether | 50.0 | 0.0 | 55.3 | 111 | 76-128 |
| 156-60-5 | LCS trans-1,2-Dichloroethylene | 50.0 | 0.0 | 47.3 | 95 | 71-124 |
| 75-34-3 | LCS 1,1-Dichloroethane | 50.0 | 0.0 | 47.2 | 94 | 73-123 |
| 156-59-2 | LCS cis-1,2-Dichloroethylene | 50.0 | 0.0 | 48.7 | 97 | 75-123 |

Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203776467

Instrument: VOA9.I

Analysis Date: 04/27/2017 10:32

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|------------|---------------------------------|----------------------|----------------------|---------------------|---------------|-------------------|
| 594-20-7 | LCS 2,2-Dichloropropane | 50.0 | 0.0 | 51.9 | 104 | 72-138 |
| 74-97-5 | LCS Bromochloromethane | 50.0 | 0.0 | 51.0 | 102 | 76-125 |
| 67-66-3 | LCS Chloroform | 50.0 | 0.0 | 47.7 | 95 | 76-123 |
| 71-55-6 | LCS 1,1,1-Trichloroethane | 50.0 | 0.0 | 49.6 | 99 | 74-136 |
| 563-58-6 | LCS 1,1-Dichloropropene | 50.0 | 0.0 | 49.1 | 98 | 72-129 |
| 56-23-5 | LCS Carbon tetrachloride | 50.0 | 0.0 | 51.7 | 103 | 72-140 |
| 107-06-2 | LCS 1,2-Dichloroethane | 50.0 | 0.0 | 49.2 | 98 | 74-122 |
| 71-43-2 | LCS Benzene | 50.0 | 0.0 | 48.5 | 97 | 72-121 |
| 79-01-6 | LCS Trichloroethylene | 50.0 | 0.0 | 50.4 | 101 | 74-125 |
| 78-87-5 | LCS 1,2-Dichloropropane | 50.0 | 0.0 | 48.7 | 97 | 73-121 |
| 74-95-3 | LCS Dibromomethane | 50.0 | 0.0 | 51.7 | 103 | 78-123 |
| 75-27-4 | LCS Bromodichloromethane | 50.0 | 0.0 | 53.3 | 107 | 77-131 |
| 10061-01-5 | LCS cis-1,3-Dichloropropylene | 50.0 | 0.0 | 54.6 | 109 | 78-131 |
| 108-88-3 | LCS Toluene | 50.0 | 0.0 | 49.3 | 99 | 71-121 |
| 10061-02-6 | LCS trans-1,3-Dichloropropylene | 50.0 | 0.0 | 56.5 | 113 | 78-131 |
| 79-00-5 | LCS 1,1,2-Trichloroethane | 50.0 | 0.0 | 50.2 | 100 | 74-118 |
| 142-28-9 | LCS 1,3-Dichloropropane | 50.0 | 0.0 | 49.4 | 99 | 74-118 |
| 127-18-4 | LCS Tetrachloroethylene | 50.0 | 0.0 | 49.6 | 99 | 69-129 |
| 124-48-1 | LCS Dibromochloromethane | 50.0 | 0.0 | 60.1 | 120 | 76-137 |
| 106-93-4 | LCS 1,2-Dibromoethane | 50.0 | 0.0 | 54.2 | 108 | 78-122 |
| 108-90-7 | LCS Chlorobenzene | 50.0 | 0.0 | 49.6 | 99 | 74-120 |
| 100-41-4 | LCS Ethylbenzene | 50.0 | 0.0 | 49.7 | 99 | 73-125 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203776467

Instrument: VOA9.I

Analysis Date: 04/27/2017 10:32

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|---------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 95-47-6 | LCS o-Xylene | 50.0 | 0.0 | 53.6 | 107 | 74-126 |
| 100-42-5 | LCS Styrene | 50.0 | 0.0 | 55.0 | 110 | 72-130 |
| 75-25-2 | LCS Bromoform | 50.0 | 0.0 | 63.2 | 126 | 72-136 |
| 98-82-8 | LCS Isopropylbenzene | 50.0 | 0.0 | 53.3 | 107 | 70-130 |
| 79-34-5 | LCS 1,1,2,2-Tetrachloroethane | 50.0 | 0.0 | 51.1 | 102 | 70-126 |
| 96-18-4 | LCS 1,2,3-Trichloropropane | 50.0 | 0.0 | 52.5 | 105 | 74-122 |
| 108-86-1 | LCS Bromobenzene | 50.0 | 0.0 | 51.1 | 102 | 74-120 |
| 103-65-1 | LCS n-Propylbenzene | 50.0 | 0.0 | 47.8 | 96 | 67-128 |
| 108-67-8 | LCS 1,3,5-Trimethylbenzene | 50.0 | 0.0 | 52.2 | 104 | 70-129 |
| 95-49-8 | LCS 2-Chlorotoluene | 50.0 | 0.0 | 51.5 | 103 | 71-124 |
| 106-43-4 | LCS 4-Chlorotoluene | 50.0 | 0.0 | 48.2 | 96 | 69-125 |
| 98-06-6 | LCS tert-Butylbenzene | 50.0 | 0.0 | 56.4 | 113 | 72-130 |
| 95-63-6 | LCS 1,2,4-Trimethylbenzene | 50.0 | 0.0 | 51.1 | 102 | 70-126 |
| 135-98-8 | LCS sec-Butylbenzene | 50.0 | 0.0 | 51.8 | 104 | 70-131 |
| 99-87-6 | LCS 4-Isopropyltoluene | 50.0 | 0.0 | 52.2 | 104 | 71-131 |
| 541-73-1 | LCS 1,3-Dichlorobenzene | 50.0 | 0.0 | 49.1 | 98 | 72-121 |
| 106-46-7 | LCS 1,4-Dichlorobenzene | 50.0 | 0.0 | 48.5 | 97 | 71-120 |
| 104-51-8 | LCS n-Butylbenzene | 50.0 | 0.0 | 49.8 | 100 | 68-134 |
| 96-12-8 | LCS 1,2-Dibromo-3-chloropropane | 50.0 | 0.0 | 64.6 | 129 | 68-141 |
| 87-68-3 | LCS Hexachlorobutadiene | 50.0 | 0.0 | 54.2 | 108 | 72-136 |
| 91-20-3 | LCS Naphthalene | 50.0 | 0.0 | 57.5 | 115 | 72-132 |
| 87-61-6 | LCS 1,2,3-Trichlorobenzene | 50.0 | 0.0 | 51.5 | 103 | 70-130 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 4 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203776467

Instrument: VOA9.I

Analysis Date: 04/27/2017 10:32

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|-------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 120-82-1 | LCS 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 54.6 | 109 | 71-129 |
| 630-20-6 | LCS 1,1,1,2-Tetrachloroethane | 50.0 | 0.0 | 54.2 | 108 | 79-127 |
| 95-50-1 | LCS 1,2-Dichlorobenzene | 50.0 | 0.0 | 50.3 | 101 | 74-120 |
| 71-36-3 | LCS n-Butyl alcohol | 5000 | 0.0 | 5720 | 114 | 63-138 |

Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 1

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1658891

Matrix: WATER

Lab Sample ID 1203776468

Instrument: VOA9.I

Analysis Date: 04/27/2017 12:52

Dilution: 1

Analyst: RXY1

Purge Vol: 5 mL

Batch ID: 1658891

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 107-02-8 | LCS Acrolein | 250 | 0.0 | 261 | 104 | 60-140 |
| 76-13-1 | LCS Trichlorotrifluoroethane | 250 | 0.0 | 227 | 91 | 61-148 |
| 107-05-1 | LCS Allyl chloride | 250 | 0.0 | 213 | 85 | 59-125 |
| 107-13-1 | LCS Acrylonitrile | 250 | 0.0 | 238 | 95 | 65-122 |
| 107-12-0 | LCS Propionitrile | 250 | 0.0 | 249 | 100 | 64-124 |
| 126-98-7 | LCS Methacrylonitrile | 250 | 0.0 | 246 | 98 | 64-126 |
| 80-62-6 | LCS Methyl methacrylate | 250 | 0.0 | 249 | 100 | 69-127 |
| 97-63-2 | LCS Ethyl methacrylate | 250 | 0.0 | 239 | 95 | 66-130 |
| 78-83-1 | LCS Isobutyl alcohol | 2500 | 0.0 | 2660 | 106 | 65-135 |
| 126-99-8 | LCS 2-Chloro-1,3-butadiene | 50.0 | 0.0 | 45.6 | 91 | 66-147 |

Method Blank Summary

Page 1 of 1

| | | | | | |
|----------------|----------------------|----------------|------------------|------------|-------------------|
| SDG Number: | 2017-1379 | Client: | ARSL004 | Matrix: | WATER |
| Client ID: | MB for batch 1658891 | Instrument ID: | VOA9.I | Data File: | 042617V9\9P308B.D |
| Lab Sample ID: | 1203774853 | Prep Date: | 04/26/2017 12:26 | Analyzed: | 04/26/17 12:26 |
| Column: | DB-624 | | | | |

This method blank applies to the following samples and quality control samples:

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|--------------------------|---------------|-------------------|---------------|---------------|
| 01 LCS for batch 1658891 | 1203774856 | 042617V9\9P304L.D | 04/26/17 | 1033 |
| 02 LCS for batch 1658891 | 1203774857 | 042617V9\9P307L.D | 04/26/17 | 1158 |
| 03 CAMO-17-130590 | 420857002 | 042617V9\9P309.D | 04/26/17 | 1254 |
| 04 CAPA-17-130757PS | 1203774858 | 042617V9\9P323.D | 04/26/17 | 1935 |
| 05 CAPA-17-130757PSD | 1203774860 | 042617V9\9P324.D | 04/26/17 | 2003 |
| 06 CAPA-17-130757PS | 1203774859 | 042617V9\9P325.D | 04/26/17 | 2032 |
| 07 CAPA-17-130757PSD | 1203774861 | 042617V9\9P326.D | 04/26/17 | 2101 |

Method Blank Summary

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| | | | | | |
|----------------|----------------------|----------------|------------------|------------|-------------------|
| SDG Number: | 2017-1379 | Client: | ARSL004 | Matrix: | WATER |
| Client ID: | MB for batch 1658891 | Instrument ID: | VOA9.I | Data File: | 042717V9\9P410B.D |
| Lab Sample ID: | 1203776466 | Prep Date: | 04/27/2017 13:21 | Analyzed: | 04/27/17 13:21 |
| Column: | DB-624 | | | | |

This method blank applies to the following samples and quality control samples:

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|--------------------------|---------------|-------------------|---------------|---------------|
| 09 LCS for batch 1658891 | 1203776467 | 042717V9\9P404L.D | 04/27/17 | 1032 |
| 10 LCS for batch 1658891 | 1203776468 | 042717V9\9P409L.D | 04/27/17 | 1252 |
| 11 CAMO-17-130584 | 420857001 | 042717V9\9P411.D | 04/27/17 | 1349 |

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Lab Sample ID: 1203774853

Client Sample: QC for batch 1658891

Client ID: MB for batch 1658891

Batch ID: 1658891

Run Date: 04/26/2017 12:26

Prep Date: 04/26/2017 12:26

Data File: 042617V9\9P308B.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | J | 2.15 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | |
|-----------------------|-----------------------------|-------------------|---------------------|
| SDG Number: | 2017-1379 | Matrix: | WATER |
| Lab Sample ID: | 1203774853 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 |
| Client ID: | MB for batch 1658891 | Method: | SW-846:8260B |
| Batch ID: | 1658891 | Inst: | VOA9.I |
| Run Date: | 04/26/2017 12:26 | Analyst: | RXY1 |
| Prep Date: | 04/26/2017 12:26 | Purge Vol: | 5 mL |
| Data File: | 042617V9\9P308B.D | Column: | DB-624 |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

| | |
|--|-----------------------------|
| SDG Number: 2017-1379 | Matrix: WATER |
| Lab Sample ID: 1203774853 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 |
| Client ID: MB for batch 1658891 | Method: SW-846:8260B |
| Batch ID: 1658891 | Project: QC |
| Run Date: 04/26/2017 12:26 | SOP Ref: GL-OA-E-038 |
| Prep Date: 04/26/2017 12:26 | Dilution: 1 |
| Data File: 042617V9\9P308B.D | Purge Vol: 5 mL |
| | Column: DB-624 |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 47.4 | 50.0 | ug/L 95 | (71%-134%) |
| Bromofluorobenzene | 47.8 | 50.0 | ug/L 96 | (70%-131%) |
| Toluene-d8 | 48.8 | 50.0 | ug/L 98 | (74%-124%) |

Tentatively Identified Compound Summary

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---------------------------------------|----|-----------|-------|-----|------|
| No Tentatively Identified Compounds Found | | | | ug/L | | |

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1379

Lab Sample ID: 1203774856

Client Sample: QC for batch 1658891

Client ID: LCS for batch 1658891

Batch ID: 1658891

Run Date: 04/26/2017 10:33

Prep Date: 04/26/2017 10:33

Data File: 042617V9\9P304L.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 50.8 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 48.3 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 47.3 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 46.9 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 47.1 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 44.6 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 48.4 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 48.3 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 48.0 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 52.8 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 49.5 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 59.4 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 51.2 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 48.6 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 46.3 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.0 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 50.3 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 47.7 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 46.3 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 47.1 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 50.1 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 278 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 50.1 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 270 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 46.8 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 50.6 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 236 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | B | 274 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | | 1090 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 48.4 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 49.4 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 51.3 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 52.2 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 58.8 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Lab Sample ID: 1203774856

Client Sample: QC for batch 1658891

Client ID: LCS for batch 1658891

Batch ID: 1658891

Run Date: 04/26/2017 10:33

Prep Date: 04/26/2017 10:33

Data File: 042617V9\9P304L.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | | 49.8 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 239 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 49.6 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 48.1 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 47.5 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 47.1 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 46.8 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 56.5 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 49.6 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 45.2 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 49.9 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 47.6 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 52.9 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 260 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 51.6 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 48.8 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | | 52.9 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 53.0 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 47.8 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 47.6 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 49.9 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 46.1 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | | 249 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 49.4 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 48.0 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 53.4 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 102 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 4880 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 46.2 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 51.6 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 50.1 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

| | | | |
|-----------------------|-----------------------|-------------------|--------------|
| SDG Number: | 2017-1379 | Matrix: | WATER |
| Lab Sample ID: | 1203774856 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 |
| Client ID: | LCS for batch 1658891 | Method: | SW-846:8260B |
| Batch ID: | 1658891 | Inst: | VOA9.I |
| Run Date: | 04/26/2017 10:33 | Analyst: | RXY1 |
| Prep Date: | 04/26/2017 10:33 | Purge Vol: | 5 mL |
| Data File: | 042617V9\9P304L.D | Column: | DB-624 |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | | 53.2 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 53.8 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 47.2 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 52.7 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 46.3 | 50.0 | 93 | (71%-134%) |
| Bromofluorobenzene | 49.1 | 50.0 | 98 | (70%-131%) |
| Toluene-d8 | 48.5 | 50.0 | 97 | (74%-124%) |

