



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4**

**Laboratory Services & Applied Science Division
Environmental Sampling Section
980 College Station Road
Athens, Georgia 30605-2720**

May 16, 2019

LSASD-ESS

MEMORANDUM

SUBJECT: Final Report transmittal
The City of Denmark, SC Drinking Water Sampling Event
Denmark, South Carolina
LASAD Project ID: 19-0106

FROM: Bill Simpson, Physical Scientist *WES 5-16-19*
Environmental Sampling Section
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THRU: Stacey Box, Chief *SB*
Environmental Sampling Section
Laboratory Services & Applied Science Division
Athens, GA

TO: Janine Morris, Project Lead
Drinking Water Section
Water Division
Atlanta, Georgia

Attached is the Final Report for the *Drinking Water Sampling Event in The City of Denmark, South Carolina* that was conducted on April 2-3, 2019. If you have any questions concerning the final report, please call me at (706) 355-8748 or email me at simpson.bill@epa.gov.

cc (via email): Shawneille Campbell-Dunbar, USEPA Region 4, WD

cc (via email): Brian Smith, USEPA Region 4, WD

cc (via email): Travis Fuss, SC DHEC- Aiken Field Office



Project ID: 19-0106

The City of Denmark, SC Drinking Water Sampling Event

**City of Denmark, South Carolina
4768 Carolina Highway, Denmark, SC 29042**

Project Dates: April 2-3, 2019

Report Date: May 16, 2019

Project Leader: Bill Simpson
Environmental Sampling Section
Applied Services Branch
Laboratory Services & Applied Science Division
USEPA – Region 4
980 College Station Road
Athens, Georgia 30605-2720

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LSASD
LABORATORY SERVICES & APPLIED SCIENCE DIVISION

Requestor:

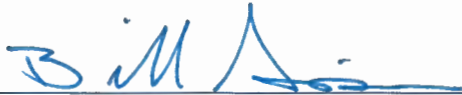
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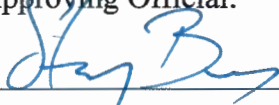


Bill Simpson
Environmental Sampling Section
Applied Science Branch
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5-16-19

Date

Approving Official:



Stacey Box, Chief
Environmental Sampling Section
Applied Science Branch
Laboratory Services and Applied Science Division
980 College Station Road
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5/16/19

Date

**DRINKING WATER SAMPLING REPORT
CITY OF DENMARK, SC
DENMARK, SOUTH CAROLINA**

I. INTRODUCTION

On April 2-3, 2019, Laboratory Services & Applied Science Division (LSASD) personnel conducted a drinking water sampling event in the City of Denmark, South Carolina at groundwater wells that service the city, and locations in the distribution system throughout the city. This sampling event was requested by the USEPA Region 4, Water Division, Safe Drinking Water Branch, Drinking Water Section.

Personnel that were present for some or all of the sampling event included:

PERSONNEL	AFFILIATION	PHONE
Bill Simpson	USEPA, LSASD, Project Leader	706-355-8748
Mike Neill	USEPA, LSASD, Safety Officer/Sampler	706-355-8614
Janine Morris	USEPA, WD, Project Team Leader	404-562-9480
Brian Smith	USEPA, WD, Branch Chief	404-562-9845
Crystal Robertson	SC DHEC, Environmental Health Manager	803-642-1637
Josh Yon	SC DHEC, Sampler	803-642-1687
Jessica Fuller	SC DHEC, Environmental Health Manager	803-642-1687
Laura Renwick	SC DHEC Press Officer	803-898-3432
Tommy Crosby	SC DHEC Press Officer	803-898-7769
Charles Shugart	City of Denmark, Public Works Director	803-603-2235

II. SUMMARY

During LSASD’s sampling event three (3) groundwater wells that service the city were sampled and ten (10) locations in the distribution system were sampled. The groundwater wells were sampled on April 2, 2019 and the distribution system locations were sampled on April 3, 2019. The analytical results for this study indicated that none of the locations sampled exceeded the Maximum Contaminant Levels (MCL) for the EPA National Primary Drinking Water Regulations (NPDWR) for the parameters of interest (LSASD Laboratory results are summarized in Table 1).

Groundwater well summary: Semi-volatile/pesticides (organic compounds) were below the MRL for all three sampled groundwater wells. Volatile organic results were below the MRL for all three sampled groundwater wells. Bromide results were below the MRL for all three sampled groundwater wells. Total Organic Carbon (TOC) results for wells GW-01, GW-02, and GW-03 were 1.9 (approximate) mg/L, 2.9 mg/L, and 2.3 mg/L, respectively.

Nitrate/Nitrite as N results were below the MRL of 0.050 mg/L in GW-01 and GW-02, and 0.056 mg/L in GW-03.

Distribution System summary: Microbiological results for total coliform and *E. coli* were “absent” for all field sampled locations in the distribution system. The haloacetic acid (HAA5) results were non-detect (ND) for all field sampled locations in the distribution system. Total trihalomethanes (TTHM) results were below the MCL of 0.080 mg/L for all field sampled locations in the distribution system. Bromide results were below the minimum reporting level (MRL) for all field sampled locations in the distribution system.

Iron and manganese results did not exceed any of the secondary MCLs for National Secondary Drinking Water Regulations (NSDWR) for either the sampled groundwater wells or the field sampled locations in the distribution system (Table 1: LSASD Laboratory Results Summarized and Table 3: LSASD Complete Laboratory Data Results).

Field sample station data collected during the sampling event are presented in Table 5. Table 5 is located in Appendix A due to the sensitive location information.

III. BACKGROUND

The City of Denmark is in Bamberg County, South Carolina. The City is approximately 45 miles south of Columbia, South Carolina.

“The City of Denmark Public Water System is a small rural water system that serves a population of approximately 5,600 customers (residents, students at two local colleges, and commercial and industrial properties). The City of Denmark Public Water System is served by three groundwater wells. HaloSan was intermittently used in a fourth well, the Cox Mill Well, to control iron bacteria. This well was taken offline in August 2018 and remains offline. Water from the three wells continue to be disinfected for bacteria using chlorine.” (South Carolina Department of Health and Environmental Control (SC DEHC) factsheet 2-14-19).

The USEPA Region 4 Water Division (WD) directed LSASD to coordinate with SC DHEC to independently collect potable water samples, at the same time, and from the same locations. This side by side sampling was conducted on April 2 and 3, 2019. The purpose of the sampling event was to evaluate and characterize the public water system of the City of Denmark, SC using approved drinking water methods. The sampling locations were determined by the SC DHEC and the USEPA WD to assess the City of Denmark’s drinking water quality.

The USEPA Region 4 WD conducted a review of the SC DHEC Public Water System Supervision (PWSS) Program and an oversight inspection of the City of Denmark’s drinking water system to assess the SC DHEC inspectors process. This overview occurred during the week of April 1st.

IV. DISCUSSION OF FIELD ACTIVITIES

For this study, LSASD and the SC DHEC coordinated to independently collect potable water samples, at the same time, and from the same field locations (Figure 1: City of Denmark Field Sampling Locations). Sampling and measurement activities were in accordance with LSASD operating procedures. Signed site access agreements were obtained for all field sampling locations in the distribution system. The field sampling locations in the City of Denmark, SC

were documented by collecting Global Positioning System (GPS) points, taking photographs, and noting any observations in the logbook at the time of the sampling. Photographs of each field sampling location were taken and are recorded in Appendix B: LSASD Photographic Log.

At each field sampled location in the distribution system, hoses were disconnected from the sample tap. Prior to sampling, each sample tap was sanitized with alcohol on both the inside and the outside to prevent contamination of the microbiological samples. A two-three (2-3) minute flush was conducted, at which time the total residual chlorine (TRC) sample was collected. Field measurement samples (pH, specific conductance, temperature, and turbidity) were collected and recorded (Table 2: Field Measurement Data). Then the remaining water samples were collected. The approximate total flush time was 7-10 minutes for each sample location.

Samples were collected directly into the appropriate containers and preserved on site when required. Samples were packaged with ice and transported to the various laboratories for analyses with the appropriate chain of custody.

The groundwater wells were not disinfected with alcohol prior to sampling because microbiological samples were not collected at the groundwater well locations. The groundwater wells (GW-01, GW-02, and GW-03) were each analyzed for the following parameters: TOC, nitrate/nitrite as N, bromide, volatile organic compounds (VOC), semi-volatile/pesticide organic compounds, iron and manganese.

The distribution system locations (DS-01 to DS-10) were each analyzed for the following parameters: total coliform/*E. coli*, total trihalomethanes (TTHM), iron and manganese, haloacetic acids (HAA5) and bromide.

V. RESULTS OF ANALYSES

Samples were analyzed in accordance with the *SESD's Analytical Support Branch Laboratory Operations and Quality Assurance Manual*, April 2018. LSASD and Rodgers & Callcott complete analytical reports and analytical methods used are included in Appendix C.

Table 1 provides LSASD summarized results.

Table 2 provides the field measurement data recorded on April 2-3, 2019.

Table 3 provides LSASD and Rodgers & Callcott complete laboratory data results.

Table 4 provides Region 4 data qualifiers.

Table 5 provides field sample station data.

Figure 1 provides spatial reference for the field sampled locations in the distribution system.

The analytical results for this study indicated that none of the locations sampled exceeded the Maximum Contaminant Levels (MCL) for the EPA National Primary Drinking Water Regulations (NPDWR) for the parameters of interest.

Groundwater Wells: Semi-volatile/pesticides (organic compounds) were below the MRL for all three sampled groundwater wells. Volatile organics results were below the MRL for all three sampled ground water wells. Bromide results were below the MRL for all three sampled groundwater wells. Total Organic Carbon (TOC) results for wells GW-01, GW-02, and GW-03 were 1.9 (approximate) mg/L, 2.9 mg/L, and 2.3 mg/L, respectively.

Nitrate/Nitrite as N results were below the MRL of 0.050 mg/L in GW-01 and GW-02, and 0.056 mg/L in GW-03.

Distribution System: Microbiological results for total coliform and *E. coli* were “absent” for all field sampled locations in the distribution system. The haloacetic acid (HAA5) results were non-detect (ND) and bromide results were below the minimum reporting level (MRL) for all field sampled locations in the distribution system. Total trihalomethanes (TTHM) results were below the MCL of 0.080 mg/L for all field sampled locations in the distribution system.

Iron and manganese results did not exceed any of the secondary MCLs for National Secondary Drinking Water Regulations (NSDWR) for either the sampled groundwater wells or the field sampled locations in the distribution system.

