

Applied Water Resources - Alameda, CA

Sample Delivery Group: L906724
Samples Received: 05/03/2017
Project Number:
Description: THOT

Report To: Yola Bayram
2363 Mariner Square Dr
Suite 245
Alameda, CA 94501

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SAMPLE SUMMARY



THOT-GW L906724-01 GW

Collected by: Yola Bayram
 Collected date/time: 05/01/17 16:00
 Received date/time: 05/03/17 09:00

| Method | Batch | Dilution | Preparation date/time | Analysis date/time | Analyst |
|--|----------|----------|-----------------------|--------------------|---------|
| Volatile Organic Compounds (GC) by Method 8015 | WG976418 | 1 | 05/04/17 21:17 | 05/04/17 21:17 | LRL |
| Volatile Organic Compounds (GC/MS) by Method 8260B | WG977211 | 1 | 05/07/17 01:25 | 05/07/17 01:25 | BMB |
| Semi-Volatile Organic Compounds (GC) by Method 3511/8015 | WG976661 | 10 | 05/04/17 21:21 | 05/05/17 16:48 | DMG |

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Volatile Organic Compounds (GC) by Method 8015

| Analyte | Result | Qualifier | RDL | Dilution | Analysis | Batch |
|---------------------------------|--------|-----------|----------|----------|------------------|--------------------------|
| | ug/l | | ug/l | | date / time | |
| TPHG C5 - C12 | 363 | | 100 | 1 | 05/04/2017 21:17 | WG976418 |
| (S) a,a,a-Trifluorotoluene(FID) | 102 | | 77.0-122 | | 05/04/2017 21:17 | WG976418 |

1 Cp

2 Tc

3 Ss

Volatile Organic Compounds (GC/MS) by Method 8260B

| Analyte | Result | Qualifier | RDL | Dilution | Analysis | Batch |
|----------------------------|--------|-----------|----------|----------|------------------|--------------------------|
| | ug/l | | ug/l | | date / time | |
| Benzene | ND | | 1.00 | 1 | 05/07/2017 01:25 | WG977211 |
| Toluene | ND | | 1.00 | 1 | 05/07/2017 01:25 | WG977211 |
| Ethylbenzene | ND | | 1.00 | 1 | 05/07/2017 01:25 | WG977211 |
| Total Xylenes | ND | | 3.00 | 1 | 05/07/2017 01:25 | WG977211 |
| Methyl tert-butyl ether | ND | | 1.00 | 1 | 05/07/2017 01:25 | WG977211 |
| Naphthalene | ND | | 5.00 | 1 | 05/07/2017 01:25 | WG977211 |
| (S) Toluene-d8 | 104 | | 80.0-120 | | 05/07/2017 01:25 | WG977211 |
| (S) Dibromofluoromethane | 103 | | 76.0-123 | | 05/07/2017 01:25 | WG977211 |
| (S) a,a,a-Trifluorotoluene | 102 | | 80.0-120 | | 05/07/2017 01:25 | WG977211 |
| (S) 4-Bromofluorobenzene | 106 | | 80.0-120 | | 05/07/2017 01:25 | WG977211 |

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

Semi-Volatile Organic Compounds (GC) by Method 3511/8015

| Analyte | Result | Qualifier | RDL | Dilution | Analysis | Batch |
|----------------------|--------|-----------|----------|----------|------------------|--------------------------|
| | ug/l | | ug/l | | date / time | |
| C12-C22 Hydrocarbons | 41400 | | 1000 | 10 | 05/05/2017 16:48 | WG976661 |
| C22-C32 Hydrocarbons | 4050 | | 1000 | 10 | 05/05/2017 16:48 | WG976661 |
| C32-C40 Hydrocarbons | ND | | 1000 | 10 | 05/05/2017 16:48 | WG976661 |
| (S) o-Terphenyl | 5.86 | <u>J2</u> | 52.0-156 | | 05/05/2017 16:48 | WG976661 |

9 Sc



Method Blank (MB)

(MB) R3216822-3 05/04/17 12:07

| Analyte | MB Result | MB Qualifier | MB MDL | MB RDL |
|---------------------------------|-----------|--------------|--------|----------|
| TPHG C5 - C12 | U | | 30.4 | 100 |
| (S) a,a,a-Trifluorotoluene(FID) | 101 | | | 77.0-122 |