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Lab Sample ID: 1203774857

Client Sample: QC for batch 1658891

Client ID: LCS for batch 1658891

Batch ID: 1658891

Run Date: 04/26/2017 11:58

Prep Date: 04/26/2017 11:58

Data File: 042617V9\9P307L.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 44.5 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 280 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 225 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 210 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Matrix: WATER

Lab Sample ID: 1203774857

Client Sample: QC for batch 1658891

Client: ARSL004

Project: QC

Client ID: LCS for batch 1658891

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1658891

Inst: VOA9.I

Dilution: 1

Run Date: 04/26/2017 11:58

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 04/26/2017 11:58

Data File: 042617V9\9P307L.D

Column: DB-624

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 229 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2350 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 230 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 237 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 234 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 222 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

| | | |
|--|-----------------------------|-----------------------------|
| SDG Number: 2017-1379 | | Matrix: WATER |
| Lab Sample ID: 1203774857 | | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: LCS for batch 1658891 | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 11:58 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 11:58 | | |
| Data File: 042617V9\9P307L.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 47.5 | 50.0 | ug/L | 95 | (71%-134%) |
| Bromofluorobenzene | 47.4 | 50.0 | ug/L | 95 | (70%-131%) |
| Toluene-d8 | 49.3 | 50.0 | ug/L | 99 | (74%-124%) |

Volatile
Certificate of Analysis
Sample Summary

| | | | | | |
|-----------------------|-----------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/14/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203774858 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 | Project: | QC |
| Client ID: | CAPA-17-130757PS | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 19:35 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 19:35 | | | | |
| Data File: | 042617V9\9P323.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 50.5 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 50.1 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 47.0 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 46.2 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 45.3 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 44.7 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 47.2 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 46.3 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 49.3 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 47.7 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 47.0 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 62.1 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 50.0 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 46.0 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 50.3 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 45.9 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 47.7 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 44.3 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 45.7 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 44.1 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 50.0 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 207 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 46.1 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 236 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 44.0 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 48.0 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 239 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | B | 164 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | | 1170 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 45.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 45.7 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 48.9 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 52.8 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 57.2 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/14/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203774858 | Date Received: 04/18/2017 08:55 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: CAPA-17-130757PS | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 19:35 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 19:35 | | |
| Data File: 042617V9\9P323.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | | 54.6 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 235 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 53.4 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 45.3 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 50.9 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 47.7 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 51.9 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 55.8 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 51.3 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 58.7 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 52.9 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 46.2 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 51.5 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 254 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 46.3 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | | 52.7 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 51.0 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 46.0 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 44.7 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 48.4 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 58.6 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | | 266 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 54.6 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 47.4 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 50.0 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 97.0 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 5790 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 46.1 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 43.4 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 49.1 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 48.2 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-----------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/14/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203774858 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 | Project: | QC |
| Client ID: | CAPA-17-130757PS | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 19:35 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 19:35 | | | | |
| Data File: | 042617V9\9P323.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | | 53.7 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 49.9 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 46.2 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 51.0 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 52.1 | 50.0 | 104 | (71%-134%) |
| Bromofluorobenzene | 48.2 | 50.0 | 96 | (70%-131%) |
| Toluene-d8 | 48.5 | 50.0 | 97 | (74%-124%) |

Volatile
Certificate of Analysis
Sample Summary

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/14/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203774859 | Date Received: 04/18/2017 08:55 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: CAPA-17-130757PS | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 20:32 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 20:32 | | |
| Data File: 042617V9\9P325.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 47.4 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 249 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 231 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 226 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/14/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203774859 | Date Received: 04/18/2017 08:55 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: CAPA-17-130757PS | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 20:32 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 20:32 | | |
| Data File: 042617V9\9P325.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 235 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2430 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 244 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 249 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 238 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 237 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/14/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203774859 | Date Received: 04/18/2017 08:55 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: CAPA-17-130757PS | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 20:32 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 20:32 | | |
| Data File: 042617V9\9P325.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 49.0 | 50.0 | ug/L 98 | (71%-134%) |
| Bromofluorobenzene | 49.2 | 50.0 | ug/L 98 | (70%-131%) |
| Toluene-d8 | 48.6 | 50.0 | ug/L 97 | (74%-124%) |

Volatile
Certificate of Analysis
Sample Summary

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/14/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203774860 | Date Received: 04/18/2017 08:55 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: CAPA-17-130757PSD | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 20:03 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 20:03 | | |
| Data File: 042617V9\9P324.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 53.2 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 50.9 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 48.0 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 48.4 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 47.7 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 45.6 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 49.0 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 49.0 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 49.3 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 51.4 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 49.2 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 61.4 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 52.3 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 48.5 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 51.2 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.1 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 49.9 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 46.5 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 48.0 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 46.8 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 50.7 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 206 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 48.9 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 229 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 46.5 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 50.1 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 242 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | B | 156 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | | 1160 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 48.4 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 51.9 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 55.2 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 59.5 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-----------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/14/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203774860 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 | Project: | QC |
| Client ID: | CAPA-17-130757PSD | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 20:03 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 20:03 | | | | |
| Data File: | 042617V9\9P324.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | | 53.1 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 239 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 54.0 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 47.9 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 50.8 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 49.5 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 51.9 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 58.3 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 52.4 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 56.4 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 53.2 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 48.0 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 53.2 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 261 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 50.7 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 49.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | | 55.2 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 53.0 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 47.6 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 46.9 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 50.1 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 55.0 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | | 260 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 55.1 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 49.6 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 52.8 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 102 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 5470 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 48.4 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 45.6 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 51.6 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 49.8 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-----------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/14/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203774860 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 | Project: | QC |
| Client ID: | CAPA-17-130757PSD | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 20:03 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 20:03 | | | | |
| Data File: | 042617V9\9P324.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | | 55.8 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 52.7 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 48.0 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 53.7 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 48.9 | 50.0 | 98 | (71%-134%) |
| Bromofluorobenzene | 48.0 | 50.0 | 96 | (70%-131%) |
| Toluene-d8 | 48.5 | 50.0 | 97 | (74%-124%) |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-----------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/14/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203774861 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 | Project: | QC |
| Client ID: | CAPA-17-130757PSD | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 21:01 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 21:01 | | | | |
| Data File: | 042617V9\9P326.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 49.6 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 288 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 256 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 238 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/14/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203774861 | Date Received: 04/18/2017 08:55 | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: CAPA-17-130757PSD | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/26/2017 21:01 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/26/2017 21:01 | | |
| Data File: 042617V9\9P326.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 249 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2700 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 262 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 264 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 266 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 255 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-----------------------------|------------------------|-------------------------|-------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/14/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203774861 | Date Received: | 04/18/2017 08:55 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 | Project: | QC |
| Client ID: | CAPA-17-130757PSD | Method: | SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: | 1658891 | Inst: | VOA9.I | Dilution: | 1 |
| Run Date: | 04/26/2017 21:01 | Analyst: | RXY1 | Purge Vol: | 5 mL |
| Prep Date: | 04/26/2017 21:01 | | | | |
| Data File: | 042617V9\9P326.D | Column: | DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 49.2 | 50.0 | 98 | (71%-134%) |
| Bromofluorobenzene | 48.0 | 50.0 | 96 | (70%-131%) |
| Toluene-d8 | 48.0 | 50.0 | 96 | (74%-124%) |

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Lab Sample ID: 1203776466

Client Sample: QC for batch 1658891

Client ID: MB for batch 1658891

Batch ID: 1658891

Run Date: 04/27/2017 13:21

Prep Date: 04/27/2017 13:21

Data File: 042717V9\9P410B.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1379

Matrix: WATER

Lab Sample ID: 1203776466

Client Sample: QC for batch 1658891

Client: ARSL004

Project: QC

Client ID: MB for batch 1658891

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1658891

Inst: VOA9.I

Dilution: 1

Run Date: 04/27/2017 13:21

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 04/27/2017 13:21

Data File: 042717V9\9P410B.D

Column: DB-624

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

| | | |
|--|-----------------------------|-----------------------------|
| SDG Number: 2017-1379 | Matrix: WATER | |
| Lab Sample ID: 1203776466 | | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: QC |
| Client ID: MB for batch 1658891 | Method: SW-846:8260B | SOP Ref: GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: 1 |
| Run Date: 04/27/2017 13:21 | Analyst: RXY1 | Purge Vol: 5 mL |
| Prep Date: 04/27/2017 13:21 | | |
| Data File: 042717V9\9P410B.D | Column: DB-624 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 48.6 | 50.0 | ug/L 97 | (71%-134%) |
| Bromofluorobenzene | 50.0 | 50.0 | ug/L 100 | (70%-131%) |
| Toluene-d8 | 49.1 | 50.0 | ug/L 98 | (74%-124%) |

Tentatively Identified Compound Summary

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---------------------------------------|----|-----------|-------|-----|------|
| No Tentatively Identified Compounds Found | | | | ug/L | | |

Volatile
Certificate of Analysis
Sample Summary

| | | | |
|--|-----------------------------|-------------------|-------------|
| SDG Number: 2017-1379 | | Matrix: | WATER |
| Lab Sample ID: 1203776467 | | | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: | QC |
| Client ID: LCS for batch 1658891 | Method: SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: | 1 |
| Run Date: 04/27/2017 10:32 | Analyst: RXY1 | Purge Vol: | 5 mL |
| Prep Date: 04/27/2017 10:32 | | | |
| Data File: 042717V9\9P404L.D | Column: DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | | 54.2 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | | 49.6 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | | 51.1 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | | 50.2 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | | 47.2 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | | 45.3 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | | 49.1 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | | 51.5 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | | 52.5 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 54.6 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | | 51.1 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | | 64.6 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | | 54.2 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | | 50.3 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | | 49.2 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | | 48.7 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | | 52.2 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | | 49.1 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | | 49.4 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | | 48.5 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | | 51.9 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | | 296 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | | 51.5 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | | 299 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | | 48.2 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | | 52.2 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | | 269 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | | 288 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | | 1160 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | U | 5.00 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | | 48.5 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | | 51.1 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | | 51.0 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | | 53.3 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | | 63.2 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Lab Sample ID: 1203776467

Client Sample: QC for batch 1658891

Client ID: LCS for batch 1658891

Batch ID: 1658891

Run Date: 04/27/2017 10:32

Prep Date: 04/27/2017 10:32

Data File: 042717V9\9P404L.D

Client: ARSL004

Method: SW-846:8260B

Inst: VOA9.I

Analyst: RXY1

Column: DB-624

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-038

Dilution: 1

Purge Vol: 5 mL

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | | 50.6 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | | 239 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | | 51.7 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | | 49.6 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | | 48.9 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | | 47.7 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | | 48.7 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | | 60.1 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | | 51.7 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | | 49.7 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | | 51.4 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | | 49.7 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | | 54.2 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | | 259 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | | 53.3 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | | 48.6 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | | 57.5 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | U | 5.00 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | | 55.0 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | | 49.6 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | | 49.3 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | | 50.4 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | | 49.5 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | U | 5.00 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | | 263 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | | 51.7 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | | 48.7 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | | 54.6 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | | 106 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | | 5720 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | | 49.8 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | | 47.8 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | | 53.6 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | | 51.8 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

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| | | | |
|----------------|-----------------------|------------|--------------|
| SDG Number: | 2017-1379 | Matrix: | WATER |
| Lab Sample ID: | 1203776467 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 |
| Client ID: | LCS for batch 1658891 | Method: | SW-846:8260B |
| Batch ID: | 1658891 | Inst: | VOA9.I |
| Run Date: | 04/27/2017 10:32 | Analyst: | RXY1 |
| Prep Date: | 04/27/2017 10:32 | Purge Vol: | 5 mL |
| Data File: | 042717V9\9P404L.D | Column: | DB-624 |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | | 55.3 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | | 56.4 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | | 47.3 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | | 56.5 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 48.1 | 50.0 | 96 | (71%-134%) |
| Bromofluorobenzene | 48.8 | 50.0 | 98 | (70%-131%) |
| Toluene-d8 | 49.3 | 50.0 | 99 | (74%-124%) |

Volatile
Certificate of Analysis
Sample Summary

SDG Number: 2017-1379

Matrix: WATER

Lab Sample ID: 1203776468

Client Sample: QC for batch 1658891

Client: ARSL004

Project: QC

Client ID: LCS for batch 1658891

Method: SW-846:8260B

SOP Ref: GL-OA-E-038

Batch ID: 1658891

Inst: VOA9.I

Dilution: 1

Run Date: 04/27/2017 12:52

Analyst: RXY1

Purge Vol: 5 mL

Prep Date: 04/27/2017 12:52

Data File: 042717V9\9P409L.D

Column: DB-624

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|-----------------------------|-----------|--------|-------|---------|---------|
| 630-20-6 | 1,1,1,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 71-55-6 | 1,1,1-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-34-5 | 1,1,2,2-Tetrachloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-00-5 | 1,1,2-Trichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-34-3 | 1,1-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-35-4 | 1,1-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 563-58-6 | 1,1-Dichloropropene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-61-6 | 1,2,3-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-18-4 | 1,2,3-Trichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-63-6 | 1,2,4-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 96-12-8 | 1,2-Dibromo-3-chloropropane | U | 1.00 | ug/L | 0.500 | 1.00 |
| 106-93-4 | 1,2-Dibromoethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-06-2 | 1,2-Dichloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-87-5 | 1,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-67-8 | 1,3,5-Trimethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 541-73-1 | 1,3-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 142-28-9 | 1,3-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 594-20-7 | 2,2-Dichloropropane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-93-3 | 2-Butanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 126-99-8 | 2-Chloro-1,3-butadiene | | 45.6 | ug/L | 0.300 | 1.00 |
| 95-49-8 | 2-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 591-78-6 | 2-Hexanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 106-43-4 | 4-Chlorotoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 99-87-6 | 4-Isopropyltoluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-10-1 | 4-Methyl-2-pentanone | U | 5.00 | ug/L | 1.50 | 5.00 |
| 67-64-1 | Acetone | U | 10.0 | ug/L | 1.50 | 10.0 |
| 75-05-8 | Acetonitrile | U | 25.0 | ug/L | 8.00 | 25.0 |
| 107-02-8 | Acrolein | | 261 | ug/L | 1.50 | 5.00 |
| 107-13-1 | Acrylonitrile | | 238 | ug/L | 1.50 | 5.00 |
| 107-05-1 | Allyl chloride | | 213 | ug/L | 1.50 | 5.00 |
| 71-43-2 | Benzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-86-1 | Bromobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-97-5 | Bromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-27-4 | Bromodichloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-25-2 | Bromoform | U | 1.00 | ug/L | 0.300 | 1.00 |