Table 1: LSASD Laboratory Results Summary (mg/L)

Station ID	Location	TRC ¹ (mg/L)	Bromide (mg/L)	Iron ² (mg/L)	Manganese ³ (mg/L)	Total Coliform / <i>E. Coli</i>	THM ⁴ (mg/L)	HAA5 ⁵ (mg/L)
DS-01	Wheat St.	0.55	< 0.10 U, J, O ⁶	0.12	0.0079	Absent/Absent	0.001U	ND ⁶
DS-02	Voorhees Rd.	0.33	< 0.10 U	< 0.10 U	0.0055	Absent/Absent	0.00272	ND
DS-03	Chestnut Ave	0.67	< 0.10 U	< 0.10 U	< 0.005 U	Absent/Absent	0.001U	ND
DS-04	Locust St.	0.52	< 0.10 U	0.14	0.025	Absent/Absent	0.00108	ND
DS-05	Wisteria St	0.45	< 0.10 U	0.24	0.041	Absent/Absent	0.001U	ND
DS-06	Sawdust Ave.	0.34	< 0.10 U	< 0.10 U	< 0.005 U	Absent/Absent	0.00095	ND
DS-07	Heritage Hwy	0.19	< 0.10 U	< 0.10 U	< 0.005 U	Absent/Absent	0.00076	ND
DS-08	Spruce St.	0.52	< 0.10 U	< 0.10 U	0.011	Absent/Absent	0.001U	ND
DS-09	Locust Ave.	0.64	< 0.10 U	< 0.10 U	< 0.005 U	Absent/Absent	0.001U	ND
DS-10	E. Richards St.	0.27	< 0.10 U	< 0.10 U	< 0.005 U	Absent/Absent	0.001U	ND

Station ID	Well	TRC ¹ (mg/L)	Bromide (mg/L)	VOC ⁷ (mg/L)	TOC ⁸ (mg/L)	Pest/Semi ⁹ (mg/L)	Nitrate/Nitrite ¹⁰ (mg/L)	Iron ² (mg/L)	Manganese ³ (mg/L)
GW-01	Acacia	0.49	< 0.10 U	ND	1.9, J, O	ND	0.050 U	0.18	0.01
GW-02	E. Voorhees	0.73	< 0.10 U	ND	2.9	ND	0.050 U	< 0.10 U	0.009
GW-03	W. Voorhees	0.58	< 0.10 U	ND	2.3	ND	0.056	0.16	0.031

Notes:

1. TRC is Total Residual Chlorine the recommended TRC range is 0.20 mg/L to 2.0 mg/L.
2. The Secondary Standard for Iron is 0.3 mg/L.
3. The Secondary Standard for Manganese is 0.05 mg/L.
4. The Maximum Contaminant Level for THMs is 0.080 mg/L.
5. The Maximum Contaminant Level for HAAs is 0.060 mg/L.
6. "ND" indicates the analyte was not detected or is less than the respective detection limits. U, J, O data qualifiers described in Table 4.
7. VOC is Volatile Organic Compounds.
8. TOC is Total Organic Carbon.
9. Pest/Semi is Pesticides and Semi-volatile Organic Compounds.
10. The Maximum Contaminant Level for Nitrate is 10 mg/L and Nitrite is 1 mg/L

Table 2: Field Measurement Data recorded on April 2-3, 2019

Table 2: Field Measurement Data						
Sample Locations	Total Residual Chlorine (mg/l cl²)	pH (S.U.)	Temperature (Degrees C)	Specific Conductance (umhos/cm)	Turbidity (NTU)	Date/Time
Groundwater Wells (GW)						
GW-01	0.49	7.67	18.5	233.1	1.76	4/2/2019 @ 10:30
GW-02	0.73	7.93	18.4	231.0	0.35	4/2/2019 @ 11:25
GW-03	0.58	7.76	18.7	242.0	0.36	4/2/2019 @ 12:07
Distribution System (DS)						
DS-01	0.55	7.68	18.3	227.2	0.35	4/3/2019 @ 09:48
DS-02	0.33	8.14	15.0	227.1	0.19	4/3/2019 @ 10:18
DS-03	0.67	7.79	14.5	226.4	0.10	4/3/2019 @ 10:50
DS-04	0.52	7.78	17.4	239.7	0.21	4/3/2019 @ 11:25
DS-05	0.45	7.82	14.0	238.8	0.15	4/3/2019 @ 11:45
DS-06	0.34	7.72	17.4	218.9	0.10	4/3/2019 @ 12:30
DS-07	0.19	7.89	15.6	225.9	0.12	4/3/2019 @ 13:00
DS-08	0.52	7.74	15.3	238.0	0.19	4/3/2019 @ 13:37
DS-09	0.64	7.87	15.9	228.8	0.14	4/3/2019 @ 15:05
DS-10	0.27	7.62	16.4	219.1	0.12	4/3/2019 @ 16:20

**Table 3: LSASD Complete Laboratory Data Results- Groundwater Wells
Study: 19-0106 - The City of Denmark, SC -April 2, 2019**

-	Sample ID	GW-01	GW-02	GW-03	Trip blank-01	
-	Sample Date	4/2/2019 10:40	4/2/2019 11:25	4/2/2019 12:10	4/2/2019 11:30	NPDWR
Analyte	Units				VOC only	MCL
Bromide	mg/L	0.10 U	0.10 U	0.10 U	-	-
Nitrate/Nitrite as N	mg/L	0.050 U	0.050 U	0.056	-	10/1.0-mg/L
Total Organic Carbon	mg/L	1.9 J, O	2.9	2.3	-	-
Iron	ug/L	180	100 U	160	-	NSDWR-0.3 mg/L
Manganese	ug/L	10	9	31	-	NSDWR-0.05 mg/L
(m- and/or p-) Xylene	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	10 mg/L (totals)
1,1,1,2-Tetrachloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,1,1-Trichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.2 mg/L
1,1,2,2-Tetrachloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	mg/L
1,1,2-Trichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
1,1-Dichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,1-Dichloroethene (1,1-Dichloroethylene)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.007 mg/L
1,1-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,2,3-Trichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,2,3-Trichloropropane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,2,4-Trichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.07 mg/L
1,2,4-Trimethylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,2-Dibromo-3-Chloropropane (DBCP)	ug/L	0.20 U	0.20 U	0.20 U	0.20 U	0.0002 mg/L
1,2-Dibromoethane (EDB)	ug/L	0.050 U	0.050 U	0.050 U	0.050 U	0.00005 mg/L
1,2-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.6 mg/L
1,2-Dichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
1,2-Dichloropropane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
1,3,5-Trimethylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,3-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,3-Dichloropropane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
1,4-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.075 mg/L
2,2-Dichloropropane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Acenaphthene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Acenaphthylene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Acetone	ug/L	4.0 U	4.0 U	4.0 U	4.0 U	-
Anthracene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Benzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
Benzo(a)anthracene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Benzo(a)pyrene	ug/L	0.20 U, J, O	0.20 U, J, O	0.20 U, J, O	-	0.0002 mg/L

**Table 3: LSASD Complete Laboratory Data Results- Groundwater Wells
Study: 19-0106 - The City of Denmark, SC -April 2, 2019**

-	Sample ID	GW-01	GW-02	GW-03	Trip blank-01	
-	Sample Date	4/2/2019 10:40	4/2/2019 11:25	4/2/2019 12:10	4/2/2019 11:30	NPDWR
Analyte	Units				VOC only	MCL
Benzo(b)fluoranthene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Benzo(ghi)perylene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Benzo(k)fluoranthene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Benzyl butyl phthalate	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Bis(2-ethylhexyl) phthalate	ug/L	2.0 U, J, O	2.0 U, J, O	2.0 U, J, O	-	0.006 mg/L
Bis-(2-Ethylhexyl) Adipate	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	0.4 mg/L
Bromobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Bromochloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Bromodichloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	-
Bromomethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	-
Carbon Tetrachloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
Carbon disulfide	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	-
Chlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.1 mg/L
Chloroethane	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	-
Chloroform	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Chloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Chrysene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Cyclohexane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Di-n-butylphthalate	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Di-n-octylphthalate	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Dibenz(aH)anthracene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Dibromochloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Dibromomethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Dichlorodifluoromethane (Freon 12)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Diethyl phthalate	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Dimethyl phthalate	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Endrin	ug/L	2.0 U, J, O	2.0 U, J, O	2.0 U, J, O	-	0.002 mg/L
Ethyl Benzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.7 mg/L
Fluoranthene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Fluorene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Heptachlor	ug/L	0.39 U, J, O	0.40 U, J, O	0.40 U, J, O	-	0.0004 mg/L
Heptachlor epoxide	ug/L	0.20 U, J, O	0.20 U, J, O	0.20 U, J, O	-	0.0002 mg/L
Hexachlorobenzene (HCB)	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	0.001 mg/L
Hexachlorobutadiene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Indeno (1,2,3-cd) pyrene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Isopropylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-

**Table 3: LSASD Complete Laboratory Data Results- Groundwater Wells
Study: 19-0106 - The City of Denmark, SC -April 2, 2019**

-	Sample ID	GW-01	GW-02	GW-03	Trip blank-01	
-	Sample Date	4/2/2019 10:40	4/2/2019 11:25	4/2/2019 12:10	4/2/2019 11:30	NPDWR
Analyte	Units				VOC only	MCL
Methoxychlor	ug/L	9.8 U, J, O	10 U, J, O	9.9 U, J, O	-	0.04 mg/L
Methyl Acetate	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	-
Methyl Butyl Ketone	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	-
Methyl Ethyl Ketone	ug/L	4.0 U	4.0 U	4.0 U	4.0 U	-
Methyl Isobutyl Ketone	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	-
Methyl T-Butyl Ether (MTBE)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Methylcyclohexane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Methylene Chloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
Naphthalene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Phenanthrene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Pyrene	ug/L	0.98 U, J, O	1.0 U, J, O	0.99 U, J, O	-	-
Styrene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.1 mg/L
Tetrachloroethene (Tetrachloroethylene)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
Toluene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	1.0 mg/L
Trichloroethene (Trichloroethylene)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.005 mg/L
Trichlorofluoromethane (Freon 11)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
Vinyl chloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.002 mg/L
cis-1,2-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.07 mg/L
cis-1,3-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	mg/L
gamma-BHC (Lindane)	ug/L	0.20 U, J, O	0.20 U, J, O	0.20 U, J, O	-	0.0002 mg/L
n-Butylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
n-Propylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
o-Chlorotoluene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
o-Xylene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	10 mg/L (totals)
p-Chlorotoluene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
p-Isopropyltoluene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
sec-Butylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
tert-Butylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-
trans-1,2-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.1 mg/L
trans-1,3-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	-

**Table 3 (continued): LSASD Complete Laboratory Data Results- Distribution System Locations
Study: 19-0106 - The City of Denmark, SC -April 3, 2019**

-	Sample ID	DS-01	DS-02	DS-03	DS-04	DS-05	DS-06	DS-07	DS-08	DS-09	DS-10	
-	Sample Date	4/3/2019 9:50	4/3/2019 10:20	4/3/2019 11:00	4/3/2019 11:25	4/3/2019 11:50	4/3/2019 12:30	4/3/2019 13:00	4/3/2019 13:35	4/3/2019 15:05	4/3/2019 16:20	NPDWR
Analyte	Units											MCL
Bromide	mg/L	0.10 U, J, O	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U, J, O	0.10 U	0.10 U	0.10 U	-
Bromodichloromethane	ug/L	0.50 U	0.94	0.50 U	0.51	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0 mg/L
Bromoform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0 mg/L
Chloroform	ug/L	0.50 U	0.58	0.50 U	0.50 U	0.50 U	0.95	0.50 U	0.50 U	0.50 U	0.50 U	-
Dibromochloromethane	ug/L	0.50 U	1.2	0.50 U	0.57	0.50 U	0.50 U	0.76	0.50 U	0.50 U	0.50 U	0.06 mg/L
TTHM (calculated)*	mg/L	0.001 U	0.00272	0.001 U	0.00108	0.001 U	0.00095	0.00076	0.001 U	0.001 U	0.001 U	0.080 mg/L
Iron	ug/L	120	100 U	100 U	140	240	100 U	100 U	100 U	100 U	100 U	NSDWR- 0.3mg/L
Manganese	ug/L	7.9	5.5	5.0 U	25	41	5.0 U	5.0 U	11	5.0 U	5.0 U	NSDWR- 0.05mg/L
Rodgers & Callcott Environmental Laboratory Results												
Total Coliform/100ml	Present/Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	5.0 %
<i>E. Coli</i>	Present/Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	negative
Haloacetic Acids												-
Dibromoacetic Acid	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Dichloroacetic Acid	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0 mg/L
Monobromoacetic Acid	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Monochloroacetic Acid	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Trichloroacetic Acid	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3-mg/L
Total HAA5	mg/L	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.060 mg/L

* TTHM- The reporting limit for bromoform was used when no THMs were detected in the sample. When individual THMs were detected, TTHM was calculated by summing the detected values.