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3216822-1 05/04/17 11:00 • (LCSD) R3216822-2 05/04/17 11:23

| Analyte | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | LCS Qualifier | LCSD Qualifier | RPD | RPD Limits |
|---------------------------------|--------------|------------|-------------|----------|-----------|-------------|---------------|----------------|-------|------------|
| TPHG C5 - C12 | 5500 | 4990 | 4960 | 90.7 | 90.1 | 71.0-130 | | | 0.710 | 20 |
| (S) a,a,a-Trifluorotoluene(FID) | | | | 106 | 106 | 77.0-122 | | | | |

5 Sr

6 Qc

L906597-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L906597-09 05/04/17 13:06 • (MS) R3216822-4 05/04/17 13:28 • (MSD) R3216822-5 05/04/17 13:51

| Analyte | Spike Amount | Original Result | MS Result | MSD Result | MS Rec. | MSD Rec. | Dilution | Rec. Limits | MS Qualifier | MSD Qualifier | RPD | RPD Limits |
|---------------------------------|--------------|-----------------|-----------|------------|---------|----------|----------|-------------|--------------|---------------|------|------------|
| TPHG C5 - C12 | 5500 | ND | 5170 | 5960 | 93.4 | 108 | 1 | 18.0-158 | | | 14.0 | 20 |
| (S) a,a,a-Trifluorotoluene(FID) | | | | | 103 | 104 | | 77.0-122 | | | | |

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3216090-3 05/06/17 15:46

| Analyte | MB Result | MB Qualifier | MB MDL | MB RDL |
|----------------------------|-----------|--------------|--------|----------|
| | ug/l | | ug/l | ug/l |
| Benzene | U | | 0.331 | 1.00 |
| Ethylbenzene | U | | 0.384 | 1.00 |
| Methyl tert-butyl ether | U | | 0.367 | 1.00 |
| Naphthalene | U | | 1.00 | 5.00 |
| Toluene | U | | 0.412 | 1.00 |
| Xylenes, Total | U | | 1.06 | 3.00 |
| (S) Toluene-d8 | 103 | | | 80.0-120 |
| (S) Dibromofluoromethane | 102 | | | 76.0-123 |
| (S) a,a,a-Trifluorotoluene | 101 | | | 80.0-120 |
| (S) 4-Bromofluorobenzene | 104 | | | 80.0-120 |

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3216090-1 05/06/17 13:51 • (LCSD) R3216090-2 05/06/17 14:14

| Analyte | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | LCS Qualifier | LCSD Qualifier | RPD | RPD Limits |
|----------------------------|--------------|------------|-------------|----------|-----------|-------------|---------------|----------------|-------|------------|
| | ug/l | ug/l | ug/l | % | % | % | | | % | % |
| Benzene | 25.0 | 22.8 | 23.0 | 91.0 | 92.0 | 69.0-123 | | | 1.10 | 20 |
| Ethylbenzene | 25.0 | 22.5 | 23.1 | 90.0 | 92.5 | 77.0-120 | | | 2.80 | 20 |
| Methyl tert-butyl ether | 25.0 | 23.2 | 23.6 | 92.9 | 94.3 | 64.0-123 | | | 1.49 | 20 |
| Naphthalene | 25.0 | 25.1 | 26.3 | 100 | 105 | 62.0-128 | | | 4.52 | 20 |
| Toluene | 25.0 | 22.3 | 22.8 | 89.0 | 91.1 | 77.0-120 | | | 2.36 | 20 |
| Xylenes, Total | 75.0 | 69.2 | 69.8 | 92.3 | 93.1 | 77.0-120 | | | 0.860 | 20 |
| (S) Toluene-d8 | | | | 105 | 106 | 80.0-120 | | | | |
| (S) Dibromofluoromethane | | | | 103 | 102 | 76.0-123 | | | | |
| (S) a,a,a-Trifluorotoluene | | | | 103 | 102 | 80.0-120 | | | | |
| (S) 4-Bromofluorobenzene | | | | 101 | 103 | 80.0-120 | | | | |



Method Blank (MB)