Volatile
Certificate of Analysis
Sample Summary

| | | | |
|--|-----------------------------|-------------------|-------------|
| SDG Number: 2017-1379 | | Matrix: | WATER |
| Lab Sample ID: 1203776468 | | | |
| Client Sample: QC for batch 1658891 | Client: ARSL004 | Project: | QC |
| Client ID: LCS for batch 1658891 | Method: SW-846:8260B | SOP Ref: | GL-OA-E-038 |
| Batch ID: 1658891 | Inst: VOA9.I | Dilution: | 1 |
| Run Date: 04/27/2017 12:52 | Analyst: RXY1 | Purge Vol: | 5 mL |
| Prep Date: 04/27/2017 12:52 | | | |
| Data File: 042717V9\9P409L.D | Column: DB-624 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-------------|---------------------------|-----------|--------|-------|---------|---------|
| 74-83-9 | Bromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-15-0 | Carbon disulfide | U | 5.00 | ug/L | 1.50 | 5.00 |
| 56-23-5 | Carbon tetrachloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-90-7 | Chlorobenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-00-3 | Chloroethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 67-66-3 | Chloroform | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-87-3 | Chloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 124-48-1 | Dibromochloromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-95-3 | Dibromomethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-71-8 | Dichlorodifluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 60-29-7 | Ethyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 97-63-2 | Ethyl methacrylate | | 239 | ug/L | 1.50 | 5.00 |
| 100-41-4 | Ethylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 87-68-3 | Hexachlorobutadiene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 74-88-4 | Iodomethane | U | 5.00 | ug/L | 1.50 | 5.00 |
| 78-83-1 | Isobutyl alcohol | | 2660 | ug/L | 15.0 | 50.0 |
| 98-82-8 | Isopropylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 126-98-7 | Methacrylonitrile | | 246 | ug/L | 1.50 | 5.00 |
| 80-62-6 | Methyl methacrylate | | 249 | ug/L | 1.50 | 5.00 |
| 75-09-2 | Methylene chloride | U | 10.0 | ug/L | 1.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 107-12-0 | Propionitrile | | 249 | ug/L | 1.50 | 5.00 |
| 100-42-5 | Styrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 127-18-4 | Tetrachloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-88-3 | Toluene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 79-01-6 | Trichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 75-69-4 | Trichlorofluoromethane | U | 1.00 | ug/L | 0.300 | 1.00 |
| 76-13-1 | Trichlorotrifluoroethane | | 227 | ug/L | 2.00 | 5.00 |
| 108-05-4 | Vinyl acetate | U | 5.00 | ug/L | 1.50 | 5.00 |
| 75-01-4 | Vinyl chloride | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-59-2 | cis-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-01-5 | cis-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 179601-23-1 | m,p-Xylenes | U | 2.00 | ug/L | 0.300 | 2.00 |
| 71-36-3 | n-Butyl alcohol | U | 50.0 | ug/L | 15.0 | 50.0 |
| 104-51-8 | n-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 103-65-1 | n-Propylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 95-47-6 | o-Xylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 135-98-8 | sec-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Volatile
Certificate of Analysis
Sample Summary**

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| | | | |
|-----------------------|-----------------------|-------------------|--------------|
| SDG Number: | 2017-1379 | Matrix: | WATER |
| Lab Sample ID: | 1203776468 | | |
| Client Sample: | QC for batch 1658891 | Client: | ARSL004 |
| Client ID: | LCS for batch 1658891 | Method: | SW-846:8260B |
| Batch ID: | 1658891 | Inst: | VOA9.I |
| Run Date: | 04/27/2017 12:52 | Analyst: | RXY1 |
| Prep Date: | 04/27/2017 12:52 | Purge Vol: | 5 mL |
| Data File: | 042717V9\9P409L.D | Column: | DB-624 |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------------|-----------|--------|-------|---------|---------|
| 1634-04-4 | tert-Butyl methyl ether | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-06-6 | tert-Butylbenzene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 156-60-5 | trans-1,2-Dichloroethylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 10061-02-6 | trans-1,3-Dichloropropylene | U | 1.00 | ug/L | 0.300 | 1.00 |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|------|-----------|-------------------|
| 1,2-Dichloroethane-d4 | 49.8 | 50.0 | ug/L | 100 | (71%-134%) |
| Bromofluorobenzene | 48.4 | 50.0 | ug/L | 97 | (70%-131%) |
| Toluene-d8 | 48.8 | 50.0 | ug/L | 98 | (74%-124%) |

Semi-Volatile Analysis

Case Narrative

**GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2017-1379
Work Order #: 420857**

Method/Analysis Information

| | |
|--------------------------|---|
| Procedure: | Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry |
| Analytical Method: | SW846 3510C/8270D |
| Prep Method: | SW846 3510C |
| Analytical Batch Number: | 1657088 |
| Prep Batch Number: | 1657087 |

Sample Analysis

The following samples were analyzed using the analytical protocol as established in SW846 3510C/8270D:

| Sample ID | Client ID |
|------------------|---|
| 420857001 | CAMO-17-130584 |
| 1203770132 | Method Blank (MB) |
| 1203770133 | Laboratory Control Sample (LCS) |
| 1203770134 | 420849001(WST54-17-132515) Matrix Spike (MS) |
| 1203770135 | 420849001(WST54-17-132515) Matrix Spike Duplicate (MSD) |

The samples in this SDG were analyzed on an "as received" basis.

Preparation/Analytical Method Verification

SOP Reference

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-OA-E-009 REV# 39.

Raw data reports are processed and reviewed by the analyst using the data analysis software package. False positives have been removed from the quantitation reports per standard operating procedures (SOP).

Calibration Information

A complete list of the initial calibration data files are shown in the Calibration History report located in the Standard Data section of the data package. The various calibration mixes may not be calibrated using all of the calibration levels. In addition, not all of the mixes are calibrated using the same levels.

Diphenylamine has now superseded N-Nitroso-diphenylamine on Quantitation Reports, Initial Calibration Reports, Calibration Check Standard Reports, etc. Previous versions of EPA Methodologies referenced N-Nitroso-diphenylamine. However, as stated in EPA Methodology, "N-Nitroso-diphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine." Studies of these two compounds at GEL, both independent of each other and together, showed that they not only co-elute, but also have similar mass spectra. N-Nitroso-diphenylamine and Diphenylamine will be reported as Diphenylamine on all reports and forms.

Initial Calibration

All initial calibration requirements have been met for this sample delivery group (SDG) in this batch. A second source initial calibration verification (ICV) was included in the standard section directly behind the initial calibration.

CCV Requirements

All Calibration Verification Standards (CCV) did not meet the acceptance criteria as outlined in Method 8270D for sample 420857001 (CAMO-17-130584) and the associated QC. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. If required, a CRDL was analyzed after the CCVs to demonstrate that there is adequate sensitivity to detect the failed compounds at the applicable lower quantitation limit.

Quality Control (QC) Information

Method Blank (MB) Statement

The MB analyzed with this SDG in this batch met the acceptance criteria.

Surrogate Recoveries

All the surrogate recoveries were within the established acceptance criteria for this SDG in this batch.

Laboratory Control Sample Duplicate (LCSD)

An LCSD was not used in place of matrix QC.

Laboratory Control Sample (LCS) Recovery

The LCS spike recoveries met the acceptance limits.

QC Sample Designation

Sample 420849001 (WST54-17-132515) was selected for analysis as the matrix spike and matrix spike duplicate.

Spike Recovery Statement

The MS and MSD recoveries were within the established acceptance limits.

MS/MSD Relative Percent Difference (RPD) Statement

The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data.

| Sample | Analyte | Value |
|--|---------------|--------------|
| 1203770134MS and 1203770135MSD (WST54-17-132515) | 4-Nitrophenol | 32* (0%-30%) |
| | Benzidine | 43* (0%-30%) |
| | Benzoic acid | 35* (0%-30%) |

Internal Standard (ISTD) Acceptance

The internal standard responses used to quantitate the requested target analytes were within the required

acceptance criteria for the SDG associated samples in this batch.

Technical Information:

Holding Time Specifications

All samples in this SDG in this batch met the specified holding time. GEL assigns holding times based on the associated methodology that assigns the date and time from sample collection or sample receipt. Those holding times expressed in hours are calculated in the ALPHALIMS system. Those holding times expressed as days expire at midnight on the day of expiration.

Preparation/Analytical Method Verification

All procedures were performed as stated in the SOP. All reported compound mass spectra met the detection specifications in the method.

Sample Dilutions

The samples in this SDG in this batch did not require dilutions.

Sample Re-extraction/Re-analysis

Re-extractions or re-analyses were not required in this SDG in this analytical batch unless confirmations or dilutions were required.

Miscellaneous Information:

Data Exception (DER) Documentation

A data exception report (DER) 1624736 was generated for sample 1203770135 (WST54-17-132515MSD) in this SDG/batch.

Manual Integrations

Samples 1203770133 (LCS), 1203770134 (WST54-17-132515MS) and 1203770135 (WST54-17-132515MSD) required manual integration in order to properly identify one or more peaks and/or to correctly position the baseline as set in the calibration standard injections.

TIC Comment

Tentatively identified compounds (TIC) were requested for sample 420857001 (CAMO-17-130584) in this SDG in this batch.

Additional Comments

Additional comments were not required for the SDG associated samples in this batch.

Electronic Package Comment

The following package was generated using an electronic data processing program referred to as "virtual packaging". In an effort to increase quality and efficiency, the laboratory is developing systems to eventually generate all data packages electronically. The following change from "traditional" packages should be noted:

Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative of each electronic package will indicate the reviewer name associated with the generation of the data and package. The data validator will always sign and date the case narrative. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

System Configuration

The Semi-Volatile-GC/MS analysis was performed on the following instrument configuration:

| Instrument ID | Instrument | System Configuration | Column ID | Column Description |
|---------------|---|----------------------|-----------|--|
| MSD1.I | Agilent 6890N/5973 GC/MS w/ 7683 Autosampler | HP6890/HP5973 | DB-5MS | 25m x 0.2mm, 0.33um (5% Polysilarylene-95% Polydimethylsiloxane) |

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2017-1379 GEL Work Order: 420857

The Qualifiers in this report are defined as follows:

- * A quality control analyte recovery is outside of specified acceptance criteria
- ** Analyte is a surrogate compound
- U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
- DL Indicates that sample is diluted.
- RA Indicates that sample is re-analyzed without re-extraction.
- RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: 

Name: Barbara Bailey

Date: 11 MAY 2017

Title: Data Validator

Sample Data Summary

**Semi-Volatile
Certificate of Analysis
Sample Summary**

| | | |
|---------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857001 | Date Received: 04/18/2017 08:55 | |
| Client Sample: SVOA/VOA | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130584 | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 16:47 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 950 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1912.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-----------|--------------------------------|-----------|--------|-------|---------|---------|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-66-7 | Azobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| | <i>1,2-Diphenylhydrazine</i> | | | | | |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 123-91-1 | 1,4-Dioxane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 51-28-5 | 2,4-Dinitrophenol | U | 21.1 | ug/L | 5.26 | 21.1 |
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.05 | ug/L | 0.432 | 1.05 |
| 95-57-8 | 2-Chlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 88-75-5 | 2-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 59-50-7 | Parachlorometa cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| | <i>4-Chloro-3-methylphenol</i> | | | | | |
| 106-47-8 | 4-Chloroaniline | U | 10.5 | ug/L | 3.47 | 10.5 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 100-02-7 | 4-Nitrophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 83-32-9 | Acenaphthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 208-96-8 | Acenaphthylene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 62-53-3 | Aniline | U | 10.5 | ug/L | 4.42 | 10.5 |
| 120-12-7 | Anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 1912-24-9 | Atrazine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 92-87-5 | Benzidine | U | 10.5 | ug/L | 4.11 | 10.5 |
| 56-55-3 | Benzo(a)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 50-32-8 | Benzo(a)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.05 | ug/L | 0.316 | 1.05 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

| | | |
|---------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857001 | Date Received: 04/18/2017 08:55 | |
| Client Sample: SVOA/VOA | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130584 | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 16:47 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 950 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1912.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|----------------------------------|-----------|--------|-------|---------|---------|
| 207-08-9 | Benzo(k)fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 65-85-0 | Benzoic acid | U | 21.1 | ug/L | 6.32 | 21.1 |
| 100-51-6 | Benzyl alcohol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-68-7 | Butylbenzylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 218-01-9 | Chrysene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 84-74-2 | Di-n-butylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-84-0 | Di-n-octylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 132-64-9 | Dibenzofuran | U | 10.5 | ug/L | 3.16 | 10.5 |
| 84-66-2 | Diethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 131-11-3 | Dimethylphthalate | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-85-7 | Dinoseb | U | 10.5 | ug/L | 3.16 | 10.5 |
| 122-39-4 | Diphenylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 206-44-0 | Fluoranthene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 86-73-7 | Fluorene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 118-74-1 | Hexachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-68-3 | Hexachlorobutadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 67-72-1 | Hexachloroethane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 78-59-1 | Isophorone | U | 10.5 | ug/L | 3.68 | 10.5 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 621-64-7 | N-Nitrosodi--n-propylamine | U | 10.5 | ug/L | 3.16 | 10.5 |
| | <i>N-Nitrosodipropylamine</i> | | | | | |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 91-20-3 | Naphthalene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 98-95-3 | Nitrobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 608-93-5 | Pentachlorobenzene | U | 10.5 | ug/L | 3.16 | 10.5 |
| 87-86-5 | Pentachlorophenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 85-01-8 | Phenanthrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 108-95-2 | Phenol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 129-00-0 | Pyrene | U | 1.05 | ug/L | 0.316 | 1.05 |
| 110-86-1 | Pyridine | U | 10.5 | ug/L | 3.16 | 10.5 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.5 | ug/L | 3.16 | 10.5 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.5 | ug/L | 3.16 | 10.5 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.5 | ug/L | 3.16 | 10.5 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

| | | |
|---------------------------------------|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 12:42 | Matrix: W |
| Lab Sample ID: 420857001 | Date Received: 04/18/2017 08:55 | |
| Client Sample: SVOA/VOA | Client: ARSL004 | Project: ESHL00114 |
| Client ID: CAMO-17-130584 | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 16:47 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 950 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1912.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------|-----------|--------|-------|---------|---------|
| 65794-96-9 | m,p-Cresols | U | 10.5 | ug/L | 3.89 | 10.5 |
| 99-09-2 | 3-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | <i>m-Nitroaniline</i> | | | | | |
| 95-48-7 | o-Cresol | U | 10.5 | ug/L | 3.16 | 10.5 |
| 88-74-4 | 2-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | <i>o-Nitroaniline</i> | | | | | |
| 100-01-6 | 4-Nitroaniline | U | 10.5 | ug/L | 3.16 | 10.5 |
| | <i>p-Nitroaniline</i> | | | | | |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|------|-----------|-------------------|
| 2,4,6-Tribromophenol | 76.2 | 105 | ug/L | 72 | (32%-124%) |
| 2-Fluorobiphenyl | 39.7 | 52.6 | ug/L | 75 | (32%-112%) |
| 2-Fluorophenol | 33.4 | 105 | ug/L | 32 | (15%-88%) |
| Nitrobenzene-d5 | 44.2 | 52.6 | ug/L | 84 | (36%-115%) |
| Phenol-d5 | 26.5 | 105 | ug/L | 25 | (15%-91%) |
| p-Terphenyl-d14 | 38.8 | 52.6 | ug/L | 74 | (36%-121%) |

Tentatively Identified Compound Summary

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---------------------------------------|----|-----------|-------|-----|------|
| No Tentatively Identified Compounds Found | | | | ug/L | | |