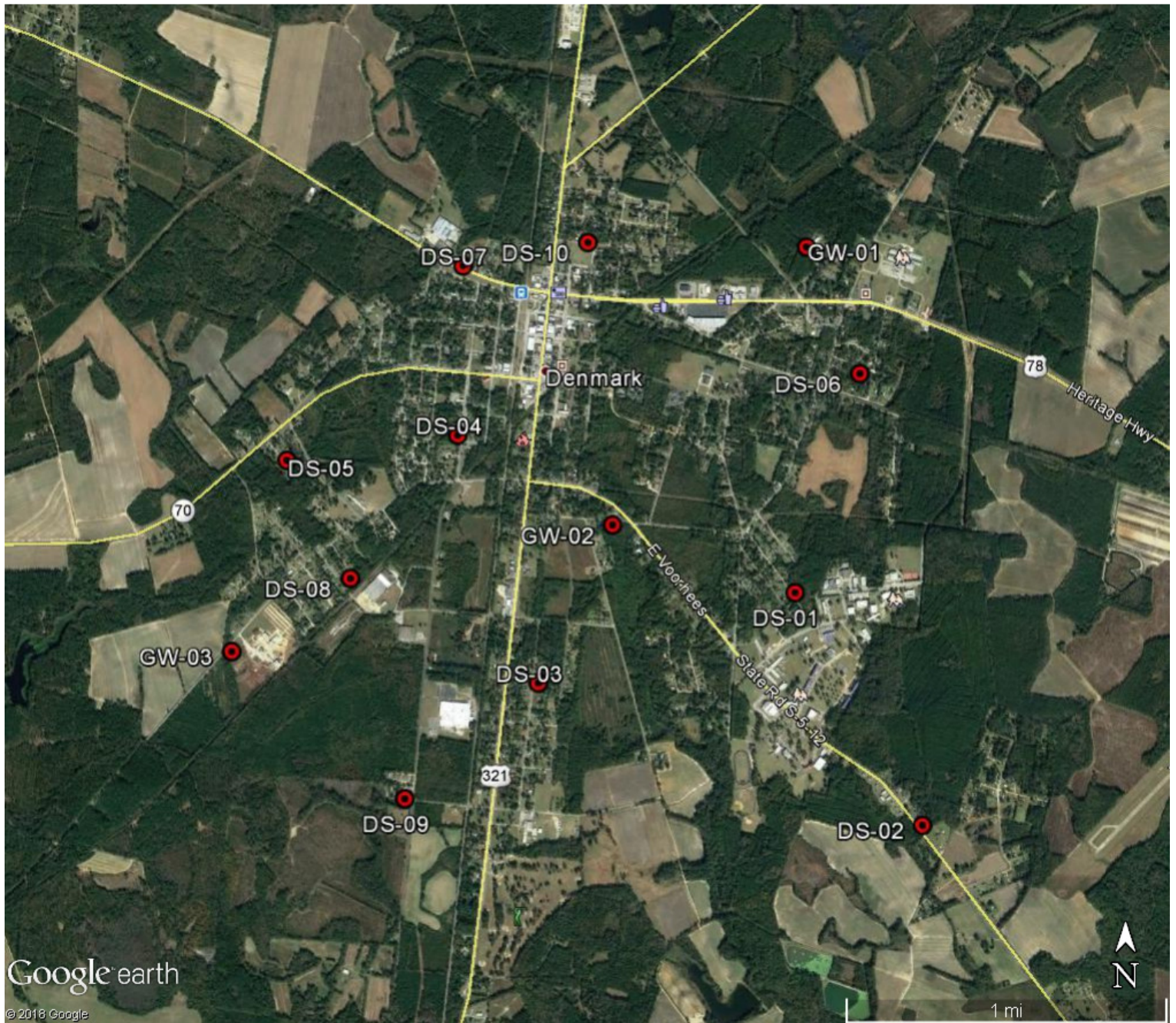
Table 4: Data Qualifiers

DEFINITIONS OF REGION 4 ANALYTICAL DATA QUALIFIERS	
U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O	Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the export files.
H-7 *	Recommended preparation holding times exceeded
QI-1	Internal standard was outside method control limits
QL-1	Laboratory Control Spike Recovery less than method control limits
QL-3	Laboratory Control Spike precision outside method control limits
QR-1	MRL verification recovery less than lower control limits
QM-1	Matrix Spike Recovery less than method control limits

Data qualifiers have been reported in some of the laboratory analytical reports found in Appendix C.

* The data qualifiers associated with the SVOC organic compounds for the groundwater samples indicated that the laboratory samples were originally extracted within the 14-day holding time from the time of collection. Analysis of the original extracts indicated the area counts for two of the three internal standards were either non-existent or very low. Re-extractions were done, adding sodium sulfite to the samples beforehand, beyond the original holding time, hence the H, J qualifier per the laboratory's quality system. Organic compounds were not detected or were less than the respective detection limits.

Figure 1: City of Denmark Field Sampling Locations



VI. RESULTS OF FIELD QUALITY CONTROL SAMPLES

Field quality control samples for this investigation consisted of:

- Samples GW-02 and DS-02 were used for the source matrix spike and matrix spike duplicates (MS/MSD). Extra sample volume was collected from GW-02 for VOC, semi-volatiles/pesticides, and Fe and Mn. Extra sample volume was collected from DS-02 for total trihalomethanes (TTHM) and total haloacetic acid (HAA5).
- No VOC analytes were detected in the trip blank.
- Results of quality control analyses are contained in the Laboratory Analytical Reports in Appendix C and are acceptable for the purposes of this investigation.

VII. METHODOLOGY

Field activities were conducted in accordance with the Region 4, LSASD *Field Branches Quality System and Technical Procedures*. Specific field procedures applicable to this investigation included the following:

SESDPROC-100-R4, Field pH Measurement
SESDPROC-101-R6, Field Specific Conductance Measurement
SESDPROC-102-R4, Field Temperature Measurement
SESDPROC-103-R4, Field Turbidity Measurement
SESDPROC-110-R4, Global Positioning System
SESDPROC-112-R5, Field Screening of Total Residual Chlorine
SESDPROC-305-R3, Potable Water Supply Sampling
SESDPROC-205-R3, Field Equipment Cleaning and Decontamination

Samples were analyzed at the LSASD laboratory in accordance with the *SESD's Analytical Support Branch Laboratory Operations and Quality Assurance Manual*, April 2018. Analytical methods used were:

Total Residual Chlorine by Standard Method 4500-CL G-20011 Method 8167(total chlorine)
Nitrate/Nitrite by Method 353.2
Total Organic Carbon by Standard Method 5310
Iron and Manganese by EPA Method 200.7, revision 4.4
Volatile Organics by EPA Method 524.4
Semi-Volatiles/Pesticides (organic compounds) by EPA Method 525.2
TTHM by EPA Method 524.4
Bromide by Method 300.0

Samples were analyzed at the Rodgers & Callcott Environmental Laboratory located at 426 Fairforest Way, Greenville, SC 29606, and 215 Stoneridge Dr, Columbia, SC 29210. Rodgers & Callcott is a certified NELAP drinking water laboratory. Analytical methods used were:

Total Coliforms/*E.coli* by SM 9223B-2004
HAA5 by EPA Method 552.3

The LSASD activities depicted in this report are accredited under the US EPA Region 4 Laboratory Services & Applied Science Division ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1644.

VIII. CONCLUSIONS

The analytical results for this study indicated that none of the field locations sampled exceeded the Maximum Contaminant Levels (MCL) for the EPA National Primary Drinking Water Regulations (NPDWR) for the parameters of interest. Iron and manganese results did not exceed any of the secondary MCLs for National Secondary Drinking Water Regulations (NSDWR) for both the groundwater wells and the distribution system.

Appendix A

Table 5: Field Station Location Data (**sensitive information**)

Station Identification	Sampling Location	GPS Coordinates (degrees, decimal minutes)
Groundwater Wells (GW)		
GW-01	Acacia Well 46 Acacia Street	Lat: 33° 19.684' N Long: 81°07.660' W
GW-02	East Voorhees Well 51 Ceceile Street	Lat: 33 °18.944' N Long: 81° 08.318' W
GW-03	West Voorhees Well 7817 West Voorhees	Lat: 33°18.605' N Long: 81°09.554' W
Distribution System (DS)		
DS-01	251 Wheat Street	Lat: 33°18.760' N Long: 81°07.733' W
DS-02	4998 Voorhees Road	Lat: 33°18.129' N Long: 81°07.314' W
DS-03	187 Chestnut Ave	Lat: 33°18.516' N Long: 81°08.553' W
DS-04	476 Locust Street	Lat: 33°19.193' N Long: 81°08.820' W
DS-05	91 Wisteria Street	Lat: 33°19.120' N Long: 81°09.378' W
DS-06	246 Sawdust Avenue	Lat: 33°19.320' N Long: 81° 07.499' W
DS-07	18958 Heritage Highway	Lat: 33°19.648' N Long: 81° 08.808' W
DS-08	120 Spruce Street	Lat: 33°18.802' N Long: 81°09.175' W
DS-09	1900 Locust Avenue	Lat: 33°18.201' N Long: 81°08.992' W
DS-10	107 East Richards Street	Lat: 33°19.713' N Long: 81°08.405' W

Appendix B

LSASD Photographic log (yellow directional arrow added for clarity)



PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 1 **Date:** 4/2/2019

Direction Photo Taken:

Northwest



Description:

GW-01-
Acacia Well – 290 feet- 10-inch well-
submersible pump.

Yellow arrow indicates sample location.



PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 2 **Date:** 4/2/2019

Direction Photo Taken:

South



Description:

GW-02-
East Voorhees Well
305 feet- 12 inch well
– Turbine pump-
removed aerator
before sampling.



PHOTOGRAPHIC LOG

Photo taken by:

Bill Simpson

Project Name:

19-0106 Denmark, SC Drinking Water Sampling Event

Photo No.

3

Date:

4/2/2019

Direction Photo Taken:

West

Description:

GW-03-
West Voorhees Well
310 Feet- 10-inch
well- submersible
pump.



PHOTOGRAPHIC LOG

Photo taken by:

Bill Simpson

Project Name:

19-0106 Denmark, SC Drinking Water Sampling Event

Photo No.

4

Date:

4/3/2019

Direction Photo Taken:

Northeast

Description:

DS-01- Sample spigot
in the front yard.
Removed hose before
sampling.





PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 5 **Date:** 4/3/2019

Direction Photo Taken:

North



Description:

DS-02- Sample spigot on front of the house.



PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 6 **Date:** 4/3/2019

Direction Photo Taken:

Northwest



Description:

DS-03- Sample spigot in the backyard beside the porch steps.



PHOTOGRAPHIC LOG

Photo taken by:

Bill Simpson

Project Name:

19-0106 Denmark, SC Drinking Water Sampling Event

Photo No.

7

Date:

4/3/2019

Direction Photo Taken:

South

Description:

DS-04-Sample spigot in the front yard.



PHOTOGRAPHIC LOG

Photo taken by:

Bill Simpson

Project Name:

19-0106 Denmark, SC Drinking Water Sampling Event

Photo No.

8

Date:

4/3/2019

Direction Photo Taken:

Southeast

Description:

DS-05- Sample spigot in front of house.





PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 10 **Date:** 4/3/2019

Direction Photo Taken:

North

Description:

DS-06-Sample spigot in the backyard



PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 11 **Date:** 4/3/2019

Direction Photo Taken:

East

Description:

DS-07- Sample spigot in front of house.





PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No.
12

Date:
4/3/2019

Direction Photo Taken:

Northeast

Description:

DS-08- Sample spigot in the backyard.



PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No.
13

Date:
4/3/2019

Direction Photo Taken:

West

Description:

DS-09- Sample spigot in the front yard.





PHOTOGRAPHIC LOG

Photo taken by:
Bill Simpson

Project Name:
19-0106 Denmark, SC Drinking Water Sampling Event

Photo No. 15 **Date:** 4/3/2019

Direction Photo Taken:

South

Description:
DS-10- Sample spigot on the side of the house. Due to mineralization of the hose to the spigot threads it could not be removed. Sample taken at the kitchen sink inside the house. No photo was taken inside the house at the kitchen sink. Removed aerator before sampling.