(MB) R3216050-1 05/05/17 13:16

| Analyte | MB Result | MB Qualifier | MB MDL | MB RDL |
|----------------------|-----------|--------------|--------|----------|
| | ug/l | | ug/l | ug/l |
| C12-C22 Hydrocarbons | U | | 33.0 | 100 |
| C22-C32 Hydrocarbons | U | | 33.0 | 100 |
| C32-C40 Hydrocarbons | U | | 33.0 | 100 |
| (S) o-Terphenyl | 93.4 | | | 31.0-160 |

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3216050-2 05/05/17 13:33 • (LCSD) R3216050-3 05/05/17 13:49

| Analyte | Spike Amount | LCS Result | LCSD Result | LCS Rec. | LCSD Rec. | Rec. Limits | LCS Qualifier | LCSD Qualifier | RPD | RPD Limits |
|----------------------|--------------|------------|-------------|----------|-----------|-------------|---------------|----------------|------|------------|
| | ug/l | ug/l | ug/l | % | % | % | | | % | % |
| C22-C32 Hydrocarbons | 750 | 927 | 937 | 124 | 125 | 50.0-150 | | | 1.14 | 20 |
| C12-C22 Hydrocarbons | 750 | 1030 | 1050 | 138 | 140 | 50.0-150 | | | 1.78 | 20 |
| (S) o-Terphenyl | | | | 82.9 | 83.3 | 31.0-160 | | | | |

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

| | |
|-----------------|--|
| SDG | Sample Delivery Group. |
| MDL | Method Detection Limit. |
| RDL | Reported Detection Limit. |
| ND | Not detected at the Reporting Limit (or MDL where applicable). |
| U | Not detected at the Reporting Limit (or MDL where applicable). |
| RPD | Relative Percent Difference. |
| Original Sample | The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG. |
| (S) | Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media. |
| Rec. | Recovery. |

| Qualifier | Description |
|-----------|--|
| J2 | Surrogate recovery limits have been exceeded; values are outside lower control limits. |

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

| | | | |
|-----------------------|-------------|-----------------------------|-------------------|
| Alabama | 40660 | Nevada | TN-03-2002-34 |
| Alaska | UST-080 | New Hampshire | 2975 |
| Arizona | AZ0612 | New Jersey–NELAP | TN002 |
| Arkansas | 88-0469 | New Mexico | TN00003 |
| California | 01157CA | New York | 11742 |
| Colorado | TN00003 | North Carolina | Env375 |
| Connecticut | PH-0197 | North Carolina ¹ | DW21704 |
| Florida | E87487 | North Carolina ² | 41 |
| Georgia | NELAP | North Dakota | R-140 |
| Georgia ¹ | 923 | Ohio–VAP | CL0069 |
| Idaho | TN00003 | Oklahoma | 9915 |
| Illinois | 200008 | Oregon | TN200002 |
| Indiana | C-TN-01 | Pennsylvania | 68-02979 |
| Iowa | 364 | Rhode Island | 221 |
| Kansas | E-10277 | South Carolina | 84004 |
| Kentucky ¹ | 90010 | South Dakota | n/a |
| Kentucky ² | 16 | Tennessee ¹⁴ | 2006 |
| Louisiana | AI30792 | Texas | T 104704245-07-TX |
| Maine | TN0002 | Texas ⁵ | LAB0152 |
| Maryland | 324 | Utah | 6157585858 |
| Massachusetts | M-TN003 | Vermont | VT2006 |
| Michigan | 9958 | Virginia | 109 |
| Minnesota | 047-999-395 | Washington | C1915 |
| Mississippi | TN00003 | West Virginia | 233 |
| Missouri | 340 | Wisconsin | 9980939910 |
| Montana | CERT0086 | Wyoming | A2LA |
| Nebraska | NE-OS-15-05 | | |

Third Party & Federal Accreditations

| | | | |
|-------------------------------|---------|--------------|---------|
| A2LA – ISO 17025 | 1461.01 | AIHA-LAP,LLC | 100789 |
| A2LA – ISO 17025 ⁵ | 1461.02 | DOD | 1461.01 |
| Canada | 1461.01 | USDA | S-67674 |
| EPA–Crypto | TN00003 | | |

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