Quality Control Summary

Semi-Volatile
Surrogate Recovery Report

Page 1 of 1

SDG Number: 2017-1379**Matrix Type: LIQUID**

| Sample ID | Client ID | 2FP %REC | PHL %REC | NBZ %REC | FBP %REC | TBP %REC | TPH %REC |
|------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1203770132 | MB for batch 1657087 | 44 | 33 | 97 | 80 | 78 | 83 |
| 1203770133 | LCS for batch 1657087 | 41 | 29 | 89 | 78 | 83 | 81 |
| 1203770134 | WST54-17-132515MS | 55 | 43 | 92 | 76 | 79 | 71 |
| 1203770135 | WST54-17-132515MSD | 57 | 47 | 94 | 79 | 84 | 77 |
| 420857001 | CAMO-17-130584 | 32 | 25 | 84 | 75 | 72 | 74 |

Surrogate**Acceptance Limits**

| | | |
|-----|------------------------|------------|
| 2FP | = 2-Fluorophenol | (15%-88%) |
| PHL | = Phenol-d5 | (15%-91%) |
| NBZ | = Nitrobenzene-d5 | (36%-115%) |
| FBP | = 2-Fluorobiphenyl | (32%-112%) |
| TBP | = 2,4,6-Tribromophenol | (32%-124%) |
| TPH | = p-Terphenyl-d14 | (36%-121%) |

* Recovery outside Acceptance Limits

Column to be used to flag recovery values

D Sample Diluted

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1657087

Matrix: WATER

Lab Sample ID 1203770133

Instrument: MSD1.I

Analysis Date: 04/19/2017 14:49

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|------------|---|----------------------|----------------------|---------------------|---------------|----------------------|
| 62-75-9 | LCS N-Methyl-N-nitrosomethylam | 50.0 | 0.0 | 24.5 | 49 | 30-88 |
| 110-86-1 | LCS Pyridine | 50.0 | 0.0 | 24.6 | 49 | 27-89 |
| 62-53-3 | LCS Aniline | 50.0 | 0.0 | 39.8 | 80 | 49-112 |
| 108-95-2 | LCS Phenol | 50.0 | 0.0 | 16.0 | 32 | 16-82 |
| 111-44-4 | LCS bis(2-Chloroethyl) ether | 50.0 | 0.0 | 40.7 | 81 | 51-111 |
| 95-57-8 | LCS 2-Chlorophenol | 50.0 | 0.0 | 34.2 | 68 | 49-105 |
| 541-73-1 | LCS 1,3-Dichlorobenzene | 50.0 | 0.0 | 29.6 | 59 | 37-95 |
| 106-46-7 | LCS 1,4-Dichlorobenzene | 50.0 | 0.0 | 29.3 | 59 | 38-96 |
| 95-50-1 | LCS 1,2-Dichlorobenzene | 50.0 | 0.0 | 30.5 | 61 | 39-97 |
| 108-60-1 | LCS bis(2-Chloro-1-methylethyl)et | 50.0 | 0.0 | 44.2 | 88 | 44-123 |
| 100-51-6 | LCS Benzyl alcohol | 50.0 | 0.0 | 36.9 | 74 | 44-102 |
| 95-48-7 | LCS o-Cresol | 50.0 | 0.0 | 35.1 | 70 | 41-101 |
| 65794-96-9 | LCS m,p-Cresols | 50.0 | 0.0 | 31.5 | 63 | 43-102 |
| 621-64-7 | LCS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i> | 50.0 | 0.0 | 43.4 | 87 | 54-115 |
| 67-72-1 | LCS Hexachloroethane | 50.0 | 0.0 | 34.4 | 69 | 36-96 |
| 98-95-3 | LCS Nitrobenzene | 50.0 | 0.0 | 46.0 | 92 | 53-115 |
| 78-59-1 | LCS Isophorone | 50.0 | 0.0 | 46.6 | 93 | 56-117 |
| 88-75-5 | LCS 2-Nitrophenol | 50.0 | 0.0 | 43.9 | 88 | 51-113 |
| 105-67-9 | LCS 2,4-Dimethylphenol | 50.0 | 0.0 | 38.2 | 76 | 51-104 |
| 111-91-1 | LCS bis(2-Chloroethoxy)methane | 50.0 | 0.0 | 46.6 | 93 | 55-114 |
| 120-83-2 | LCS 2,4-Dichlorophenol | 50.0 | 0.0 | 43.1 | 86 | 53-109 |
| 65-85-0 | LCS Benzoic acid | 100 | 0.0 | 22.2 | 22 | 21-74 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1657087

Matrix: WATER

Lab Sample ID 1203770133

Instrument: MSD1.I

Analysis Date: 04/19/2017 14:49

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|--|----------------------|----------------------|---------------------|---------------|-------------------|
| 106-47-8 | LCS 4-Chloroaniline | 50.0 | 0.0 | 50.5 | 101 | 65-136 |
| 87-68-3 | LCS Hexachlorobutadiene | 50.0 | 0.0 | 33.4 | 67 | 35-98 |
| 59-50-7 | LCS Parachlorometa cresol 4-Chloro-3-methylphenol | 50.0 | 0.0 | 49.7 | 99 | 55-115 |
| 91-57-6 | LCS 2-Methylnaphthalene | 50.0 | 0.0 | 39.1 | 78 | 42-103 |
| 91-20-3 | LCS Naphthalene | 50.0 | 0.0 | 39.2 | 78 | 44-102 |
| 90-12-0 | LCS 1-Methylnaphthalene | 50.0 | 0.0 | 39.2 | 78 | 45-108 |
| 77-47-4 | LCS Hexachlorocyclopentadiene | 50.0 | 0.0 | 24.7 | 49 | 34-89 |
| 88-06-2 | LCS 2,4,6-Trichlorophenol | 50.0 | 0.0 | 39.1 | 78 | 55-120 |
| 95-95-4 | LCS 2,4,5-Trichlorophenol | 50.0 | 0.0 | 34.1 | 68 | 55-116 |
| 91-58-7 | LCS 2-Chloronaphthalene | 50.0 | 0.0 | 31.5 | 63 | 44-107 |
| 88-74-4 | LCS 2-Nitroaniline o-Nitroaniline | 50.0 | 0.0 | 43.1 | 86 | 53-121 |
| 99-09-2 | LCS 3-Nitroaniline m-Nitroaniline | 50.0 | 0.0 | 47.3 | 95 | 61-139 |
| 131-11-3 | LCS Dimethylphthalate | 50.0 | 0.0 | 43.8 | 88 | 60-122 |
| 606-20-2 | LCS 2,6-Dinitrotoluene | 50.0 | 0.0 | 42.4 | 85 | 59-122 |
| 121-14-2 | LCS 2,4-Dinitrotoluene | 50.0 | 0.0 | 41.1 | 82 | 57-124 |
| 208-96-8 | LCS Acenaphthylene | 50.0 | 0.0 | 41.2 | 82 | 50-113 |
| 83-32-9 | LCS Acenaphthene | 50.0 | 0.0 | 41.6 | 83 | 49-112 |
| 51-28-5 | LCS 2,4-Dinitrophenol | 50.0 | 0.0 | 33.7 | 67 | 34-122 |
| 132-64-9 | LCS Dibenzofuran | 50.0 | 0.0 | 38.5 | 77 | 50-111 |
| 58-90-2 | LCS 2,3,4,6-Tetrachlorophenol | 50.0 | 0.0 | 43.1 | 86 | 54-122 |
| 84-66-2 | LCS Diethylphthalate | 50.0 | 0.0 | 42.0 | 84 | 57-122 |
| 100-02-7 | LCS 4-Nitrophenol | 50.0 | 0.0 | 16.1 | 32 | 15-137 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 3 of 4

SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1657087

Matrix: WATER

Lab Sample ID 1203770133

Instrument: MSD1.I

Analysis Date: 04/19/2017 14:49

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-----------|--|----------------------|----------------------|---------------------|---------------|----------------------|
| 86-73-7 | LCS Fluorene | 50.0 | 0.0 | 40.0 | 80 | 52-114 |
| 7005-72-3 | LCS 4-Chlorophenylphenylether | 50.0 | 0.0 | 38.7 | 77 | 52-121 |
| 100-01-6 | LCS 4-Nitroaniline <i>p-Nitroaniline</i> | 50.0 | 0.0 | 43.0 | 86 | 44-137 |
| 534-52-1 | LCS 2-Methyl-4,6-dinitrophenol | 50.0 | 0.0 | 42.2 | 84 | 45-124 |
| 122-39-4 | LCS Diphenylamine | 50.0 | 0.0 | 36.7 | 73 | 55-113 |
| 122-66-7 | LCS Azobenzene <i>1,2-Diphenylhydrazine</i> | 50.0 | 0.0 | 47.3 | 95 | 53-115 |
| 101-55-3 | LCS 4-Bromophenylphenylether | 50.0 | 0.0 | 40.4 | 81 | 54-116 |
| 118-74-1 | LCS Hexachlorobenzene | 50.0 | 0.0 | 42.4 | 85 | 54-115 |
| 87-86-5 | LCS Pentachlorophenol | 50.0 | 0.0 | 45.8 | 92 | 41-116 |
| 85-01-8 | LCS Phenanthrene | 50.0 | 0.0 | 43.5 | 87 | 55-110 |
| 120-12-7 | LCS Anthracene | 50.0 | 0.0 | 42.2 | 84 | 56-112 |
| 84-74-2 | LCS Di-n-butylphthalate | 50.0 | 0.0 | 47.1 | 94 | 57-123 |
| 206-44-0 | LCS Fluoranthene | 50.0 | 0.0 | 47.1 | 94 | 54-118 |
| 129-00-0 | LCS Pyrene | 50.0 | 0.0 | 40.0 | 80 | 49-121 |
| 85-68-7 | LCS Butylbenzylphthalate | 50.0 | 0.0 | 46.2 | 92 | 52-125 |
| 117-81-7 | LCS bis(2-Ethylhexyl)phthalate | 50.0 | 0.0 | 44.9 | 90 | 52-125 |
| 56-55-3 | LCS Benzo(a)anthracene | 50.0 | 0.0 | 47.4 | 95 | 57-112 |
| 218-01-9 | LCS Chrysene | 50.0 | 0.0 | 47.5 | 95 | 58-117 |
| 117-84-0 | LCS Di-n-octylphthalate | 50.0 | 0.0 | 48.7 | 97 | 50-129 |
| 205-99-2 | LCS Benzo(b)fluoranthene | 50.0 | 0.0 | 42.1 | 84 | 41-118 |
| 207-08-9 | LCS Benzo(k)fluoranthene | 50.0 | 0.0 | 41.3 | 83 | 42-121 |
| 50-32-8 | LCS Benzo(a)pyrene | 50.0 | 0.0 | 43.5 | 87 | 40-118 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Laboratory Control Sample

Client ID: LCS for batch 1657087

Matrix: WATER

Lab Sample ID 1203770133

Instrument: MSD1.I

Analysis Date: 04/19/2017 14:49

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-----------|--------------------------------|----------------------|----------------------|---------------------|---------------|----------------------|
| 193-39-5 | LCS Indeno(1,2,3-cd)pyrene | 50.0 | 0.0 | 49.2 | 98 | 34-125 |
| 53-70-3 | LCS Dibenzo(a,h)anthracene | 50.0 | 0.0 | 49.0 | 98 | 38-129 |
| 191-24-2 | LCS Benzo(ghi)perylene | 50.0 | 0.0 | 50.3 | 101 | 33-131 |
| 123-91-1 | LCS 1,4-Dioxane | 50.0 | 0.0 | 24.2 | 48 | 38-78 |
| 930-55-2 | LCS N-Nitrosopyrrolidine | 50.0 | 0.0 | 40.8 | 82 | 54-113 |
| 95-94-3 | LCS 1,2,4,5-Tetrachlorobenzene | 50.0 | 0.0 | 28.9 | 58 | 44-102 |
| 1912-24-9 | LCS Atrazine | 50.0 | 0.0 | 42.8 | 86 | 60-131 |
| 92-87-5 | LCS Benzidine | 100 | 0.0 | 52.4 | 52 | 20-144 |
| 91-94-1 | LCS 3,3'-Dichlorobenzidine | 50.0 | 0.0 | 42.9 | 86 | 43-127 |
| 120-82-1 | LCS 1,2,4-Trichlorobenzene | 50.0 | 0.0 | 34.4 | 69 | 39-99 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 1 of 8

SDG Number: 2017-1379

Sample Type: Matrix Spike

Client ID: WST54-17-132515MS

Matrix: W

Lab Sample ID 1203770134

Instrument: MSD1.I

Analysis Date: 04/19/2017 15:48

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|------------|--|----------------------|----------------------|---------------------|---------------|----------------------|
| 62-75-9 | MS N-Methyl-N-nitrosomethylam | 137 | 0.00 U | 96.0 | 70 | 25-106 |
| 110-86-1 | MS Pyridine | 137 | 0.00 U | 90.5 | 66 | 24-93 |
| 62-53-3 | MS Aniline | 137 | 0.00 U | 114 | 83 | 37-113 |
| 108-95-2 | MS Phenol | 137 | 0.00 U | 64.5 | 47 | 23-82 |
| 111-44-4 | MS bis(2-Chloroethyl) ether | 137 | 0.00 U | 117 | 85 | 39-114 |
| 95-57-8 | MS 2-Chlorophenol | 137 | 0.00 U | 100 | 73 | 37-108 |
| 541-73-1 | MS 1,3-Dichlorobenzene | 137 | 0.00 U | 97.3 | 71 | 27-97 |
| 106-46-7 | MS 1,4-Dichlorobenzene | 137 | 0.00 U | 94.8 | 69 | 28-97 |
| 95-50-1 | MS 1,2-Dichlorobenzene | 137 | 0.00 U | 101 | 73 | 28-99 |
| 108-60-1 | MS bis(2-Chloro-1-methylethyl)et | 137 | 0.00 U | 126 | 92 | 32-127 |
| 100-51-6 | MS Benzyl alcohol | 137 | 0.00 U | 113 | 83 | 37-116 |
| 95-48-7 | MS o-Cresol | 137 | 0.00 U | 103 | 75 | 34-109 |
| 65794-96-9 | MS m,p-Cresols | 137 | 0.00 U | 98.8 | 72 | 36-120 |
| 621-64-7 | MS N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i> | 137 | 0.00 U | 120 | 88 | 42-118 |
| 67-72-1 | MS Hexachloroethane | 137 | 0.00 U | 114 | 83 | 29-94 |
| 98-95-3 | MS Nitrobenzene | 137 | 0.00 U | 131 | 95 | 38-123 |
| 78-59-1 | MS Isophorone | 137 | 0.00 U | 129 | 94 | 43-120 |
| 88-75-5 | MS 2-Nitrophenol | 137 | 0.00 U | 124 | 91 | 39-115 |
| 105-67-9 | MS 2,4-Dimethylphenol | 137 | 0.00 U | 108 | 79 | 39-107 |
| 111-91-1 | MS bis(2-Chloroethoxy)methane | 137 | 0.00 U | 129 | 94 | 42-118 |
| 120-83-2 | MS 2,4-Dichlorophenol | 137 | 0.00 U | 119 | 87 | 40-111 |
| 65-85-0 | MS Benzoic acid | 274 | 0.00 U | 87.7 | 32 | 17-95 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 2 of 8