Appendix C

LSASD/Rodgers & Callcott Laboratory Analytical Report

Analytical Reports	Total Pages
Classical/Nutrient Analysis, Nitrate/Nitrite, TOC	10
Total Metals (Iron and Manganese)	19
Volatile Organics	40
Semi-Volatiles/Pesticides	19
Classical Nutrient Analysis, Bromide	19
Total Coliform /E. Coli and HAA5(Rodgers & Callcott)	12



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

April 23, 2019

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 19-0106, Drinking Water Sampling in Denmark, SC

FROM: Daniel Adams
 ICS Analyst

THRU: Jeffrey Hendel, Chief
 ASB Inorganic Chemistry Section

TO: Bill Simpson

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Services Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Classical/Nutrient Analyses (CNA)		
Classical/Nutrients	SM 5310B (Water)	ISO
Nitrate and/or Nitrite	EPA 353.2 (Water)	ISO



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Sample Disposal Policy

Due to limited space for long term sample storage, ASB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Daniel Adams

SAMPLES INCLUDED IN THIS REPORT

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GW-01	E191405-12	Potable Water	4/2/19 10:40	4/4/19 11:30
GW-02	E191405-13	Potable Water	4/2/19 11:25	4/4/19 11:30
GW-03	E191405-14	Potable Water	4/2/19 12:10	4/4/19 11:30



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
J The identification of the analyte is acceptable; the reported value is an estimate.
QM-1 Matrix Spike Recovery less than method control limits

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E701250	Total Organic Carbon	1.9	J, QM-1	mg/L	1.0	4/18/19 10:10	4/18/19 12:02	SM 5310B
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	4/05/19 11:33	4/05/19 13:41	EPA 353.2



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E701250	Total Organic Carbon	2.9		mg/L	1.0	4/18/19 10:10	4/18/19 13:23	SM 5310B
E701177	Nitrate/Nitrite as N	0.050	U	mg/L	0.050	4/05/19 11:33	4/05/19 13:41	EPA 353.2



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E701250	Total Organic Carbon	2.3		mg/L	1.0	4/18/19 10:10	4/18/19 13:48	SM 5310B
E701177	Nitrate/Nitrite as N	0.056		mg/L	0.050	4/05/19 11:33	4/05/19 13:41	EPA 353.2



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses (CNA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1904022 - C 353.2 NO3-NO2										
Blank (1904022-BLK1) Prepared & Analyzed: 04/05/19										
EPA 353.2										
Nitrate/Nitrite as N	U	0.050	mg/L							U
LCS (1904022-BS1) Prepared & Analyzed: 04/05/19										
EPA 353.2										
Nitrate/Nitrite as N	0.48150	0.050	mg/L	0.49950		96.4	90-110			
Matrix Spike (1904022-MS1) Source: E191405-14 Prepared & Analyzed: 04/05/19										
EPA 353.2										
Nitrate/Nitrite as N	0.53660	0.050	mg/L	0.49950	0.056200	96.2	90-110			
Matrix Spike Dup (1904022-MSD1) Source: E191405-14 Prepared & Analyzed: 04/05/19										
EPA 353.2										
Nitrate/Nitrite as N	0.54090	0.050	mg/L	0.49950	0.056200	97.0	90-110	0.798	10	
MRL Verification (1904022-PS1) Prepared & Analyzed: 04/05/19										
EPA 353.2										
Nitrate/Nitrite as N	0.049300	0.050	mg/L	0.050000		98.6	70-130			MRL-1, U
Batch 1904053 - C 415 TOC Wtr										
Blank (1904053-BLK1) Prepared & Analyzed: 04/18/19										
SM 5310B										
Total Organic Carbon	U	1.0	mg/L							U
LCS (1904053-BS1) Prepared & Analyzed: 04/18/19										
SM 5310B										
Total Organic Carbon	47.050	1.0	mg/L	50.000		94.1	90-110			
LCS (1904053-BS2) Prepared & Analyzed: 04/18/19										
SM 5310B										
Total Organic Carbon	5.2420	1.0	mg/L	5.0000		105	90-110			
LCS Dup (1904053-BSD1) Prepared & Analyzed: 04/18/19										
SM 5310B										
Total Organic Carbon	46.150	1.0	mg/L	50.000		92.3	90-110	1.93	10	



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

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Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 1904053 - C 415 TOC Wtr

Matrix Spike (1904053-MS1) Source: E191405-12 Prepared & Analyzed: 04/18/19

SM 5310B										
Total Organic Carbon	46.150	1.0	mg/L	50.000	1.9090	88.5	90-110			QM-1

Matrix Spike Dup (1904053-MSD1) Source: E191405-12 Prepared & Analyzed: 04/18/19

SM 5310B										
Total Organic Carbon	47.250	1.0	mg/L	50.000	1.9090	90.7	90-110	2.36	10	

MRL Verification (1904053-PS1) Prepared & Analyzed: 04/18/19

SM 5310B										
Total Organic Carbon	1.2330	1.0	mg/L	1.0000		123	70-130			MRL-1



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Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- MRL-1 MRL verification for Potable Water matrix (Drinking Water)
- QM-1 Matrix Spike Recovery less than method control limits



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

May 2, 2019

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 19-0106, Drinking Water Sampling in Denmark,SC

FROM: Floyd Wellborn
 LSB Inorganic Chemistry Section Chief

THRU: Sandra Aker, Chief
 Laboratory Services Branch

TO: Bill Simpson

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Total Metals (TMTL)		
Total Metals	EPA 200.7 (Water)	ISO



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Report Narrative for Work Order: E191405 Analysis: TMTL

5/2/19 FW TMTL: These results are re-reported to correct the identification of the method used for analysis. The correct method used to analyze the samples was EPA Method 200.7. No results were changed. This report replaces the report E191405 TMTL FINAL 04 23 19 1557.

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at

R4SampleCustody@epa.gov.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

SAMPLES INCLUDED IN THIS REPORT

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
DS-01	E191405-02	Potable Water	4/3/19 09:50	4/4/19 11:30
DS-02	E191405-03	Potable Water	4/3/19 10:20	4/4/19 11:30
DS-03	E191405-04	Potable Water	4/3/19 11:00	4/4/19 11:30
DS-04	E191405-05	Potable Water	4/3/19 11:25	4/4/19 11:30
DS-05	E191405-06	Potable Water	4/3/19 11:50	4/4/19 11:30
DS-06	E191405-07	Potable Water	4/3/19 12:30	4/4/19 11:30
DS-07	E191405-08	Potable Water	4/3/19 13:00	4/4/19 11:30
DS-08	E191405-09	Potable Water	4/3/19 13:35	4/4/19 11:30
DS-09	E191405-10	Potable Water	4/3/19 15:05	4/4/19 11:30
DS-10	E191405-11	Potable Water	4/3/19 16:20	4/4/19 11:30
GW-01	E191405-12	Potable Water	4/2/19 10:40	4/4/19 11:30
GW-02	E191405-13	Potable Water	4/2/19 11:25	4/4/19 11:30
GW-03	E191405-14	Potable Water	4/2/19 12:10	4/4/19 11:30



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DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-01

Lab ID: E191405-02

Station ID: DS-01

Matrix: Potable Water

Date Collected: 4/3/19 9:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	120		ug/L	100	4/15/19 8:34	4/16/19 16:30	EPA 200.7
7439-96-5	Manganese	7.9		ug/L	5.0	4/15/19 8:34	4/16/19 16:30	EPA 200.7



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-02

Lab ID: E191405-03

Station ID: DS-02

Matrix: Potable Water

Date Collected: 4/3/19 10:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 16:38	EPA 200.7
7439-96-5	Manganese	5.5		ug/L	5.0	4/15/19 8:34	4/16/19 16:38	EPA 200.7



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-03

Lab ID: E191405-04

Station ID: DS-03

Matrix: Potable Water

Date Collected: 4/3/19 11:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 16:41	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	4/15/19 8:34	4/16/19 16:41	EPA 200.7



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-04

Lab ID: E191405-05

Station ID: DS-04

Matrix: Potable Water

Date Collected: 4/3/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	140		ug/L	100	4/15/19 8:34	4/16/19 16:44	EPA 200.7
7439-96-5	Manganese	25		ug/L	5.0	4/15/19 8:34	4/16/19 16:44	EPA 200.7



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-05

Lab ID: E191405-06

Station ID: DS-05

Matrix: Potable Water

Date Collected: 4/3/19 11:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	240		ug/L	100	4/15/19 8:34	4/16/19 16:47	EPA 200.7
7439-96-5	Manganese	41		ug/L	5.0	4/15/19 8:34	4/16/19 16:47	EPA 200.7



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-06

Lab ID: E191405-07

Station ID: DS-06

Matrix: Potable Water

Date Collected: 4/3/19 12:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 16:50	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	4/15/19 8:34	4/16/19 16:50	EPA 200.7



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-07

Lab ID: E191405-08

Station ID: DS-07

Matrix: Potable Water

Date Collected: 4/3/19 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 16:58	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	4/15/19 8:34	4/16/19 16:58	EPA 200.7



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-08

Lab ID: E191405-09

Station ID: DS-08

Matrix: Potable Water

Date Collected: 4/3/19 13:35

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 17:01	EPA 200.7
7439-96-5	Manganese	11		ug/L	5.0	4/15/19 8:34	4/16/19 17:01	EPA 200.7



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-09

Lab ID: E191405-10

Station ID: DS-09

Matrix: Potable Water

Date Collected: 4/3/19 15:05

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 17:04	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	4/15/19 8:34	4/16/19 17:04	EPA 200.7



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Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-10

Lab ID: E191405-11

Station ID: DS-10

Matrix: Potable Water

Date Collected: 4/3/19 16:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 17:07	EPA 200.7
7439-96-5	Manganese	5.0	U	ug/L	5.0	4/15/19 8:34	4/16/19 17:07	EPA 200.7



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	180		ug/L	100	4/15/19 8:34	4/16/19 17:10	EPA 200.7
7439-96-5	Manganese	10		ug/L	5.0	4/15/19 8:34	4/16/19 17:10	EPA 200.7



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	100	U	ug/L	100	4/15/19 8:34	4/16/19 17:18	EPA 200.7
7439-96-5	Manganese	9.0		ug/L	5.0	4/15/19 8:34	4/16/19 17:18	EPA 200.7



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Floyd Wellborn

Total Metals

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7439-89-6	Iron	160		ug/L	100	4/15/19 8:34	4/16/19 17:21	EPA 200.7
7439-96-5	Manganese	31		ug/L	5.0	4/15/19 8:34	4/16/19 17:21	EPA 200.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Floyd Wellborn

Total Metals (TMTL) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1904041 - M 200.2 Metals Water										
Blank (1904041-BLK1)					Prepared: 04/15/19 Analyzed: 04/16/19					
EPA 200.7										
Iron	U	100	ug/L							U
Manganese	U	5.0	"							U
LCS (1904041-BS1)					Prepared: 04/15/19 Analyzed: 04/16/19					
EPA 200.7										
Iron	5114.7	100	ug/L	5000.0		102	85-115			
Manganese	514.18	5.0	"	500.00		103	85-115			
Matrix Spike (1904041-MS1)					Source: E191405-02		Prepared: 04/15/19 Analyzed: 04/16/19			
EPA 200.7										
Iron	5151.2	100	ug/L	5000.0	122.11	101	70-130			
Manganese	516.38	5.0	"	500.00	7.8851	102	70-130			
Matrix Spike (1904041-MS2)					Source: E191405-12		Prepared: 04/15/19 Analyzed: 04/16/19			
EPA 200.7										
Iron	5239.9	100	ug/L	5000.0	175.06	101	70-130			
Manganese	516.12	5.0	"	500.00	10.217	101	70-130			
Matrix Spike Dup (1904041-MSD1)					Source: E191405-02		Prepared: 04/15/19 Analyzed: 04/16/19			
EPA 200.7										
Iron	5118.0	100	ug/L	5000.0	122.11	99.9	70-130	0.648	20	
Manganese	514.82	5.0	"	500.00	7.8851	101	70-130	0.301	20	
Matrix Spike Dup (1904041-MSD2)					Source: E191405-12		Prepared: 04/15/19 Analyzed: 04/16/19			
EPA 200.7										
Iron	5217.3	100	ug/L	5000.0	175.06	101	70-130	0.432	20	
Manganese	516.03	5.0	"	500.00	10.217	101	70-130	0.0178	20	
MRL Verification (1904041-PS1)					Prepared: 04/15/19 Analyzed: 04/16/19					
EPA 200.7										
Iron	101.16	100	ug/L	100.00		101	70-130			MRL-1
Manganese	5.6795	5.0	"	5.0000		114	70-130			MRL-1