SDG Number: 2017-1379

Sample Type: Matrix Spike

Client ID: WST54-17-132515MS

Matrix: W

Lab Sample ID 1203770134

Instrument: MSD1.I

Analysis Date: 04/19/2017 15:48

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|----------|----|--|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 106-47-8 | MS | 4-Chloroaniline | 137 | 0.00 U | 133 | 97 | 44-138 |
| 87-68-3 | MS | Hexachlorobutadiene | 137 | 0.00 U | 105 | 77 | 26-98 |
| 59-50-7 | MS | Parachlorometa cresol 4-Chloro-3-methylphenol | 137 | 0.00 U | 131 | 96 | 41-122 |
| 91-57-6 | MS | 2-Methylnaphthalene | 137 | 0.00 U | 115 | 84 | 29-109 |
| 91-20-3 | MS | Naphthalene | 137 | 0.00 U | 115 | 84 | 31-108 |
| 90-12-0 | MS | 1-Methylnaphthalene | 137 | 0.00 U | 114 | 83 | 33-112 |
| 77-47-4 | MS | Hexachlorocyclopentadiene | 137 | 0.00 U | 81.8 | 60 | 26-79 |
| 88-06-2 | MS | 2,4,6-Trichlorophenol | 137 | 0.00 U | 103 | 75 | 39-124 |
| 95-95-4 | MS | 2,4,5-Trichlorophenol | 137 | 0.00 U | 90.7 | 66 | 42-120 |
| 91-58-7 | MS | 2-Chloronaphthalene | 137 | 0.00 U | 88.5 | 65 | 29-113 |
| 88-74-4 | MS | 2-Nitroaniline o-Nitroaniline | 137 | 0.00 U | 114 | 83 | 41-121 |
| 99-09-2 | MS | 3-Nitroaniline m-Nitroaniline | 137 | 0.00 U | 124 | 91 | 42-144 |
| 131-11-3 | MS | Dimethylphthalate | 137 | 0.00 U | 113 | 82 | 45-128 |
| 606-20-2 | MS | 2,6-Dinitrotoluene | 137 | 0.00 U | 112 | 81 | 46-124 |
| 121-14-2 | MS | 2,4-Dinitrotoluene | 137 | 0.00 U | 107 | 78 | 45-125 |
| 208-96-8 | MS | Acenaphthylene | 137 | 0.00 U | 112 | 82 | 35-120 |
| 83-32-9 | MS | Acenaphthene | 137 | 0.00 U | 112 | 82 | 35-117 |
| 51-28-5 | MS | 2,4-Dinitrophenol | 137 | 0.00 U | 80.1 | 58 | 27-122 |
| 132-64-9 | MS | Dibenzofuran | 137 | 0.00 U | 102 | 75 | 38-113 |
| 58-90-2 | MS | 2,3,4,6-Tetrachlorophenol | 137 | 0.00 U | 110 | 81 | 40-128 |
| 84-66-2 | MS | Diethylphthalate | 137 | 0.00 U | 108 | 79 | 43-127 |
| 100-02-7 | MS | 4-Nitrophenol | 137 | 0.00 U | 59.2 | 43 | 17-85 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Matrix Spike

Client ID: WST54-17-132515MS

Matrix: W

Lab Sample ID 1203770134

Instrument: MSD1.I

Analysis Date: 04/19/2017 15:48

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | | Parmname | Amount Added ug/L | Sample Conc. ug/L | | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-----------|----|--|-------------------------|-------------------------|---|------------------------|---------------|----------------------|
| 86-73-7 | MS | Fluorene | 137 | 0.00 | U | 108 | 79 | 39-117 |
| 7005-72-3 | MS | 4-Chlorophenylphenylether | 137 | 0.00 | U | 104 | 76 | 39-121 |
| 100-01-6 | MS | 4-Nitroaniline <i>p</i> -Nitroaniline | 137 | 0.00 | U | 115 | 84 | 30-133 |
| 534-52-1 | MS | 2-Methyl-4,6-dinitrophenol | 137 | 0.00 | U | 103 | 75 | 32-126 |
| 122-39-4 | MS | Diphenylamine | 137 | 0.00 | U | 96.6 | 70 | 37-118 |
| 122-66-7 | MS | Azobenzene <i>1,2-Diphenylhydrazine</i> | 137 | 0.00 | U | 124 | 90 | 38-120 |
| 101-55-3 | MS | 4-Bromophenylphenylether | 137 | 0.00 | U | 109 | 80 | 39-121 |
| 118-74-1 | MS | Hexachlorobenzene | 137 | 0.00 | U | 113 | 83 | 40-118 |
| 87-86-5 | MS | Pentachlorophenol | 137 | 0.00 | U | 120 | 87 | 35-121 |
| 85-01-8 | MS | Phenanthrene | 137 | 0.00 | U | 116 | 84 | 40-115 |
| 120-12-7 | MS | Anthracene | 137 | 0.00 | U | 113 | 83 | 38-120 |
| 84-74-2 | MS | Di-n-butylphthalate | 137 | 0.00 | U | 119 | 87 | 41-128 |
| 206-44-0 | MS | Fluoranthene | 137 | 0.00 | U | 127 | 93 | 41-119 |
| 129-00-0 | MS | Pyrene | 137 | 0.00 | U | 99.6 | 73 | 35-128 |
| 85-68-7 | MS | Butylbenzylphthalate | 137 | 0.00 | U | 113 | 82 | 40-129 |
| 117-81-7 | MS | bis(2-Ethylhexyl)phthalate | 137 | 0.00 | U | 103 | 75 | 38-131 |
| 56-55-3 | MS | Benzo(a)anthracene | 137 | 0.00 | U | 123 | 90 | 39-120 |
| 218-01-9 | MS | Chrysene | 137 | 0.00 | U | 125 | 91 | 41-124 |
| 117-84-0 | MS | Di-n-octylphthalate | 137 | 0.00 | U | 108 | 79 | 37-134 |
| 205-99-2 | MS | Benzo(b)fluoranthene | 137 | 0.00 | U | 116 | 85 | 31-122 |
| 207-08-9 | MS | Benzo(k)fluoranthene | 137 | 0.00 | U | 110 | 80 | 33-123 |
| 50-32-8 | MS | Benzo(a)pyrene | 137 | 0.00 | U | 118 | 86 | 32-118 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 4 of 8

SDG Number: 2017-1379

Sample Type: Matrix Spike

Client ID: WST54-17-132515MS

Matrix: W

Lab Sample ID 1203770134

Instrument: MSD1.I

Analysis Date: 04/19/2017 15:48

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits |
|-----------|-------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|
| 193-39-5 | MS Indeno(1,2,3-cd)pyrene | 137 | 0.00 U | 114 | 84 | 27-121 |
| 53-70-3 | MS Dibenzo(a,h)anthracene | 137 | 0.00 U | 113 | 82 | 30-125 |
| 191-24-2 | MS Benzo(ghi)perylene | 137 | 0.00 U | 115 | 84 | 24-126 |
| 123-91-1 | MS 1,4-Dioxane | 137 | 0.00 U | 94.0 | 69 | 24-110 |
| 930-55-2 | MS N-Nitrosopyrrolidine | 137 | 0.00 U | 113 | 82 | 47-119 |
| 95-94-3 | MS 1,2,4,5-Tetrachlorobenzene | 137 | 0.00 U | 84.2 | 61 | 32-101 |
| 1912-24-9 | MS Atrazine | 137 | 0.00 U | 108 | 79 | 42-129 |
| 92-87-5 | MS Benzidine | 274 | 0.00 U | 215 | 79 | 15-130 |
| 91-94-1 | MS 3,3'-Dichlorobenzidine | 137 | 0.00 U | 122 | 89 | 34-124 |
| 120-82-1 | MS 1,2,4-Trichlorobenzene | 137 | 0.00 U | 107 | 78 | 26-102 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Matrix Spike Duplicate

Client ID: WST54-17-132515MSD

Matrix: W

Lab Sample ID 1203770135

Instrument: MSD1.I

Analysis Date: 04/19/2017 16:17

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|------------|---|----------------------|----------------------|---------------------|---------------|-------------------|----------|-------------------|
| 62-75-9 | MSD N-Methyl-N-nitrosomethylam | 137 | 0.00 U | 99.8 | 73 | 25-106 | 4 | 0-30 |
| 110-86-1 | MSD Pyridine | 137 | 0.00 U | 80.9 | 59 | 24-93 | 11 | 0-30 |
| 62-53-3 | MSD Aniline | 137 | 0.00 U | 108 | 79 | 37-113 | 5 | 0-30 |
| 108-95-2 | MSD Phenol | 137 | 0.00 U | 68.1 | 50 | 23-82 | 5 | 0-30 |
| 111-44-4 | MSD bis(2-Chloroethyl) ether | 137 | 0.00 U | 121 | 88 | 39-114 | 4 | 0-30 |
| 95-57-8 | MSD 2-Chlorophenol | 137 | 0.00 U | 107 | 78 | 37-108 | 6 | 0-30 |
| 541-73-1 | MSD 1,3-Dichlorobenzene | 137 | 0.00 U | 94.1 | 69 | 27-97 | 3 | 0-30 |
| 106-46-7 | MSD 1,4-Dichlorobenzene | 137 | 0.00 U | 92.2 | 67 | 28-97 | 3 | 0-30 |
| 95-50-1 | MSD 1,2-Dichlorobenzene | 137 | 0.00 U | 99.3 | 73 | 28-99 | 1 | 0-30 |
| 108-60-1 | MSD bis(2-Chloro-1-methylethyl)et | 137 | 0.00 U | 129 | 94 | 32-127 | 2 | 0-30 |
| 100-51-6 | MSD Benzyl alcohol | 137 | 0.00 U | 121 | 89 | 37-116 | 7 | 0-30 |
| 95-48-7 | MSD o-Cresol | 137 | 0.00 U | 109 | 80 | 34-109 | 6 | 0-30 |
| 65794-96-9 | MSD m,p-Cresols | 137 | 0.00 U | 108 | 79 | 36-120 | 9 | 0-30 |
| 621-64-7 | MSD N-Nitrosodi--n-propylamine <i>N-Nitrosodipropylamine</i> | 137 | 0.00 U | 125 | 91 | 42-118 | 4 | 0-30 |
| 67-72-1 | MSD Hexachloroethane | 137 | 0.00 U | 114 | 83 | 29-94 | 0 | 0-30 |
| 98-95-3 | MSD Nitrobenzene | 137 | 0.00 U | 135 | 98 | 38-123 | 3 | 0-30 |
| 78-59-1 | MSD Isophorone | 137 | 0.00 U | 136 | 99 | 43-120 | 5 | 0-30 |
| 88-75-5 | MSD 2-Nitrophenol | 137 | 0.00 U | 130 | 95 | 39-115 | 4 | 0-30 |
| 105-67-9 | MSD 2,4-Dimethylphenol | 137 | 0.00 U | 111 | 81 | 39-107 | 3 | 0-30 |
| 111-91-1 | MSD bis(2-Chloroethoxy)methane | 137 | 0.00 U | 132 | 97 | 42-118 | 3 | 0-30 |
| 120-83-2 | MSD 2,4-Dichlorophenol | 137 | 0.00 U | 127 | 93 | 40-111 | 7 | 0-30 |
| 65-85-0 | MSD Benzoic acid | 274 | 0.00 U | 124 | 45 | 17-95 | 35 * | 0-30 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Matrix Spike Duplicate

Client ID: WST54-17-132515MSD

Matrix: W

Lab Sample ID 1203770135

Instrument: MSD1.I

Analysis Date: 04/19/2017 16:17

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|----------|--|----------------------|----------------------|---------------------|---------------|-------------------|----------|-------------------|
| 106-47-8 | MSD 4-Chloroaniline | 137 | 0.00 U | 140 | 102 | 44-138 | 5 | 0-30 |
| 87-68-3 | MSD Hexachlorobutadiene | 137 | 0.00 U | 106 | 77 | 26-98 | 1 | 0-30 |
| 59-50-7 | MSD Parachlorometa cresol 4-Chloro-3-methylphenol | 137 | 0.00 U | 144 | 105 | 41-122 | 9 | 0-30 |
| 91-57-6 | MSD 2-Methylnaphthalene | 137 | 0.00 U | 118 | 86 | 29-109 | 2 | 0-30 |
| 91-20-3 | MSD Naphthalene | 137 | 0.00 U | 116 | 85 | 31-108 | 1 | 0-30 |
| 90-12-0 | MSD 1-Methylnaphthalene | 137 | 0.00 U | 118 | 86 | 33-112 | 3 | 0-30 |
| 77-47-4 | MSD Hexachlorocyclopentadiene | 137 | 0.00 U | 85.6 | 63 | 26-79 | 5 | 0-30 |
| 88-06-2 | MSD 2,4,6-Trichlorophenol | 137 | 0.00 U | 107 | 78 | 39-124 | 4 | 0-30 |
| 95-95-4 | MSD 2,4,5-Trichlorophenol | 137 | 0.00 U | 101 | 74 | 42-120 | 11 | 0-30 |
| 91-58-7 | MSD 2-Chloronaphthalene | 137 | 0.00 U | 93.5 | 68 | 29-113 | 6 | 0-30 |
| 88-74-4 | MSD 2-Nitroaniline o-Nitroaniline | 137 | 0.00 U | 124 | 90 | 41-121 | 8 | 0-30 |
| 99-09-2 | MSD 3-Nitroaniline m-Nitroaniline | 137 | 0.00 U | 138 | 101 | 42-144 | 11 | 0-30 |
| 131-11-3 | MSD Dimethylphthalate | 137 | 0.00 U | 120 | 87 | 45-128 | 6 | 0-30 |
| 606-20-2 | MSD 2,6-Dinitrotoluene | 137 | 0.00 U | 119 | 87 | 46-124 | 6 | 0-30 |
| 121-14-2 | MSD 2,4-Dinitrotoluene | 137 | 0.00 U | 114 | 83 | 45-125 | 6 | 0-30 |
| 208-96-8 | MSD Acenaphthylene | 137 | 0.00 U | 118 | 86 | 35-120 | 6 | 0-30 |
| 83-32-9 | MSD Acenaphthene | 137 | 0.00 U | 120 | 88 | 35-117 | 8 | 0-30 |
| 51-28-5 | MSD 2,4-Dinitrophenol | 137 | 0.00 U | 99.7 | 73 | 27-122 | 22 | 0-30 |
| 132-64-9 | MSD Dibenzofuran | 137 | 0.00 U | 107 | 78 | 38-113 | 5 | 0-30 |
| 58-90-2 | MSD 2,3,4,6-Tetrachlorophenol | 137 | 0.00 U | 121 | 88 | 40-128 | 9 | 0-30 |
| 84-66-2 | MSD Diethylphthalate | 137 | 0.00 U | 115 | 84 | 43-127 | 6 | 0-30 |
| 100-02-7 | MSD 4-Nitrophenol | 137 | 0.00 U | 81.7 | 60 | 17-85 | 32 * | 0-30 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