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Floyd Wellborn

Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- MRL-1 MRL verification for Potable Water matrix (Drinking Water)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

April 25, 2019

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 19-0106, Drinking Water Sampling in Denmark, SC

FROM: Sallie Hale
 OCS Analyst

THRU: Floyd Wellborn, Chief
 ASB Organic Chemistry Section

TO: Bill Simpson

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Services Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Volatile Organics (VOA)		
Volatile organic compounds	EPA 524.4 (Water)	ISO
Volatile organic compounds	EPA 524.4 SIM (Water)	ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Sample Disposal Policy

Due to limited space for long term sample storage, ASB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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SAMPLES INCLUDED IN THIS REPORT

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
TB-01	E191405-01	Trip Blank - Water	4/2/19 11:30	4/4/19 11:30
DS-01	E191405-02	Potable Water	4/3/19 09:50	4/4/19 11:30
DS-02	E191405-03	Potable Water	4/3/19 10:20	4/4/19 11:30
DS-03	E191405-04	Potable Water	4/3/19 11:00	4/4/19 11:30
DS-04	E191405-05	Potable Water	4/3/19 11:25	4/4/19 11:30
DS-05	E191405-06	Potable Water	4/3/19 11:50	4/4/19 11:30
DS-06	E191405-07	Potable Water	4/3/19 12:30	4/4/19 11:30
DS-07	E191405-08	Potable Water	4/3/19 13:00	4/4/19 11:30
DS-08	E191405-09	Potable Water	4/3/19 13:35	4/4/19 11:30
DS-09	E191405-10	Potable Water	4/3/19 15:05	4/4/19 11:30
DS-10	E191405-11	Potable Water	4/3/19 16:20	4/4/19 11:30
GW-01	E191405-12	Potable Water	4/2/19 10:40	4/4/19 11:30
GW-02	E191405-13	Potable Water	4/2/19 11:25	4/4/19 11:30
GW-03	E191405-14	Potable Water	4/2/19 12:10	4/4/19 11:30



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DATA QUALIFIER DEFINITIONS

U The analyte was not detected at or above the reporting limit.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



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D.A.R.T. Id: 19-0106

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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: **TB-01**

Lab ID: **E191405-01**

Station ID:

Matrix: Trip Blank - Water

Date Collected: 4/2/19 11:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
71-55-6	1,1,1-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
79-00-5	1,1,2-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-34-3	1,1-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
563-58-6	1,1-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
87-61-6	1,2,3-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
96-18-4	1,2,3-Trichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
120-82-1	1,2,4-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
95-63-6	1,2,4-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	0.20	U	ug/L	0.20	4/15/19 11:24	4/15/19 15:18	EPA 524.4 SIM
106-93-4	1,2-Dibromoethane (EDB)	0.050	U	ug/L	0.050	4/15/19 11:24	4/15/19 15:18	EPA 524.4 SIM
95-50-1	1,2-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
107-06-2	1,2-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
78-87-5	1,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
108-67-8	1,3,5-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
541-73-1	1,3-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
142-28-9	1,3-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
106-46-7	1,4-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
594-20-7	2,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
67-64-1	Acetone	4.0	U	ug/L	4.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
71-43-2	Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
108-86-1	Bromobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
74-97-5	Bromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: TB-01

Lab ID: E191405-01

Station ID:

Matrix: Trip Blank - Water

Date Collected: 4/2/19 11:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
74-83-9	Bromomethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-15-0	Carbon disulfide	2.0	U	ug/L	2.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
56-23-5	Carbon Tetrachloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
108-90-7	Chlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-00-3	Chloroethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
74-87-3	Chloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
10061-01-5	cis-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
110-82-7	Cyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
74-95-3	Dibromomethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-71-8	Dichlorodifluoromethane (Freon 12)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
100-41-4	Ethyl Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
87-68-3	Hexachlorobutadiene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
98-82-8	Isopropylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
79-20-9	Methyl Acetate	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
591-78-6	Methyl Butyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
78-93-3	Methyl Ethyl Ketone	4.0	U	ug/L	4.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
108-10-1	Methyl Isobutyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 17:40	EPA 524.4
1634-04-4	Methyl T-Butyl Ether (MTBE)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
108-87-2	Methylcyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-09-2	Methylene Chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
104-51-8	n-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
103-65-1	n-Propylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
95-49-8	o-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
95-47-6	o-Xylene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4



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D.A.R.T. Id: 19-0106

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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: TB-01

Lab ID: E191405-01

Station ID:

Matrix: Trip Blank - Water

Date Collected: 4/2/19 11:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
106-43-4	p-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
99-87-6	p-Isopropyltoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
135-98-8	sec-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
100-42-5	Styrene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
98-06-6	tert-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
108-88-3	Toluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
10061-02-6	trans-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-69-4	Trichlorofluoromethane (Freon 11)	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 17:40	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-01

Lab ID: E191405-02

Station ID: DS-01

Matrix: Potable Water

Date Collected: 4/3/19 9:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 18:07	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 18:07	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 18:07	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 18:07	EPA 524.4



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Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-02

Lab ID: E191405-03

Station ID: DS-02

Matrix: Potable Water

Date Collected: 4/3/19 10:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.94		ug/L	0.50	4/10/19 16:58	4/10/19 23:00	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 23:00	EPA 524.4
67-66-3	Chloroform	0.58		ug/L	0.50	4/10/19 16:58	4/10/19 23:00	EPA 524.4
124-48-1	Dibromochloromethane	1.2		ug/L	0.50	4/10/19 16:58	4/10/19 23:00	EPA 524.4



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Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-03

Lab ID: E191405-04

Station ID: DS-03

Matrix: Potable Water

Date Collected: 4/3/19 11:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 18:34	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 18:34	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 18:34	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 18:34	EPA 524.4



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Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-04

Lab ID: E191405-05

Station ID: DS-04

Matrix: Potable Water

Date Collected: 4/3/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.51		ug/L	0.50	4/10/19 16:58	4/10/19 19:00	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 19:00	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 19:00	EPA 524.4
124-48-1	Dibromochloromethane	0.57		ug/L	0.50	4/10/19 16:58	4/10/19 19:00	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-05

Lab ID: E191405-06

Station ID: DS-05

Matrix: Potable Water

Date Collected: 4/3/19 11:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 19:27	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 19:27	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 19:27	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 19:27	EPA 524.4



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Sallie Hale

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Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-06

Lab ID: E191405-07

Station ID: DS-06

Matrix: Potable Water

Date Collected: 4/3/19 12:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 19:53	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 19:53	EPA 524.4
67-66-3	Chloroform	0.95		ug/L	0.50	4/10/19 16:58	4/10/19 19:53	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 19:53	EPA 524.4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-07

Lab ID: E191405-08

Station ID: DS-07

Matrix: Potable Water

Date Collected: 4/3/19 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 20:20	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 20:20	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 20:20	EPA 524.4
124-48-1	Dibromochloromethane	0.76		ug/L	0.50	4/10/19 16:58	4/10/19 20:20	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-08

Lab ID: E191405-09

Station ID: DS-08

Matrix: Potable Water

Date Collected: 4/3/19 13:35

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 20:46	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 20:46	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 20:46	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 20:46	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-09

Lab ID: E191405-10

Station ID: DS-09

Matrix: Potable Water

Date Collected: 4/3/19 15:05

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 21:13	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 21:13	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 21:13	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 21:13	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-10

Lab ID: E191405-11

Station ID: DS-10

Matrix: Potable Water

Date Collected: 4/3/19 16:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 21:39	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/10/19 21:39	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 21:39	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/10/19 21:39	EPA 524.4



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Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
71-55-6	1,1,1-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
79-00-5	1,1,2-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-34-3	1,1-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
563-58-6	1,1-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
87-61-6	1,2,3-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
96-18-4	1,2,3-Trichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
120-82-1	1,2,4-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
95-63-6	1,2,4-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	0.20	U	ug/L	0.20	4/15/19 11:24	4/15/19 15:44	EPA 524.4 SIM
106-93-4	1,2-Dibromoethane (EDB)	0.050	U	ug/L	0.050	4/15/19 11:24	4/15/19 15:44	EPA 524.4 SIM
95-50-1	1,2-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
107-06-2	1,2-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
78-87-5	1,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
108-67-8	1,3,5-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
541-73-1	1,3-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
142-28-9	1,3-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
106-46-7	1,4-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
594-20-7	2,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
67-64-1	Acetone	4.0	U	ug/L	4.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
71-43-2	Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
108-86-1	Bromobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
74-97-5	Bromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
74-83-9	Bromomethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-15-0	Carbon disulfide	2.0	U	ug/L	2.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
56-23-5	Carbon Tetrachloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
108-90-7	Chlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-00-3	Chloroethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
74-87-3	Chloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
10061-01-5	cis-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
110-82-7	Cyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
74-95-3	Dibromomethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-71-8	Dichlorodifluoromethane (Freon 12)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
100-41-4	Ethyl Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
87-68-3	Hexachlorobutadiene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
98-82-8	Isopropylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
79-20-9	Methyl Acetate	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
591-78-6	Methyl Butyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
78-93-3	Methyl Ethyl Ketone	4.0	U	ug/L	4.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
108-10-1	Methyl Isobutyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:19	EPA 524.4
1634-04-4	Methyl T-Butyl Ether (MTBE)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
108-87-2	Methylcyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-09-2	Methylene Chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
104-51-8	n-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
103-65-1	n-Propylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
95-49-8	o-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
95-47-6	o-Xylene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
106-43-4	p-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
99-87-6	p-Isopropyltoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
135-98-8	sec-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
100-42-5	Styrene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
98-06-6	tert-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
108-88-3	Toluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
10061-02-6	trans-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-69-4	Trichlorofluoromethane (Freon 11)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:19	EPA 524.4



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Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
71-55-6	1,1,1-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
79-00-5	1,1,2-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-34-3	1,1-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
563-58-6	1,1-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
87-61-6	1,2,3-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
96-18-4	1,2,3-Trichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
120-82-1	1,2,4-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
95-63-6	1,2,4-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	0.20	U	ug/L	0.20	4/15/19 11:24	4/15/19 16:37	EPA 524.4 SIM
106-93-4	1,2-Dibromoethane (EDB)	0.050	U	ug/L	0.050	4/15/19 11:24	4/15/19 16:37	EPA 524.4 SIM
95-50-1	1,2-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
107-06-2	1,2-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
78-87-5	1,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
108-67-8	1,3,5-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
541-73-1	1,3-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
142-28-9	1,3-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
106-46-7	1,4-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
594-20-7	2,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
67-64-1	Acetone	4.0	U	ug/L	4.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
71-43-2	Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
108-86-1	Bromobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
74-97-5	Bromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
74-83-9	Bromomethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-15-0	Carbon disulfide	2.0	U	ug/L	2.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
56-23-5	Carbon Tetrachloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
108-90-7	Chlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-00-3	Chloroethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
74-87-3	Chloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
10061-01-5	cis-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
110-82-7	Cyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
74-95-3	Dibromomethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-71-8	Dichlorodifluoromethane (Freon 12)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
100-41-4	Ethyl Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
87-68-3	Hexachlorobutadiene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
98-82-8	Isopropylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
79-20-9	Methyl Acetate	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
591-78-6	Methyl Butyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
78-93-3	Methyl Ethyl Ketone	4.0	U	ug/L	4.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
108-10-1	Methyl Isobutyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 0:46	EPA 524.4
1634-04-4	Methyl T-Butyl Ether (MTBE)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
108-87-2	Methylcyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-09-2	Methylene Chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
104-51-8	n-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
103-65-1	n-Propylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
95-49-8	o-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
95-47-6	o-Xylene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
106-43-4	p-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
99-87-6	p-Isopropyltoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
135-98-8	sec-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
100-42-5	Styrene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
98-06-6	tert-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
108-88-3	Toluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
10061-02-6	trans-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-69-4	Trichlorofluoromethane (Freon 11)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 0:46	EPA 524.4