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SDG Number: 2017-1379

Sample Type: Matrix Spike Duplicate

Client ID: WST54-17-132515MSD

Matrix: W

Lab Sample ID 1203770135

Instrument: MSD1.I

Analysis Date: 04/19/2017 16:17

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|-----------|--|----------------------|----------------------|---------------------|---------------|-------------------|----------|-------------------|
| 86-73-7 | MSD Fluorene | 137 | 0.00 U | 113 | 83 | 39-117 | 5 | 0-30 |
| 7005-72-3 | MSD 4-Chlorophenylphenylether | 137 | 0.00 U | 111 | 81 | 39-121 | 7 | 0-30 |
| 100-01-6 | MSD 4-Nitroaniline <i>p</i> -Nitroaniline | 137 | 0.00 U | 124 | 90 | 30-133 | 7 | 0-30 |
| 534-52-1 | MSD 2-Methyl-4,6-dinitrophenol | 137 | 0.00 U | 118 | 86 | 32-126 | 14 | 0-30 |
| 122-39-4 | MSD Diphenylamine | 137 | 0.00 U | 105 | 76 | 37-118 | 8 | 0-30 |
| 122-66-7 | MSD Azobenzene <i>1,2-Diphenylhydrazine</i> | 137 | 0.00 U | 134 | 98 | 38-120 | 8 | 0-30 |
| 101-55-3 | MSD 4-Bromophenylphenylether | 137 | 0.00 U | 117 | 85 | 39-121 | 7 | 0-30 |
| 118-74-1 | MSD Hexachlorobenzene | 137 | 0.00 U | 121 | 89 | 40-118 | 7 | 0-30 |
| 87-86-5 | MSD Pentachlorophenol | 137 | 0.00 U | 136 | 99 | 35-121 | 13 | 0-30 |
| 85-01-8 | MSD Phenanthrene | 137 | 0.00 U | 123 | 90 | 40-115 | 6 | 0-30 |
| 120-12-7 | MSD Anthracene | 137 | 0.00 U | 120 | 87 | 38-120 | 5 | 0-30 |
| 84-74-2 | MSD Di-n-butylphthalate | 137 | 0.00 U | 127 | 93 | 41-128 | 7 | 0-30 |
| 206-44-0 | MSD Fluoranthene | 137 | 0.00 U | 133 | 97 | 41-119 | 5 | 0-30 |
| 129-00-0 | MSD Pyrene | 137 | 0.00 U | 109 | 80 | 35-128 | 9 | 0-30 |
| 85-68-7 | MSD Butylbenzylphthalate | 137 | 0.00 U | 125 | 91 | 40-129 | 10 | 0-30 |
| 117-81-7 | MSD bis(2-Ethylhexyl)phthalate | 137 | 0.00 U | 116 | 84 | 38-131 | 12 | 0-30 |
| 56-55-3 | MSD Benzo(a)anthracene | 137 | 0.00 U | 132 | 97 | 39-120 | 7 | 0-30 |
| 218-01-9 | MSD Chrysene | 137 | 0.00 U | 136 | 99 | 41-124 | 9 | 0-30 |
| 117-84-0 | MSD Di-n-octylphthalate | 137 | 0.00 U | 119 | 87 | 37-134 | 10 | 0-30 |
| 205-99-2 | MSD Benzo(b)fluoranthene | 137 | 0.00 U | 127 | 93 | 31-122 | 9 | 0-30 |
| 207-08-9 | MSD Benzo(k)fluoranthene | 137 | 0.00 U | 123 | 90 | 33-123 | 11 | 0-30 |
| 50-32-8 | MSD Benzo(a)pyrene | 137 | 0.00 U | 124 | 91 | 32-118 | 5 | 0-30 |

Semi-Volatile
Quality Control Summary
Spike Recovery Report

Page 8 of 8

SDG Number: 2017-1379

Sample Type: Matrix Spike Duplicate

Client ID: WST54-17-132515MSD

Matrix: W

Lab Sample ID 1203770135

Instrument: MSD1.I

Analysis Date: 04/19/2017 16:17

Dilution: 1

Analyst: JMB3

Prep Batch ID: 1657087

Inj. Vol: 1 uL

Batch ID: 1657088

| CAS No | Parmname | Amount Added ug/L | Sample Conc. ug/L | Spike Conc. ug/L | Recovery % | Acceptance Limits | RPD % | Acceptance Limits |
|-----------|--------------------------------|-------------------------|-------------------------|------------------------|---------------|----------------------|----------|----------------------|
| 193-39-5 | MSD Indeno(1,2,3-cd)pyrene | 137 | 0.00 U | 124 | 91 | 27-121 | 8 | 0-30 |
| 53-70-3 | MSD Dibenzo(a,h)anthracene | 137 | 0.00 U | 117 | 85 | 30-125 | 3 | 0-30 |
| 191-24-2 | MSD Benzo(ghi)perylene | 137 | 0.00 U | 121 | 88 | 24-126 | 5 | 0-30 |
| 123-91-1 | MSD 1,4-Dioxane | 137 | 0.00 U | 98.1 | 72 | 24-110 | 4 | 0-30 |
| 930-55-2 | MSD N-Nitrosopyrrolidine | 137 | 0.00 U | 118 | 86 | 47-119 | 5 | 0-30 |
| 95-94-3 | MSD 1,2,4,5-Tetrachlorobenzene | 137 | 0.00 U | 86.3 | 63 | 32-101 | 2 | 0-30 |
| 1912-24-9 | MSD Atrazine | 137 | 0.00 U | 114 | 83 | 42-129 | 5 | 0-30 |
| 92-87-5 | MSD Benzidine | 274 | 0.00 U | 139 | 51 | 15-130 | 43 * | 0-30 |
| 91-94-1 | MSD 3,3'-Dichlorobenzidine | 137 | 0.00 U | 127 | 93 | 34-124 | 5 | 0-30 |
| 120-82-1 | MSD 1,2,4-Trichlorobenzene | 137 | 0.00 U | 109 | 79 | 26-102 | 1 | 0-30 |

Method Blank Summary

Page 1 of 1

SDG Number: 2017-1379

Client: ARSL004

Matrix: WATER

Client ID: MB for batch 1657087

Instrument ID: MSD1.I

Data File: s041917.B\s1d1906.D

Lab Sample ID: 1203770132

Prep Date: 04/19/2017 05:30

Analyzed: 04/19/17 13:52

Column: 25x.20x.33

This method blank applies to the following samples and quality control samples:

| Client Sample ID | Lab Sample ID | File ID | Date Analyzed | Time Analyzed |
|--------------------------|---------------|---------------------|---------------|---------------|
| 01 LCS for batch 1657087 | 1203770133 | s041917.B\s1d1908.D | 04/19/17 | 1449 |
| 02 WST54-17-132515MS | 1203770134 | s041917.B\s1d1910.D | 04/19/17 | 1548 |
| 03 WST54-17-132515MSD | 1203770135 | s041917.B\s1d1911.D | 04/19/17 | 1617 |
| 04 CAMO-17-130584 | 420857001 | s041917.B\s1d1912.D | 04/19/17 | 1647 |

Quality Control Data

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2017-1379

Lab Sample ID: 1203770132

Client Sample: QC for batch 1657087

Client ID: MB for batch 1657087

Batch ID: 1657088

Run Date: 04/19/2017 13:52

Prep Date: 04/19/2017 05:30

Data File: s041917.B\s1d1906.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD1.I

Analyst: JMB3

Aliquot: 1000 mL

Column: 25x.20x.33

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-----------|--------------------------------|-----------|--------|-------|---------|---------|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| | <i>1,2-Diphenylhydrazine</i> | | | | | |
| 541-73-1 | 1,3-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 123-91-1 | 1,4-Dioxane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 90-12-0 | 1-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 51-28-5 | 2,4-Dinitrophenol | U | 20.0 | ug/L | 5.00 | 20.0 |
| 121-14-2 | 2,4-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | U | 1.00 | ug/L | 0.410 | 1.00 |
| 95-57-8 | 2-Chlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 88-75-5 | 2-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 101-55-3 | 4-Bromophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| | <i>4-Chloro-3-methylphenol</i> | | | | | |
| 106-47-8 | 4-Chloroaniline | U | 10.0 | ug/L | 3.30 | 10.0 |
| 7005-72-3 | 4-Chlorophenylphenylether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 83-32-9 | Acenaphthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 208-96-8 | Acenaphthylene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 62-53-3 | Aniline | U | 10.0 | ug/L | 4.20 | 10.0 |
| 120-12-7 | Anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 1912-24-9 | Atrazine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | U | 10.0 | ug/L | 3.90 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 205-99-2 | Benzo(b)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | U | 1.00 | ug/L | 0.300 | 1.00 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 2 of 3

SDG Number: 2017-1379

Matrix: WATER

Lab Sample ID: 1203770132

Client Sample: QC for batch 1657087

Client: ARSL004

Project: QC

Client ID: MB for batch 1657087

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1657088

Inst: MSD1.I

Dilution: 1

Run Date: 04/19/2017 13:52

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 04/19/2017 05:30

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s041917.B\s1d1906.D

Column: 25x.20x.33

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|----------------------------------|-----------|--------|-------|---------|---------|
| 207-08-9 | Benzo(k)fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 65-85-0 | Benzoic acid | U | 20.0 | ug/L | 6.00 | 20.0 |
| 100-51-6 | Benzyl alcohol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-68-7 | Butylbenzylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 218-01-9 | Chrysene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-84-0 | Di-n-octylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 53-70-3 | Dibenzo(a,h)anthracene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 132-64-9 | Dibenzofuran | U | 10.0 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 86-73-7 | Fluorene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 118-74-1 | Hexachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 77-47-4 | Hexachlorocyclopentadiene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 78-59-1 | Isophorone | U | 10.0 | ug/L | 3.50 | 10.0 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| | <i>N-Nitrosodipropylamine</i> | | | | | |
| 930-55-2 | N-Nitrosopyrrolidine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 98-95-3 | Nitrobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 108-95-2 | Phenol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 129-00-0 | Pyrene | U | 1.00 | ug/L | 0.300 | 1.00 |
| 110-86-1 | Pyridine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | U | 10.0 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | U | 10.0 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | U | 10.0 | ug/L | 3.00 | 10.0 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 3 of 3

SDG Number: 2017-1379

Lab Sample ID: 1203770132

Client Sample: QC for batch 1657087

Client ID: MB for batch 1657087

Batch ID: 1657088

Run Date: 04/19/2017 13:52

Prep Date: 04/19/2017 05:30

Data File: s041917.B\s1d1906.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

Client: ARSL004
Method: SW846 3510C/8270D
Inst: MSD1.I
Analyst: JMB3
Aliquot: 1000 mL
Column: 25x.20x.33

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------|-----------|--------|-------|---------|---------|
| 65794-96-9 | m,p-Cresols | U | 10.0 | ug/L | 3.70 | 10.0 |
| 99-09-2 | 3-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | <i>m-Nitroaniline</i> | | | | | |
| 95-48-7 | o-Cresol | U | 10.0 | ug/L | 3.00 | 10.0 |
| 88-74-4 | 2-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | <i>o-Nitroaniline</i> | | | | | |
| 100-01-6 | 4-Nitroaniline | U | 10.0 | ug/L | 3.00 | 10.0 |
| | <i>p-Nitroaniline</i> | | | | | |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 2,4,6-Tribromophenol | 77.5 | 100 | ug/L | 78 (32%-124%) |
| 2-Fluorobiphenyl | 39.9 | 50.0 | ug/L | 80 (32%-112%) |
| 2-Fluorophenol | 43.8 | 100 | ug/L | 44 (15%-88%) |
| Nitrobenzene-d5 | 48.4 | 50.0 | ug/L | 97 (36%-115%) |
| Phenol-d5 | 33.0 | 100 | ug/L | 33 (15%-91%) |
| p-Terphenyl-d14 | 41.6 | 50.0 | ug/L | 83 (36%-121%) |

Tentatively Identified Compound Summary

| CAS No. | Tentatively Identified Compound (TIC) | RT | Estimated | Units | Fit | Qual |
|---|---------------------------------------|----|-----------|-------|-----|------|
| No Tentatively Identified Compounds Found | | | | ug/L | | |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

Page 1 of 3

SDG Number: 2017-1379

Lab Sample ID: 1203770133

Client Sample: QC for batch 1657087

Client ID: LCS for batch 1657087

Batch ID: 1657088

Run Date: 04/19/2017 14:49

Prep Date: 04/19/2017 05:30

Data File: s041917.B\s1d1908.D

Matrix: WATER

Project: QC

SOP Ref: GL-OA-E-009

Dilution: 1

Inj. Vol: 1 uL

Final Volume: 1 mL

Client: ARSL004

Method: SW846 3510C/8270D

Inst: MSD1.I

Analyst: JMB3

Aliquot: 1000 mL

Column: 25x.20x.33

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-----------|--------------------------------|-----------|--------|-------|---------|---------|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 28.9 | ug/L | 3.00 | 10.0 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 34.4 | ug/L | 3.00 | 10.0 |
| 95-50-1 | 1,2-Dichlorobenzene | | 30.5 | ug/L | 3.00 | 10.0 |
| 122-66-7 | Azobenzene | | 47.3 | ug/L | 3.00 | 10.0 |
| | <i>1,2-Diphenylhydrazine</i> | | | | | |
| 541-73-1 | 1,3-Dichlorobenzene | | 29.6 | ug/L | 3.00 | 10.0 |
| 106-46-7 | 1,4-Dichlorobenzene | | 29.3 | ug/L | 3.00 | 10.0 |
| 123-91-1 | 1,4-Dioxane | | 24.2 | ug/L | 3.00 | 10.0 |
| 90-12-0 | 1-Methylnaphthalene | | 39.2 | ug/L | 0.300 | 1.00 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 43.1 | ug/L | 3.00 | 10.0 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 34.1 | ug/L | 3.00 | 10.0 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 39.1 | ug/L | 3.00 | 10.0 |
| 120-83-2 | 2,4-Dichlorophenol | | 43.1 | ug/L | 3.00 | 10.0 |
| 105-67-9 | 2,4-Dimethylphenol | | 38.2 | ug/L | 3.00 | 10.0 |
| 51-28-5 | 2,4-Dinitrophenol | | 33.7 | ug/L | 5.00 | 20.0 |
| 121-14-2 | 2,4-Dinitrotoluene | | 41.1 | ug/L | 3.00 | 10.0 |
| 606-20-2 | 2,6-Dinitrotoluene | | 42.4 | ug/L | 3.00 | 10.0 |
| 91-58-7 | 2-Chloronaphthalene | | 31.5 | ug/L | 0.410 | 1.00 |
| 95-57-8 | 2-Chlorophenol | | 34.2 | ug/L | 3.00 | 10.0 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 42.2 | ug/L | 3.00 | 10.0 |
| 91-57-6 | 2-Methylnaphthalene | | 39.1 | ug/L | 0.300 | 1.00 |
| 88-75-5 | 2-Nitrophenol | | 43.9 | ug/L | 3.00 | 10.0 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 42.9 | ug/L | 3.00 | 10.0 |
| 101-55-3 | 4-Bromophenylphenylether | | 40.4 | ug/L | 3.00 | 10.0 |
| 59-50-7 | Parachlorometa cresol | | 49.7 | ug/L | 3.00 | 10.0 |
| | <i>4-Chloro-3-methylphenol</i> | | | | | |
| 106-47-8 | 4-Chloroaniline | | 50.5 | ug/L | 3.30 | 10.0 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 38.7 | ug/L | 3.00 | 10.0 |
| 100-02-7 | 4-Nitrophenol | | 16.1 | ug/L | 3.00 | 10.0 |
| 83-32-9 | Acenaphthene | | 41.6 | ug/L | 0.300 | 1.00 |
| 208-96-8 | Acenaphthylene | | 41.2 | ug/L | 0.300 | 1.00 |
| 62-53-3 | Aniline | | 39.8 | ug/L | 4.20 | 10.0 |
| 120-12-7 | Anthracene | | 42.2 | ug/L | 0.300 | 1.00 |
| 1912-24-9 | Atrazine | | 42.8 | ug/L | 3.00 | 10.0 |
| 92-87-5 | Benzidine | | 52.4 | ug/L | 3.90 | 10.0 |
| 56-55-3 | Benzo(a)anthracene | | 47.4 | ug/L | 0.300 | 1.00 |
| 50-32-8 | Benzo(a)pyrene | | 43.5 | ug/L | 0.300 | 1.00 |
| 205-99-2 | Benzo(b)fluoranthene | | 42.1 | ug/L | 0.300 | 1.00 |
| 191-24-2 | Benzo(ghi)perylene | | 50.3 | ug/L | 0.300 | 1.00 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