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
R4-7156	(m- and/or p-)Xylene	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
630-20-6	1,1,1,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
71-55-6	1,1,1-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
79-00-5	1,1,2-Trichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-34-3	1,1-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-35-4	1,1-Dichloroethene (1,1-Dichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
563-58-6	1,1-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
87-61-6	1,2,3-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
96-18-4	1,2,3-Trichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
120-82-1	1,2,4-Trichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
95-63-6	1,2,4-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	0.20	U	ug/L	0.20	4/15/19 11:24	4/15/19 16:11	EPA 524.4 SIM
106-93-4	1,2-Dibromoethane (EDB)	0.050	U	ug/L	0.050	4/15/19 11:24	4/15/19 16:11	EPA 524.4 SIM
95-50-1	1,2-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
107-06-2	1,2-Dichloroethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
78-87-5	1,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
108-67-8	1,3,5-Trimethylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
541-73-1	1,3-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
142-28-9	1,3-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
106-46-7	1,4-Dichlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
594-20-7	2,2-Dichloropropane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
67-64-1	Acetone	4.0	U	ug/L	4.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
71-43-2	Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
108-86-1	Bromobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
74-97-5	Bromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
75-27-4	Bromodichloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-25-2	Bromoform	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
74-83-9	Bromomethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-15-0	Carbon disulfide	2.0	U	ug/L	2.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
56-23-5	Carbon Tetrachloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
108-90-7	Chlorobenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-00-3	Chloroethane	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
67-66-3	Chloroform	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
74-87-3	Chloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
156-59-2	cis-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
10061-01-5	cis-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
110-82-7	Cyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
124-48-1	Dibromochloromethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
74-95-3	Dibromomethane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-71-8	Dichlorodifluoromethane (Freon 12)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
100-41-4	Ethyl Benzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
87-68-3	Hexachlorobutadiene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
98-82-8	Isopropylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
79-20-9	Methyl Acetate	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
591-78-6	Methyl Butyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
78-93-3	Methyl Ethyl Ketone	4.0	U	ug/L	4.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
108-10-1	Methyl Isobutyl Ketone	1.0	U	ug/L	1.0	4/10/19 16:58	4/11/19 1:12	EPA 524.4
1634-04-4	Methyl T-Butyl Ether (MTBE)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
108-87-2	Methylcyclohexane	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-09-2	Methylene Chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
104-51-8	n-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
103-65-1	n-Propylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
95-49-8	o-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
95-47-6	o-Xylene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Sallie Hale

Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
106-43-4	p-Chlorotoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
99-87-6	p-Isopropyltoluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
135-98-8	sec-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
100-42-5	Styrene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
98-06-6	tert-Butylbenzene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
127-18-4	Tetrachloroethene (Tetrachloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
108-88-3	Toluene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
156-60-5	trans-1,2-Dichloroethene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
10061-02-6	trans-1,3-Dichloropropene	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
79-01-6	Trichloroethene (Trichloroethylene)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-69-4	Trichlorofluoromethane (Freon 11)	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4
75-01-4	Vinyl chloride	0.50	U	ug/L	0.50	4/10/19 16:58	4/11/19 1:12	EPA 524.4



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics (VOA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

Blank (1904028-BLK1)

Prepared & Analyzed: 04/10/19

EPA 524.4

(m- and/or p-)Xylene	U	1.0	ug/L							U
1,1,1,2-Tetrachloroethane	U	0.50	"							U
1,1,1-Trichloroethane	U	0.50	"							U
1,1,2,2-Tetrachloroethane	U	0.50	"							U
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	U	0.50	"							U
1,1,2-Trichloroethane	U	0.50	"							U
1,1-Dichloroethane	U	0.50	"							U
1,1-Dichloroethene (1,1-Dichloroethylene)	U	0.50	"							U
1,1-Dichloropropene	U	0.50	"							U
1,2,3-Trichlorobenzene	U	0.50	"							U
1,2,3-Trichloropropane	U	0.50	"							U
1,2,4-Trichlorobenzene	U	0.50	"							U
1,2,4-Trimethylbenzene	U	0.50	"							U
1,2-Dibromo-3-Chloropropane (DBCP)	U	1.0	"							U
1,2-Dibromoethane (EDB)	U	0.50	"							U
1,2-Dichlorobenzene	U	0.50	"							U
1,2-Dichloroethane	U	0.50	"							U
1,2-Dichloropropane	U	0.50	"							U
1,3,5-Trimethylbenzene	U	0.50	"							U
1,3-Dichlorobenzene	U	0.50	"							U
1,3-Dichloropropane	U	0.50	"							U
1,4-Dichlorobenzene	U	0.50	"							U
2,2-Dichloropropane	U	0.50	"							U
Acetone	U	4.0	"							U
Benzene	U	0.50	"							U
Bromobenzene	U	0.50	"							U
Bromochloromethane	U	0.50	"							U
Bromodichloromethane	U	0.50	"							U
Bromoform	U	1.0	"							U
Bromomethane	U	1.0	"							U
Carbon disulfide	U	2.0	"							U
Carbon Tetrachloride	U	0.50	"							U
Chlorobenzene	U	0.50	"							U
Chloroethane	U	1.0	"							U
Chloroform	U	0.50	"							U
Chloromethane	U	0.50	"							U
cis-1,2-Dichloroethene	U	0.50	"							U
cis-1,3-Dichloropropene	U	0.50	"							U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

Blank (1904028-BLK1)

Prepared & Analyzed: 04/10/19

Cyclohexane	U	0.50	ug/L							U
Dibromochloromethane	U	0.50	"							U
Dibromomethane	U	0.50	"							U
Dichlorodifluoromethane (Freon 12)	U	0.50	"							U
Ethyl Benzene	U	0.50	"							U
Hexachlorobutadiene	U	0.50	"							U
Isopropylbenzene	U	0.50	"							U
Methyl Acetate	U	1.0	"							U
Methyl Butyl Ketone	U	1.0	"							U
Methyl Ethyl Ketone	U	4.0	"							U
Methyl Isobutyl Ketone	U	1.0	"							U
Methyl T-Butyl Ether (MTBE)	U	0.50	"							U
Methylcyclohexane	U	0.50	"							U
Methylene Chloride	U	0.50	"							U
Naphthalene	U	0.50	"							U
n-Butylbenzene	U	0.50	"							U
n-Propylbenzene	U	0.50	"							U
o-Chlorotoluene	U	0.50	"							U
o-Xylene	U	0.50	"							U
p-Chlorotoluene	U	0.50	"							U
p-Isopropyltoluene	U	0.50	"							U
sec-Butylbenzene	U	0.50	"							U
Styrene	U	0.50	"							U
tert-Butylbenzene	U	0.50	"							U
Tetrachloroethene (Tetrachloroethylene)	U	0.50	"							U
Toluene	U	0.50	"							U
trans-1,2-Dichloroethene	U	0.50	"							U
trans-1,3-Dichloropropene	U	0.50	"							U
Trichloroethene (Trichloroethylene)	U	0.50	"							U
Trichlorofluoromethane (Freon 11)	U	0.50	"							U
Vinyl chloride	U	0.50	"							U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

LCS (1904028-BS1)

Prepared & Analyzed: 04/10/19

EPA 524.4

(m- and/or p-)Xylene	39.090		ug/L	40.000		97.7	70-130			
1,1,1,2-Tetrachloroethane	20.050		"	20.000		100	70-130			
1,1,1-Trichloroethane	19.540		"	20.000		97.7	70-130			
1,1,2,2-Tetrachloroethane	19.500		"	20.000		97.5	70-130			
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	18.780		"	20.000		93.9	70-130			
1,1,2-Trichloroethane	20.020		"	20.000		100	70-130			
1,1-Dichloroethane	19.540		"	20.000		97.7	70-130			
1,1-Dichloroethene (1,1-Dichloroethylene)	19.690		"	20.000		98.4	70-130			
1,1-Dichloropropene	19.720		"	20.000		98.6	70-130			
1,2,3-Trichlorobenzene	18.460		"	20.000		92.3	70-130			
1,2,3-Trichloropropane	19.360		"	20.000		96.8	70-130			
1,2,4-Trichlorobenzene	18.370		"	20.000		91.8	70-130			
1,2,4-Trimethylbenzene	19.400		"	20.000		97.0	70-130			
1,2-Dibromo-3-Chloropropane (DBCP)	38.110		"	40.000		95.3	70-130			
1,2-Dibromoethane (EDB)	19.980		"	20.000		99.9	70-130			
1,2-Dichlorobenzene	19.430		"	20.000		97.2	70-130			
1,2-Dichloroethane	20.000		"	20.000		100	70-130			
1,2-Dichloropropane	19.910		"	20.000		99.6	70-130			
1,3,5-Trimethylbenzene	19.150		"	20.000		95.8	70-130			
1,3-Dichlorobenzene	19.650		"	20.000		98.2	70-130			
1,3-Dichloropropane	19.850		"	20.000		99.2	70-130			
1,4-Dichlorobenzene	19.500		"	20.000		97.5	70-130			
2,2-Dichloropropane	19.270		"	20.000		96.4	70-130			
Acetone	37.180		"	40.000		93.0	70-130			
Benzene	19.790		"	20.000		99.0	70-130			
Bromobenzene	19.360		"	20.000		96.8	70-130			
Bromochloromethane	20.730		"	20.000		104	70-130			
Bromodichloromethane	20.290		"	20.000		101	70-130			
Bromoform	41.590		"	40.000		104	70-130			
Bromomethane	20.760		"	20.000		104	70-130			
Carbon disulfide	16.690		"	20.000		83.4	70-130			
Carbon Tetrachloride	19.290		"	20.000		96.4	70-130			
Chlorobenzene	19.820		"	20.000		99.1	70-130			
Chloroethane	18.920		"	20.000		94.6	70-130			
Chloroform	20.030		"	20.000		100	70-130			
Chloromethane	24.420		"	20.000		122	70-130			
cis-1,2-Dichloroethene	19.580		"	20.000		97.9	70-130			
cis-1,3-Dichloropropene	19.570		"	20.000		97.8	70-130			



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D.A.R.T. Id: 19-0106

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

LCS (1904028-BS1)

Prepared & Analyzed: 04/10/19

Cyclohexane	20.210		ug/L	20.000		101	70-130			
Dibromochloromethane	20.150		"	20.000		101	70-130			
Dibromomethane	20.220		"	20.000		101	70-130			
Dichlorodifluoromethane (Freon 12)	15.010		"	20.000		75.0	70-130			
Ethyl Benzene	19.510		"	20.000		97.6	70-130			
Hexachlorobutadiene	18.040		"	20.000		90.2	70-130			
Isopropylbenzene	18.910		"	20.000		94.6	70-130			
Methyl Acetate	40.860		"	40.000		102	70-130			
Methyl Butyl Ketone	41.840		"	40.000		105	70-130			
Methyl Ethyl Ketone	40.890		"	40.000		102	70-130			
Methyl Isobutyl Ketone	41.350		"	40.000		103	70-130			
Methyl T-Butyl Ether (MTBE)	17.670		"	20.000		88.4	70-130			
Methylcyclohexane	19.670		"	20.000		98.4	70-130			
Methylene Chloride	21.860		"	20.000		109	70-130			
Naphthalene	19.410		"	20.000		97.0	70-130			
n-Butylbenzene	18.600		"	20.000		93.0	70-130			
n-Propylbenzene	18.860		"	20.000		94.3	70-130			
o-Chlorotoluene	19.750		"	20.000		98.8	70-130			
o-Xylene	19.260		"	20.000		96.3	70-130			
p-Chlorotoluene	19.750		"	20.000		98.8	70-130			
p-Isopropyltoluene	18.960		"	20.000		94.8	70-130			
sec-Butylbenzene	18.520		"	20.000		92.6	70-130			
Styrene	19.920		"	20.000		99.6	70-130			
tert-Butylbenzene	18.180		"	20.000		90.9	70-130			
Tetrachloroethene (Tetrachloroethylene)	18.830		"	20.000		94.2	70-130			
Toluene	20.410		"	20.000		102	70-130			
trans-1,2-Dichloroethene	19.540		"	20.000		97.7	70-130			
trans-1,3-Dichloropropene	19.980		"	20.000		99.9	70-130			
Trichloroethene (Trichloroethylene)	19.110		"	20.000		95.6	70-130			
Trichlorofluoromethane (Freon 11)	19.670		"	20.000		98.4	70-130			
Vinyl chloride	20.160		"	20.000		101	70-130			



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

Matrix Spike (1904028-MS1)

Source: E191405-03

Prepared & Analyzed: 04/10/19

EPA 524.4

(m- and/or p-)Xylene	23.660		ug/L	20.465	0.0000	116	70-130			
1,1,1,2-Tetrachloroethane	11.510		"	10.233	0.0000	112	70-130			
1,1,1-Trichloroethane	12.400		"	10.233	0.0000	121	70-130			
1,1,2,2-Tetrachloroethane	10.690		"	10.233	0.0000	104	70-130			
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	12.260		"	10.233	0.0000	120	70-130			
1,1,2-Trichloroethane	11.310		"	10.233	0.0000	111	70-130			
1,1-Dichloroethane	11.420		"	10.233	0.0000	112	70-130			
1,1-Dichloroethene (1,1-Dichloroethylene)	12.530		"	10.233	0.0000	122	70-130			
1,1-Dichloropropene	12.720		"	10.233	0.0000	124	70-130			
1,2,3-Trichlorobenzene	10.680		"	10.233	0.0000	104	70-130			
1,2,3-Trichloropropane	10.630		"	10.233	0.0000	104	70-130			
1,2,4-Trichlorobenzene	10.800		"	10.233	0.0000	106	70-130			
1,2,4-Trimethylbenzene	11.790		"	10.233	0.0000	115	70-130			
1,2-Dibromo-3-Chloropropane (DBCP)	20.690		"	20.465	0.0000	101	70-130			
1,2-Dibromoethane (EDB)	10.940		"	10.233	0.0000	107	70-130			
1,2-Dichlorobenzene	11.240		"	10.233	0.0000	110	70-130			
1,2-Dichloroethane	10.900		"	10.233	0.0000	107	70-130			
1,2-Dichloropropane	11.330		"	10.233	0.0000	111	70-130			
1,3,5-Trimethylbenzene	11.630		"	10.233	0.0000	114	70-130			
1,3-Dichlorobenzene	11.480		"	10.233	0.0000	112	70-130			
1,3-Dichloropropane	11.000		"	10.233	0.0000	107	70-130			
1,4-Dichlorobenzene	11.320		"	10.233	0.0000	111	70-130			
2,2-Dichloropropane	11.900		"	10.233	0.0000	116	70-130			
Acetone	16.670		"	20.465	0.0000	81.5	70-130			
Benzene	11.730		"	10.233	0.0000	115	70-130			
Bromobenzene	11.080		"	10.233	0.0000	108	70-130			
Bromochloromethane	11.780		"	10.233	0.0000	115	70-130			
Bromodichloromethane	12.760		"	10.233	0.94000	116	70-130			
Bromoform	23.740		"	20.465	0.44000	114	70-130			
Bromomethane	13.180		"	10.233	0.0000	129	70-130			
Carbon disulfide	10.430		"	10.233	0.0000	102	70-130			
Carbon Tetrachloride	12.680		"	10.233	0.0000	124	70-130			
Chlorobenzene	11.680		"	10.233	0.0000	114	70-130			
Chloroethane	11.630		"	10.233	0.0000	114	70-130			
Chloroform	12.160		"	10.233	0.58000	113	70-130			
Chloromethane	12.950		"	10.233	0.0000	127	70-130			
cis-1,2-Dichloroethene	11.470		"	10.233	0.0000	112	70-130			
cis-1,3-Dichloropropene	10.860		"	10.233	0.0000	106	70-130			



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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

Matrix Spike (1904028-MS1)	Source: E191405-03			Prepared & Analyzed: 04/10/19						
Cyclohexane	13.380		ug/L	10.233	0.0000	131	70-130			QM-2
Dibromochloromethane	12.610		"	10.233	1.2000	112	70-130			
Dibromomethane	10.950		"	10.233	0.0000	107	70-130			
Dichlorodifluoromethane (Freon 12)	10.680		"	10.233	0.0000	104	70-130			
Ethyl Benzene	11.950		"	10.233	0.0000	117	70-130			
Hexachlorobutadiene	11.800		"	10.233	0.0000	115	70-130			
Isopropylbenzene	11.870		"	10.233	0.0000	116	70-130			
Methyl Acetate	20.050		"	20.465	0.0000	98.0	70-130			
Methyl Butyl Ketone	21.460		"	20.465	0.0000	105	70-130			
Methyl Ethyl Ketone	19.580		"	20.465	0.0000	95.7	70-130			
Methyl Isobutyl Ketone	21.790		"	20.465	0.0000	106	70-130			
Methyl T-Butyl Ether (MTBE)	9.5600		"	10.233	0.0000	93.4	70-130			
Methylcyclohexane	12.820		"	10.233	0.0000	125	70-130			
Methylene Chloride	11.980		"	10.233	0.0000	117	70-130			
Naphthalene	10.870		"	10.233	0.0000	106	70-130			
n-Butylbenzene	11.890		"	10.233	0.0000	116	70-130			
n-Propylbenzene	11.860		"	10.233	0.0000	116	70-130			
o-Chlorotoluene	11.910		"	10.233	0.0000	116	70-130			
o-Xylene	11.380		"	10.233	0.0000	111	70-130			
p-Chlorotoluene	11.830		"	10.233	0.0000	116	70-130			
p-Isopropyltoluene	12.050		"	10.233	0.0000	118	70-130			
sec-Butylbenzene	11.970		"	10.233	0.0000	117	70-130			
Styrene	11.580		"	10.233	0.0000	113	70-130			
tert-Butylbenzene	11.900		"	10.233	0.0000	116	70-130			
Tetrachloroethene (Tetrachloroethylene)	11.820		"	10.233	0.0000	116	70-130			
Toluene	12.250		"	10.233	0.0000	120	70-130			
trans-1,2-Dichloroethene	11.660		"	10.233	0.0000	114	70-130			
trans-1,3-Dichloropropene	11.380		"	10.233	0.0000	111	70-130			
Trichloroethene (Trichloroethylene)	12.080		"	10.233	0.0000	118	70-130			
Trichlorofluoromethane (Freon 11)	12.740		"	10.233	0.0000	124	70-130			
Vinyl chloride	12.260		"	10.233	0.0000	120	70-130			



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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

Matrix Spike Dup (1904028-MSD1)

Source: E191405-03

Prepared & Analyzed: 04/10/19

EPA 524.4

(m- and/or p-)Xylene	24.430		ug/L	20.465	0.0000	119	70-130	3.20	30	
1,1,1,2-Tetrachloroethane	12.030		"	10.233	0.0000	118	70-130	4.42	30	
1,1,1-Trichloroethane	12.730		"	10.233	0.0000	124	70-130	2.63	30	
1,1,2,2-Tetrachloroethane	10.780		"	10.233	0.0000	105	70-130	0.838	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	12.650		"	10.233	0.0000	124	70-130	3.13	30	
1,1,2-Trichloroethane	11.460		"	10.233	0.0000	112	70-130	1.32	30	
1,1-Dichloroethane	11.760		"	10.233	0.0000	115	70-130	2.93	30	
1,1-Dichloroethene (1,1-Dichloroethylene)	12.870		"	10.233	0.0000	126	70-130	2.68	30	
1,1-Dichloropropene	13.080		"	10.233	0.0000	128	70-130	2.79	30	
1,2,3-Trichlorobenzene	11.130		"	10.233	0.0000	109	70-130	4.13	30	
1,2,3-Trichloropropane	10.310		"	10.233	0.0000	101	70-130	3.06	30	
1,2,4-Trichlorobenzene	11.250		"	10.233	0.0000	110	70-130	4.08	30	
1,2,4-Trimethylbenzene	12.140		"	10.233	0.0000	119	70-130	2.93	30	
1,2-Dibromo-3-Chloropropane (DBCP)	20.210		"	20.465	0.0000	98.8	70-130	2.35	30	
1,2-Dibromoethane (EDB)	11.230		"	10.233	0.0000	110	70-130	2.62	30	
1,2-Dichlorobenzene	11.500		"	10.233	0.0000	112	70-130	2.29	30	
1,2-Dichloroethane	11.490		"	10.233	0.0000	112	70-130	5.27	30	
1,2-Dichloropropane	11.660		"	10.233	0.0000	114	70-130	2.87	30	
1,3,5-Trimethylbenzene	12.010		"	10.233	0.0000	117	70-130	3.21	30	
1,3-Dichlorobenzene	11.670		"	10.233	0.0000	114	70-130	1.64	30	
1,3-Dichloropropane	11.430		"	10.233	0.0000	112	70-130	3.83	30	
1,4-Dichlorobenzene	11.510		"	10.233	0.0000	112	70-130	1.66	30	
2,2-Dichloropropane	12.410		"	10.233	0.0000	121	70-130	4.20	30	
Acetone	17.040		"	20.465	0.0000	83.3	70-130	2.20	30	
Benzene	11.980		"	10.233	0.0000	117	70-130	2.11	30	
Bromobenzene	11.310		"	10.233	0.0000	111	70-130	2.05	30	
Bromochloromethane	11.920		"	10.233	0.0000	116	70-130	1.18	30	
Bromodichloromethane	13.250		"	10.233	0.94000	120	70-130	3.77	30	
Bromoform	24.160		"	20.465	0.44000	116	70-130	1.75	30	
Bromomethane	13.440		"	10.233	0.0000	131	70-130	1.95	30	QM-2
Carbon disulfide	10.780		"	10.233	0.0000	105	70-130	3.30	30	
Carbon Tetrachloride	13.100		"	10.233	0.0000	128	70-130	3.26	30	
Chlorobenzene	11.920		"	10.233	0.0000	116	70-130	2.03	30	
Chloroethane	11.540		"	10.233	0.0000	113	70-130	0.777	30	
Chloroform	12.720		"	10.233	0.58000	119	70-130	4.50	30	
Chloromethane	13.580		"	10.233	0.0000	133	70-130	4.75	30	QM-2
cis-1,2-Dichloroethene	11.570		"	10.233	0.0000	113	70-130	0.868	30	
cis-1,3-Dichloropropene	11.320		"	10.233	0.0000	111	70-130	4.15	30	



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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