SDG Number: 2017-1379

Matrix: WATER

Lab Sample ID: 1203770133

Client Sample: QC for batch 1657087

Client: ARSL004

Project: QC

Client ID: LCS for batch 1657087

Method: SW846 3510C/8270D

SOP Ref: GL-OA-E-009

Batch ID: 1657088

Inst: MSD1.I

Dilution: 1

Run Date: 04/19/2017 14:49

Analyst: JMB3

Inj. Vol: 1 uL

Prep Date: 04/19/2017 05:30

Aliquot: 1000 mL

Final Volume: 1 mL

Data File: s041917.B\s1d1908.D

Column: 25x.20x.33

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|----------------------------------|-----------|--------|-------|---------|---------|
| 207-08-9 | Benzo(k)fluoranthene | | 41.3 | ug/L | 0.300 | 1.00 |
| 65-85-0 | Benzoic acid | | 22.2 | ug/L | 6.00 | 20.0 |
| 100-51-6 | Benzyl alcohol | | 36.9 | ug/L | 3.00 | 10.0 |
| 85-68-7 | Butylbenzylphthalate | | 46.2 | ug/L | 3.00 | 10.0 |
| 218-01-9 | Chrysene | | 47.5 | ug/L | 0.300 | 1.00 |
| 84-74-2 | Di-n-butylphthalate | | 47.1 | ug/L | 3.00 | 10.0 |
| 117-84-0 | Di-n-octylphthalate | | 48.7 | ug/L | 3.00 | 10.0 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 49.0 | ug/L | 0.300 | 1.00 |
| 132-64-9 | Dibenzofuran | | 38.5 | ug/L | 3.00 | 10.0 |
| 84-66-2 | Diethylphthalate | | 42.0 | ug/L | 3.00 | 10.0 |
| 131-11-3 | Dimethylphthalate | | 43.8 | ug/L | 3.00 | 10.0 |
| 88-85-7 | Dinoseb | U | 10.0 | ug/L | 3.00 | 10.0 |
| 122-39-4 | Diphenylamine | | 36.7 | ug/L | 3.00 | 10.0 |
| 206-44-0 | Fluoranthene | | 47.1 | ug/L | 0.300 | 1.00 |
| 86-73-7 | Fluorene | | 40.0 | ug/L | 0.300 | 1.00 |
| 118-74-1 | Hexachlorobenzene | | 42.4 | ug/L | 3.00 | 10.0 |
| 87-68-3 | Hexachlorobutadiene | | 33.4 | ug/L | 3.00 | 10.0 |
| 77-47-4 | Hexachlorocyclopentadiene | | 24.7 | ug/L | 3.00 | 10.0 |
| 67-72-1 | Hexachloroethane | | 34.4 | ug/L | 3.00 | 10.0 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 49.2 | ug/L | 0.300 | 1.00 |
| 78-59-1 | Isophorone | | 46.6 | ug/L | 3.50 | 10.0 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 24.5 | ug/L | 3.00 | 10.0 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 55-18-5 | N-Nitrosodiethylamine | U | 10.0 | ug/L | 3.00 | 10.0 |
| 621-64-7 | N-Nitrosodi--n-propylamine | | 43.4 | ug/L | 3.00 | 10.0 |
| | <i>N-Nitrosodipropylamine</i> | | | | | |
| 930-55-2 | N-Nitrosopyrrolidine | | 40.8 | ug/L | 3.00 | 10.0 |
| 91-20-3 | Naphthalene | | 39.2 | ug/L | 0.300 | 1.00 |
| 98-95-3 | Nitrobenzene | | 46.0 | ug/L | 3.00 | 10.0 |
| 608-93-5 | Pentachlorobenzene | U | 10.0 | ug/L | 3.00 | 10.0 |
| 87-86-5 | Pentachlorophenol | | 45.8 | ug/L | 3.00 | 10.0 |
| 85-01-8 | Phenanthrene | | 43.5 | ug/L | 0.300 | 1.00 |
| 108-95-2 | Phenol | | 16.0 | ug/L | 3.00 | 10.0 |
| 129-00-0 | Pyrene | | 40.0 | ug/L | 0.300 | 1.00 |
| 110-86-1 | Pyridine | | 24.6 | ug/L | 3.00 | 10.0 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | | 44.2 | ug/L | 3.00 | 10.0 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 46.6 | ug/L | 3.00 | 10.0 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 40.7 | ug/L | 3.00 | 10.0 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 44.9 | ug/L | 3.00 | 10.0 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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| | |
|--|----------------------------------|
| SDG Number: 2017-1379 | Matrix: WATER |
| Lab Sample ID: 1203770133 | |
| Client Sample: QC for batch 1657087 | Client: ARSL004 |
| Client ID: LCS for batch 1657087 | Method: SW846 3510C/8270D |
| Batch ID: 1657088 | Inst: MSD1.I |
| Run Date: 04/19/2017 14:49 | Analyst: JMB3 |
| Prep Date: 04/19/2017 05:30 | Aliquot: 1000 mL |
| Data File: s041917.B\s1d1908.D | Column: 25x.20x.33 |
| | Project: QC |
| | SOP Ref: GL-OA-E-009 |
| | Dilution: 1 |
| | Inj. Vol: 1 uL |
| | Final Volume: 1 mL |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------|-----------|--------|-------|---------|---------|
| 65794-96-9 | m,p-Cresols | | 31.5 | ug/L | 3.70 | 10.0 |
| 99-09-2 | 3-Nitroaniline | | 47.3 | ug/L | 3.00 | 10.0 |
| | <i>m-Nitroaniline</i> | | | | | |
| 95-48-7 | o-Cresol | | 35.1 | ug/L | 3.00 | 10.0 |
| 88-74-4 | 2-Nitroaniline | | 43.1 | ug/L | 3.00 | 10.0 |
| | <i>o-Nitroaniline</i> | | | | | |
| 100-01-6 | 4-Nitroaniline | | 43.0 | ug/L | 3.00 | 10.0 |
| | <i>p-Nitroaniline</i> | | | | | |

| Surrogate/Tracer recovery | Result | Nominal | | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|------|-----------|-------------------|
| 2,4,6-Tribromophenol | 83.1 | 100 | ug/L | 83 | (32%-124%) |
| 2-Fluorobiphenyl | 39.1 | 50.0 | ug/L | 78 | (32%-112%) |
| 2-Fluorophenol | 40.8 | 100 | ug/L | 41 | (15%-88%) |
| Nitrobenzene-d5 | 44.5 | 50.0 | ug/L | 89 | (36%-115%) |
| Phenol-d5 | 29.3 | 100 | ug/L | 29 | (15%-91%) |
| p-Terphenyl-d14 | 40.7 | 50.0 | ug/L | 81 | (36%-121%) |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

| | | | | | |
|-----------------------|-----------------------------|------------------------|--------------------------|----------------------|--------------------|
| SDG Number: | 2017-1379 | Date Collected: | 04/13/2017 10:57 | Matrix: | W |
| Lab Sample ID: | 1203770134 | Date Received: | 04/18/2017 09:00 | | |
| Client Sample: | QC for batch 1657087 | Client: | ARSL004 | Project: | QC |
| Client ID: | WST54-17-132515MS | Method: | SW846 3510C/8270D | SOP Ref: | GL-OA-E-009 |
| Batch ID: | 1657088 | Inst: | MSD1.I | Dilution: | 1 |
| Run Date: | 04/19/2017 15:48 | Analyst: | JMB3 | Inj. Vol: | 1 uL |
| Prep Date: | 04/19/2017 05:30 | Aliquot: | 365 mL | Final Volume: | 1 mL |
| Data File: | s041917.B\s1d1910.D | Column: | 25x.20x.33 | | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-----------|--------------------------------|-----------|--------|-------|---------|---------|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 84.2 | ug/L | 8.22 | 27.4 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 107 | ug/L | 8.22 | 27.4 |
| 95-50-1 | 1,2-Dichlorobenzene | | 101 | ug/L | 8.22 | 27.4 |
| 122-66-7 | Azobenzene | | 124 | ug/L | 8.22 | 27.4 |
| | <i>1,2-Diphenylhydrazine</i> | | | | | |
| 541-73-1 | 1,3-Dichlorobenzene | | 97.3 | ug/L | 8.22 | 27.4 |
| 106-46-7 | 1,4-Dichlorobenzene | | 94.8 | ug/L | 8.22 | 27.4 |
| 123-91-1 | 1,4-Dioxane | | 94.0 | ug/L | 8.22 | 27.4 |
| 90-12-0 | 1-Methylnaphthalene | | 114 | ug/L | 0.822 | 2.74 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 110 | ug/L | 8.22 | 27.4 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 90.7 | ug/L | 8.22 | 27.4 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 103 | ug/L | 8.22 | 27.4 |
| 120-83-2 | 2,4-Dichlorophenol | | 119 | ug/L | 8.22 | 27.4 |
| 105-67-9 | 2,4-Dimethylphenol | | 108 | ug/L | 8.22 | 27.4 |
| 51-28-5 | 2,4-Dinitrophenol | | 80.1 | ug/L | 13.7 | 54.8 |
| 121-14-2 | 2,4-Dinitrotoluene | | 107 | ug/L | 8.22 | 27.4 |
| 606-20-2 | 2,6-Dinitrotoluene | | 112 | ug/L | 8.22 | 27.4 |
| 91-58-7 | 2-Chloronaphthalene | | 88.5 | ug/L | 1.12 | 2.74 |
| 95-57-8 | 2-Chlorophenol | | 100 | ug/L | 8.22 | 27.4 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 103 | ug/L | 8.22 | 27.4 |
| 91-57-6 | 2-Methylnaphthalene | | 115 | ug/L | 0.822 | 2.74 |
| 88-75-5 | 2-Nitrophenol | | 124 | ug/L | 8.22 | 27.4 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 122 | ug/L | 8.22 | 27.4 |
| 101-55-3 | 4-Bromophenylphenylether | | 109 | ug/L | 8.22 | 27.4 |
| 59-50-7 | Parachlorometa cresol | | 131 | ug/L | 8.22 | 27.4 |
| | <i>4-Chloro-3-methylphenol</i> | | | | | |
| 106-47-8 | 4-Chloroaniline | | 133 | ug/L | 9.04 | 27.4 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 104 | ug/L | 8.22 | 27.4 |
| 100-02-7 | 4-Nitrophenol | | 59.2 | ug/L | 8.22 | 27.4 |
| 83-32-9 | Acenaphthene | | 112 | ug/L | 0.822 | 2.74 |
| 208-96-8 | Acenaphthylene | | 112 | ug/L | 0.822 | 2.74 |
| 62-53-3 | Aniline | | 114 | ug/L | 11.5 | 27.4 |
| 120-12-7 | Anthracene | | 113 | ug/L | 0.822 | 2.74 |
| 1912-24-9 | Atrazine | | 108 | ug/L | 8.22 | 27.4 |
| 92-87-5 | Benzidine | | 215 | ug/L | 10.7 | 27.4 |
| 56-55-3 | Benzo(a)anthracene | | 123 | ug/L | 0.822 | 2.74 |
| 50-32-8 | Benzo(a)pyrene | | 118 | ug/L | 0.822 | 2.74 |
| 205-99-2 | Benzo(b)fluoranthene | | 116 | ug/L | 0.822 | 2.74 |
| 191-24-2 | Benzo(ghi)perylene | | 115 | ug/L | 0.822 | 2.74 |

**Semi-Volatile
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Sample Summary**

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| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203770134 | Date Received: 04/18/2017 09:00 | |
| Client Sample: QC for batch 1657087 | Client: ARSL004 | Project: QC |
| Client ID: WST54-17-132515MS | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 15:48 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 365 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1910.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|----------------------------------|-----------|--------|-------|---------|---------|
| 207-08-9 | Benzo(k)fluoranthene | | 110 | ug/L | 0.822 | 2.74 |
| 65-85-0 | Benzoic acid | | 87.7 | ug/L | 16.4 | 54.8 |
| 100-51-6 | Benzyl alcohol | | 113 | ug/L | 8.22 | 27.4 |
| 85-68-7 | Butylbenzylphthalate | | 113 | ug/L | 8.22 | 27.4 |
| 218-01-9 | Chrysene | | 125 | ug/L | 0.822 | 2.74 |
| 84-74-2 | Di-n-butylphthalate | | 119 | ug/L | 8.22 | 27.4 |
| 117-84-0 | Di-n-octylphthalate | | 108 | ug/L | 8.22 | 27.4 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 113 | ug/L | 0.822 | 2.74 |
| 132-64-9 | Dibenzofuran | | 102 | ug/L | 8.22 | 27.4 |
| 84-66-2 | Diethylphthalate | | 108 | ug/L | 8.22 | 27.4 |
| 131-11-3 | Dimethylphthalate | | 113 | ug/L | 8.22 | 27.4 |
| 88-85-7 | Dinoseb | U | 27.4 | ug/L | 8.22 | 27.4 |
| 122-39-4 | Diphenylamine | | 96.6 | ug/L | 8.22 | 27.4 |
| 206-44-0 | Fluoranthene | | 127 | ug/L | 0.822 | 2.74 |
| 86-73-7 | Fluorene | | 108 | ug/L | 0.822 | 2.74 |
| 118-74-1 | Hexachlorobenzene | | 113 | ug/L | 8.22 | 27.4 |
| 87-68-3 | Hexachlorobutadiene | | 105 | ug/L | 8.22 | 27.4 |
| 77-47-4 | Hexachlorocyclopentadiene | | 81.8 | ug/L | 8.22 | 27.4 |
| 67-72-1 | Hexachloroethane | | 114 | ug/L | 8.22 | 27.4 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 114 | ug/L | 0.822 | 2.74 |
| 78-59-1 | Isophorone | | 129 | ug/L | 9.59 | 27.4 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 96.0 | ug/L | 8.22 | 27.4 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 27.4 | ug/L | 8.22 | 27.4 |
| 55-18-5 | N-Nitrosodiethylamine | U | 27.4 | ug/L | 8.22 | 27.4 |
| 621-64-7 | N-Nitrosodi--n-propylamine | | 120 | ug/L | 8.22 | 27.4 |
| | <i>N-Nitrosodipropylamine</i> | | | | | |
| 930-55-2 | N-Nitrosopyrrolidine | | 113 | ug/L | 8.22 | 27.4 |
| 91-20-3 | Naphthalene | | 115 | ug/L | 0.822 | 2.74 |
| 98-95-3 | Nitrobenzene | | 131 | ug/L | 8.22 | 27.4 |
| 608-93-5 | Pentachlorobenzene | U | 27.4 | ug/L | 8.22 | 27.4 |
| 87-86-5 | Pentachlorophenol | | 120 | ug/L | 8.22 | 27.4 |
| 85-01-8 | Phenanthrene | | 116 | ug/L | 0.822 | 2.74 |
| 108-95-2 | Phenol | | 64.5 | ug/L | 8.22 | 27.4 |
| 129-00-0 | Pyrene | | 99.6 | ug/L | 0.822 | 2.74 |
| 110-86-1 | Pyridine | | 90.5 | ug/L | 8.22 | 27.4 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | | 126 | ug/L | 8.22 | 27.4 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 129 | ug/L | 8.22 | 27.4 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 117 | ug/L | 8.22 | 27.4 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 103 | ug/L | 8.22 | 27.4 |

**Semi-Volatile
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Sample Summary**

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| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203770134 | Date Received: 04/18/2017 09:00 | |
| Client Sample: QC for batch 1657087 | Client: ARSL004 | Project: QC |
| Client ID: WST54-17-132515MS | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 15:48 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 365 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1910.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------|-----------|--------|-------|---------|---------|
| 65794-96-9 | m,p-Cresols | | 98.8 | ug/L | 10.1 | 27.4 |
| 99-09-2 | 3-Nitroaniline | | 124 | ug/L | 8.22 | 27.4 |
| | <i>m-Nitroaniline</i> | | | | | |
| 95-48-7 | o-Cresol | | 103 | ug/L | 8.22 | 27.4 |
| 88-74-4 | 2-Nitroaniline | | 114 | ug/L | 8.22 | 27.4 |
| | <i>o-Nitroaniline</i> | | | | | |
| 100-01-6 | 4-Nitroaniline | | 115 | ug/L | 8.22 | 27.4 |
| | <i>p-Nitroaniline</i> | | | | | |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 2,4,6-Tribromophenol | 218 | 274 | ug/L 79 | (32%-124%) |
| 2-Fluorobiphenyl | 105 | 137 | ug/L 76 | (32%-112%) |
| 2-Fluorophenol | 149 | 274 | ug/L 55 | (15%-88%) |
| Nitrobenzene-d5 | 126 | 137 | ug/L 92 | (36%-115%) |
| Phenol-d5 | 118 | 274 | ug/L 43 | (15%-91%) |
| p-Terphenyl-d14 | 96.7 | 137 | ug/L 71 | (36%-121%) |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203770135 | Date Received: 04/18/2017 09:00 | |
| Client Sample: QC for batch 1657087 | Client: ARSL004 | Project: QC |
| Client ID: WST54-17-132515MSD | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 16:17 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 365 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1911.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|-----------|--------------------------------|-----------|--------|-------|---------|---------|
| 95-94-3 | 1,2,4,5-Tetrachlorobenzene | | 86.3 | ug/L | 8.22 | 27.4 |
| 120-82-1 | 1,2,4-Trichlorobenzene | | 109 | ug/L | 8.22 | 27.4 |
| 95-50-1 | 1,2-Dichlorobenzene | | 99.3 | ug/L | 8.22 | 27.4 |
| 122-66-7 | Azobenzene | | 134 | ug/L | 8.22 | 27.4 |
| | <i>1,2-Diphenylhydrazine</i> | | | | | |
| 541-73-1 | 1,3-Dichlorobenzene | | 94.1 | ug/L | 8.22 | 27.4 |
| 106-46-7 | 1,4-Dichlorobenzene | | 92.2 | ug/L | 8.22 | 27.4 |
| 123-91-1 | 1,4-Dioxane | | 98.1 | ug/L | 8.22 | 27.4 |
| 90-12-0 | 1-Methylnaphthalene | | 118 | ug/L | 0.822 | 2.74 |
| 58-90-2 | 2,3,4,6-Tetrachlorophenol | | 121 | ug/L | 8.22 | 27.4 |
| 95-95-4 | 2,4,5-Trichlorophenol | | 101 | ug/L | 8.22 | 27.4 |
| 88-06-2 | 2,4,6-Trichlorophenol | | 107 | ug/L | 8.22 | 27.4 |
| 120-83-2 | 2,4-Dichlorophenol | | 127 | ug/L | 8.22 | 27.4 |
| 105-67-9 | 2,4-Dimethylphenol | | 111 | ug/L | 8.22 | 27.4 |
| 51-28-5 | 2,4-Dinitrophenol | | 99.7 | ug/L | 13.7 | 54.8 |
| 121-14-2 | 2,4-Dinitrotoluene | | 114 | ug/L | 8.22 | 27.4 |
| 606-20-2 | 2,6-Dinitrotoluene | | 119 | ug/L | 8.22 | 27.4 |
| 91-58-7 | 2-Chloronaphthalene | | 93.5 | ug/L | 1.12 | 2.74 |
| 95-57-8 | 2-Chlorophenol | | 107 | ug/L | 8.22 | 27.4 |
| 534-52-1 | 2-Methyl-4,6-dinitrophenol | | 118 | ug/L | 8.22 | 27.4 |
| 91-57-6 | 2-Methylnaphthalene | | 118 | ug/L | 0.822 | 2.74 |
| 88-75-5 | 2-Nitrophenol | | 130 | ug/L | 8.22 | 27.4 |
| 91-94-1 | 3,3'-Dichlorobenzidine | | 127 | ug/L | 8.22 | 27.4 |
| 101-55-3 | 4-Bromophenylphenylether | | 117 | ug/L | 8.22 | 27.4 |
| 59-50-7 | Parachlorometa cresol | | 144 | ug/L | 8.22 | 27.4 |
| | <i>4-Chloro-3-methylphenol</i> | | | | | |
| 106-47-8 | 4-Chloroaniline | | 140 | ug/L | 9.04 | 27.4 |
| 7005-72-3 | 4-Chlorophenylphenylether | | 111 | ug/L | 8.22 | 27.4 |
| 100-02-7 | 4-Nitrophenol | | 81.7 | ug/L | 8.22 | 27.4 |
| 83-32-9 | Acenaphthene | | 120 | ug/L | 0.822 | 2.74 |
| 208-96-8 | Acenaphthylene | | 118 | ug/L | 0.822 | 2.74 |
| 62-53-3 | Aniline | | 108 | ug/L | 11.5 | 27.4 |
| 120-12-7 | Anthracene | | 120 | ug/L | 0.822 | 2.74 |
| 1912-24-9 | Atrazine | | 114 | ug/L | 8.22 | 27.4 |
| 92-87-5 | Benzidine | | 139 | ug/L | 10.7 | 27.4 |
| 56-55-3 | Benzo(a)anthracene | | 132 | ug/L | 0.822 | 2.74 |
| 50-32-8 | Benzo(a)pyrene | | 124 | ug/L | 0.822 | 2.74 |
| 205-99-2 | Benzo(b)fluoranthene | | 127 | ug/L | 0.822 | 2.74 |
| 191-24-2 | Benzo(ghi)perylene | | 121 | ug/L | 0.822 | 2.74 |

**Semi-Volatile
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Sample Summary**

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| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203770135 | Date Received: 04/18/2017 09:00 | |
| Client Sample: QC for batch 1657087 | Client: ARSL004 | Project: QC |
| Client ID: WST54-17-132515MSD | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 16:17 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 365 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1911.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|----------|----------------------------------|-----------|--------|-------|---------|---------|
| 207-08-9 | Benzo(k)fluoranthene | | 123 | ug/L | 0.822 | 2.74 |
| 65-85-0 | Benzoic acid | | 124 | ug/L | 16.4 | 54.8 |
| 100-51-6 | Benzyl alcohol | | 121 | ug/L | 8.22 | 27.4 |
| 85-68-7 | Butylbenzylphthalate | | 125 | ug/L | 8.22 | 27.4 |
| 218-01-9 | Chrysene | | 136 | ug/L | 0.822 | 2.74 |
| 84-74-2 | Di-n-butylphthalate | | 127 | ug/L | 8.22 | 27.4 |
| 117-84-0 | Di-n-octylphthalate | | 119 | ug/L | 8.22 | 27.4 |
| 53-70-3 | Dibenzo(a,h)anthracene | | 117 | ug/L | 0.822 | 2.74 |
| 132-64-9 | Dibenzofuran | | 107 | ug/L | 8.22 | 27.4 |
| 84-66-2 | Diethylphthalate | | 115 | ug/L | 8.22 | 27.4 |
| 131-11-3 | Dimethylphthalate | | 120 | ug/L | 8.22 | 27.4 |
| 88-85-7 | Dinoseb | U | 27.4 | ug/L | 8.22 | 27.4 |
| 122-39-4 | Diphenylamine | | 105 | ug/L | 8.22 | 27.4 |
| 206-44-0 | Fluoranthene | | 133 | ug/L | 0.822 | 2.74 |
| 86-73-7 | Fluorene | | 113 | ug/L | 0.822 | 2.74 |
| 118-74-1 | Hexachlorobenzene | | 121 | ug/L | 8.22 | 27.4 |
| 87-68-3 | Hexachlorobutadiene | | 106 | ug/L | 8.22 | 27.4 |
| 77-47-4 | Hexachlorocyclopentadiene | | 85.6 | ug/L | 8.22 | 27.4 |
| 67-72-1 | Hexachloroethane | | 114 | ug/L | 8.22 | 27.4 |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | | 124 | ug/L | 0.822 | 2.74 |
| 78-59-1 | Isophorone | | 136 | ug/L | 9.59 | 27.4 |
| 62-75-9 | N-Methyl-N-nitrosomethylamine | | 99.8 | ug/L | 8.22 | 27.4 |
| 924-16-3 | N-Nitrosodi-n-butylamine | U | 27.4 | ug/L | 8.22 | 27.4 |
| 55-18-5 | N-Nitrosodiethylamine | U | 27.4 | ug/L | 8.22 | 27.4 |
| 621-64-7 | N-Nitrosodi--n-propylamine | | 125 | ug/L | 8.22 | 27.4 |
| | <i>N-Nitrosodipropylamine</i> | | | | | |
| 930-55-2 | N-Nitrosopyrrolidine | | 118 | ug/L | 8.22 | 27.4 |
| 91-20-3 | Naphthalene | | 116 | ug/L | 0.822 | 2.74 |
| 98-95-3 | Nitrobenzene | | 135 | ug/L | 8.22 | 27.4 |
| 608-93-5 | Pentachlorobenzene | U | 27.4 | ug/L | 8.22 | 27.4 |
| 87-86-5 | Pentachlorophenol | | 136 | ug/L | 8.22 | 27.4 |
| 85-01-8 | Phenanthrene | | 123 | ug/L | 0.822 | 2.74 |
| 108-95-2 | Phenol | | 68.1 | ug/L | 8.22 | 27.4 |
| 129-00-0 | Pyrene | | 109 | ug/L | 0.822 | 2.74 |
| 110-86-1 | Pyridine | | 80.9 | ug/L | 8.22 | 27.4 |
| 108-60-1 | bis(2-Chloro-1-methylethyl)ether | | 129 | ug/L | 8.22 | 27.4 |
| 111-91-1 | bis(2-Chloroethoxy)methane | | 132 | ug/L | 8.22 | 27.4 |
| 111-44-4 | bis(2-Chloroethyl) ether | | 121 | ug/L | 8.22 | 27.4 |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | | 116 | ug/L | 8.22 | 27.4 |

**Semi-Volatile
Certificate of Analysis
Sample Summary**

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| | | |
|--|---|-----------------------------|
| SDG Number: 2017-1379 | Date Collected: 04/13/2017 10:57 | Matrix: W |
| Lab Sample ID: 1203770135 | Date Received: 04/18/2017 09:00 | |
| Client Sample: QC for batch 1657087 | Client: ARSL004 | Project: QC |
| Client ID: WST54-17-132515MSD | Method: SW846 3510C/8270D | SOP Ref: GL-OA-E-009 |
| Batch ID: 1657088 | Inst: MSD1.I | Dilution: 1 |
| Run Date: 04/19/2017 16:17 | Analyst: JMB3 | Inj. Vol: 1 uL |
| Prep Date: 04/19/2017 05:30 | Aliquot: 365 mL | Final Volume: 1 mL |
| Data File: s041917.B\s1d1911.D | Column: 25x.20x.33 | |

| CAS No. | Parmname | Qualifier | Result | Units | MDL/LOD | PQL/LOQ |
|------------|-----------------------|-----------|--------|-------|---------|---------|
| 65794-96-9 | m,p-Cresols | | 108 | ug/L | 10.1 | 27.4 |
| 99-09-2 | 3-Nitroaniline | | 138 | ug/L | 8.22 | 27.4 |
| | <i>m-Nitroaniline</i> | | | | | |
| 95-48-7 | o-Cresol | | 109 | ug/L | 8.22 | 27.4 |
| 88-74-4 | 2-Nitroaniline | | 124 | ug/L | 8.22 | 27.4 |
| | <i>o-Nitroaniline</i> | | | | | |
| 100-01-6 | 4-Nitroaniline | | 124 | ug/L | 8.22 | 27.4 |
| | <i>p-Nitroaniline</i> | | | | | |

| Surrogate/Tracer recovery | Result | Nominal | Recovery% | Acceptable Limits |
|---------------------------|--------|---------|-----------|-------------------|
| 2,4,6-Tribromophenol | 229 | 274 | ug/L | 84 (32%-124%) |
| 2-Fluorobiphenyl | 109 | 137 | ug/L | 79 (32%-112%) |
| 2-Fluorophenol | 155 | 274 | ug/L | 57 (15%-88%) |
| Nitrobenzene-d5 | 129 | 137 | ug/L | 94 (36%-115%) |
| Phenol-d5 | 128 | 274 | ug/L | 47 (15%-91%) |
| p-Terphenyl-d14 | 106 | 137 | ug/L | 77 (36%-121%) |

Miscellaneous

DATA EXCEPTION REPORT

| | | | |
|---|--|--|-----------------------------------|
| Mo.Day Yr. 20-APR-17 | Division: Industrial | Quality Criteria: Specifications | Type: Process |
| Instrument Type: SEMIOVA GC/MS | Test / Method: SW846 3510C/8270D, SW846 8270D | Matrix Type: Liquid | Client Code: ESHL, SHFR |
| Batch ID: 1657088 | Sample Numbers: See Below | | |
| Potentially affected work order(s)(SDG): 420849(2017-1376),420857(2017-1379),420860(2017-1380) Application Issues: Failed RPD for MS/MSD, or PS/PSD | | | |
| Specification and Requirements Exception Description: | | DER Disposition: | |
| 1. Failed RPD for MS/MSD: QC 1203770135MSD | | 1. The relative percent difference (RPD) between the MS and MSD (See Below) did not meet acceptance limits. As the individual MS and MSD recoveries were within the acceptance limits, the failures had no adverse impact on the reported sample data. 1203770134MS and 1203770135MSD (WST54-17-132515) 4-Nitrophenol [32* (0%-30%)], Benzidine [43* (0%-30%)] and Benzoic acid [35* (0%-30%)]. | |

Originator's Name:

Josh Brooks

20-APR-17

Data Validator/Group Leader:

Barbara Bailey

20-APR-17