Matrix Spike Dup (1904028-MSD1)	Source: E191405-03			Prepared & Analyzed: 04/10/19						
Cyclohexane	13.490		ug/L	10.233	0.0000	132	70-130	0.819	30	QM-2
Dibromochloromethane	13.050		"	10.233	1.2000	116	70-130	3.43	30	
Dibromomethane	11.280		"	10.233	0.0000	110	70-130	2.97	30	
Dichlorodifluoromethane (Freon 12)	10.580		"	10.233	0.0000	103	70-130	0.941	30	
Ethyl Benzene	12.250		"	10.233	0.0000	120	70-130	2.48	30	
Hexachlorobutadiene	11.930		"	10.233	0.0000	117	70-130	1.10	30	
Isopropylbenzene	12.130		"	10.233	0.0000	119	70-130	2.17	30	
Methyl Acetate	19.820		"	20.465	0.0000	96.8	70-130	1.15	30	
Methyl Butyl Ketone	21.260		"	20.465	0.0000	104	70-130	0.936	30	
Methyl Ethyl Ketone	19.400		"	20.465	0.0000	94.8	70-130	0.924	30	
Methyl Isobutyl Ketone	21.290		"	20.465	0.0000	104	70-130	2.32	30	
Methyl T-Butyl Ether (MTBE)	9.8200		"	10.233	0.0000	96.0	70-130	2.68	30	
Methylcyclohexane	13.120		"	10.233	0.0000	128	70-130	2.31	30	
Methylene Chloride	12.360		"	10.233	0.0000	121	70-130	3.12	30	
Naphthalene	11.030		"	10.233	0.0000	108	70-130	1.46	30	
n-Butylbenzene	11.910		"	10.233	0.0000	116	70-130	0.168	30	
n-Propylbenzene	12.130		"	10.233	0.0000	119	70-130	2.25	30	
o-Chlorotoluene	12.150		"	10.233	0.0000	119	70-130	2.00	30	
o-Xylene	11.720		"	10.233	0.0000	115	70-130	2.94	30	
p-Chlorotoluene	12.060		"	10.233	0.0000	118	70-130	1.93	30	
p-Isopropyltoluene	12.220		"	10.233	0.0000	119	70-130	1.40	30	
sec-Butylbenzene	12.260		"	10.233	0.0000	120	70-130	2.39	30	
Styrene	11.790		"	10.233	0.0000	115	70-130	1.80	30	
tert-Butylbenzene	12.130		"	10.233	0.0000	119	70-130	1.91	30	
Tetrachloroethene (Tetrachloroethylene)	12.110		"	10.233	0.0000	118	70-130	2.42	30	
Toluene	12.570		"	10.233	0.0000	123	70-130	2.58	30	
trans-1,2-Dichloroethene	11.910		"	10.233	0.0000	116	70-130	2.12	30	
trans-1,3-Dichloropropene	11.670		"	10.233	0.0000	114	70-130	2.52	30	
Trichloroethene (Trichloroethylene)	12.060		"	10.233	0.0000	118	70-130	0.166	30	
Trichlorofluoromethane (Freon 11)	13.140		"	10.233	0.0000	128	70-130	3.09	30	
Vinyl chloride	12.780		"	10.233	0.0000	125	70-130	4.15	30	



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

MRL Verification (1904028-PS1)

Prepared & Analyzed: 04/10/19

EPA 524.4

(m- and/or p-)Xylene	1.3000		ug/L	1.0000		130	50-150			MRL-1
1,1,1,2-Tetrachloroethane	0.73000		"	0.50000		146	50-150			MRL-1
1,1,1-Trichloroethane	0.54000		"	0.50000		108	50-150			MRL-1
1,1,2,2-Tetrachloroethane	0.70000		"	0.50000		140	50-150			MRL-1
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	0.46000		"	0.50000		92.0	50-150			MRL-1
1,1,2-Trichloroethane	0.69000		"	0.50000		138	50-150			MRL-1
1,1-Dichloroethane	0.55000		"	0.50000		110	50-150			MRL-1
1,1-Dichloroethene (1,1-Dichloroethylene)	0.49000		"	0.50000		98.0	50-150			MRL-1
1,1-Dichloropropene	0.43000		"	0.50000		86.0	50-150			MRL-1
1,2,3-Trichlorobenzene	0.62000		"	0.50000		124	50-150			MRL-1
1,2,3-Trichloropropane	0.57000		"	0.50000		114	50-150			MRL-1
1,2,4-Trichlorobenzene	0.67000		"	0.50000		134	50-150			MRL-1
1,2,4-Trimethylbenzene	0.65000		"	0.50000		130	50-150			MRL-1
1,2-Dibromo-3-Chloropropane (DBCP)	1.2100		"	1.0000		121	50-150			MRL-1
1,2-Dibromoethane (EDB)	0.69000		"	0.50000		138	50-150			MRL-1
1,2-Dichlorobenzene	0.67000		"	0.50000		134	50-150			MRL-1
1,2-Dichloroethane	0.60000		"	0.50000		120	50-150			MRL-1
1,2-Dichloropropane	0.66000		"	0.50000		132	50-150			MRL-1
1,3,5-Trimethylbenzene	0.68000		"	0.50000		136	50-150			MRL-1
1,3-Dichlorobenzene	0.69000		"	0.50000		138	50-150			MRL-1
1,3-Dichloropropane	0.72000		"	0.50000		144	50-150			MRL-1
1,4-Dichlorobenzene	0.70000		"	0.50000		140	50-150			MRL-1
2,2-Dichloropropane	0.45000		"	0.50000		90.0	50-150			MRL-1
Acetone	1.3100		"	1.0000		131	50-150			
Benzene	0.59000		"	0.50000		118	50-150			MRL-1
Bromobenzene	0.64000		"	0.50000		128	50-150			MRL-1
Bromochloromethane	0.49000		"	0.50000		98.0	50-150			MRL-1
Bromodichloromethane	0.63000		"	0.50000		126	50-150			MRL-1
Bromoform	1.3500		"	1.0000		135	50-150			MRL-1
Bromomethane	0.42000		"	0.50000		84.0	50-150			MRL-1
Carbon disulfide	0.56000		"	0.50000		112	50-150			
Carbon Tetrachloride	0.52000		"	0.50000		104	50-150			MRL-1
Chlorobenzene	0.69000		"	0.50000		138	50-150			MRL-1
Chloroethane	0.37000		"	0.50000		74.0	50-150			MRL-1
Chloroform	0.63000		"	0.50000		126	50-150			MRL-1
Chloromethane	0.32000		"	0.50000		64.0	50-150			MRL-1
cis-1,2-Dichloroethene	0.54000		"	0.50000		108	50-150			MRL-1
cis-1,3-Dichloropropene	0.63000		"	0.50000		126	50-150			MRL-1



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D.A.R.T. Id: 19-0106

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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

MRL Verification (1904028-PS1)

Prepared & Analyzed: 04/10/19

Cyclohexane	0.41000		ug/L	0.50000		82.0	50-150			MRL-1
Dibromochloromethane	0.69000		"	0.50000		138	50-150			MRL-1
Dibromomethane	0.58000		"	0.50000		116	50-150			MRL-1
Dichlorodifluoromethane (Freon 12)	0.34000		"	0.50000		68.0	50-150			MRL-1
Ethyl Benzene	0.65000		"	0.50000		130	50-150			MRL-1
Hexachlorobutadiene	0.55000		"	0.50000		110	50-150			MRL-1
Isopropylbenzene	0.63000		"	0.50000		126	50-150			MRL-1
Methyl Acetate	0.79000		"	1.00000		79.0	50-150			MRL-1
Methyl Butyl Ketone	0.98000		"	1.00000		98.0	50-150			MRL-1
Methyl Ethyl Ketone	1.12000		"	1.00000		112	50-150			MRL-1
Methyl Isobutyl Ketone	1.05000		"	1.00000		105	50-150			MRL-1
Methyl T-Butyl Ether (MTBE)	0.60000		"	0.50000		120	50-150			MRL-1
Methylcyclohexane	0.46000		"	0.50000		92.0	50-150			MRL-1
Methylene Chloride	0.48000		"	0.50000		96.0	50-150			MRL-1
Naphthalene	0.56000		"	0.50000		112	50-150			MRL-1
n-Butylbenzene	0.64000		"	0.50000		128	50-150			MRL-1
n-Propylbenzene	0.65000		"	0.50000		130	50-150			MRL-1
o-Chlorotoluene	0.69000		"	0.50000		138	50-150			MRL-1
o-Xylene	0.66000		"	0.50000		132	50-150			MRL-1
p-Chlorotoluene	0.67000		"	0.50000		134	50-150			MRL-1
p-Isopropyltoluene	0.63000		"	0.50000		126	50-150			MRL-1
sec-Butylbenzene	0.63000		"	0.50000		126	50-150			MRL-1
Styrene	0.66000		"	0.50000		132	50-150			MRL-1
tert-Butylbenzene	0.64000		"	0.50000		128	50-150			MRL-1
Tetrachloroethene (Tetrachloroethylene)	0.59000		"	0.50000		118	50-150			MRL-1
Toluene	0.57000		"	0.50000		114	50-150			MRL-1
trans-1,2-Dichloroethene	0.51000		"	0.50000		102	50-150			MRL-1
trans-1,3-Dichloropropene	0.64000		"	0.50000		128	50-150			MRL-1
Trichloroethene (Trichloroethylene)	0.57000		"	0.50000		114	50-150			MRL-1
Trichlorofluoromethane (Freon 11)	0.51000		"	0.50000		102	50-150			MRL-1
Vinyl chloride	0.43000		"	0.50000		86.0	50-150			MRL-1



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Volatile Organics (VOA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

MRL Verification (1904028-PS2)

Prepared & Analyzed: 04/10/19

EPA 524.4

(m- and/or p-)Xylene	4.2500		ug/L	4.0000		106	50-150			
1,1,1,2-Tetrachloroethane	2.1500		"	2.0000		108	50-150			
1,1,1-Trichloroethane	1.9300		"	2.0000		96.5	50-150			
1,1,2,2-Tetrachloroethane	2.2100		"	2.0000		110	50-150			
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.8900		"	2.0000		94.5	50-150			
1,1,2-Trichloroethane	2.0400		"	2.0000		102	50-150			
1,1-Dichloroethane	1.8900		"	2.0000		94.5	50-150			
1,1-Dichloroethene (1,1-Dichloroethylene)	1.7900		"	2.0000		89.5	50-150			
1,1-Dichloropropene	1.9300		"	2.0000		96.5	50-150			
1,2,3-Trichlorobenzene	2.2200		"	2.0000		111	50-150			
1,2,3-Trichloropropane	2.0600		"	2.0000		103	50-150			
1,2,4-Trichlorobenzene	2.1800		"	2.0000		109	50-150			
1,2,4-Trimethylbenzene	2.1500		"	2.0000		108	50-150			
1,2-Dibromo-3-Chloropropane (DBCP)	4.3300		"	4.0000		108	50-150			
1,2-Dibromoethane (EDB)	2.0400		"	2.0000		102	50-150			
1,2-Dichlorobenzene	2.1100		"	2.0000		106	50-150			
1,2-Dichloroethane	1.9100		"	2.0000		95.5	50-150			
1,2-Dichloropropane	1.9100		"	2.0000		95.5	50-150			
1,3,5-Trimethylbenzene	2.1600		"	2.0000		108	50-150			
1,3-Dichlorobenzene	2.1100		"	2.0000		106	50-150			
1,3-Dichloropropane	2.0600		"	2.0000		103	50-150			
1,4-Dichlorobenzene	2.2300		"	2.0000		112	50-150			
2,2-Dichloropropane	1.8800		"	2.0000		94.0	50-150			
Acetone	3.6700		"	4.0000		91.8	50-150			MRL-1
Benzene	1.9200		"	2.0000		96.0	50-150			
Bromobenzene	2.1000		"	2.0000		105	50-150			
Bromochloromethane	1.8400		"	2.0000		92.0	50-150			
Bromodichloromethane	1.9900		"	2.0000		99.5	50-150			
Bromoform	4.1300		"	4.0000		103	50-150			
Bromomethane	1.6800		"	2.0000		84.0	50-150			
Carbon disulfide	1.7600		"	2.0000		88.0	50-150			MRL-1
Carbon Tetrachloride	2.0000		"	2.0000		100	50-150			
Chlorobenzene	2.1000		"	2.0000		105	50-150			
Chloroethane	1.6300		"	2.0000		81.5	50-150			
Chloroform	1.9400		"	2.0000		97.0	50-150			
Chloromethane	1.4200		"	2.0000		71.0	50-150			
cis-1,2-Dichloroethene	1.8800		"	2.0000		94.0	50-150			
cis-1,3-Dichloropropene	1.9500		"	2.0000		97.5	50-150			



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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904028 - V 524.4 VOA Drinking Water

MRL Verification (1904028-PS2)

Prepared & Analyzed: 04/10/19

Cyclohexane	1.8500		ug/L	2.0000		92.5	50-150			
Dibromochloromethane	2.0800		"	2.0000		104	50-150			
Dibromomethane	1.9700		"	2.0000		98.5	50-150			
Dichlorodifluoromethane (Freon 12)	1.7800		"	2.0000		89.0	50-150			
Ethyl Benzene	2.1600		"	2.0000		108	50-150			
Hexachlorobutadiene	2.3100		"	2.0000		116	50-150			
Isopropylbenzene	2.1200		"	2.0000		106	50-150			
Methyl Acetate	3.5600		"	4.0000		89.0	50-150			
Methyl Butyl Ketone	3.8400		"	4.0000		96.0	50-150			
Methyl Ethyl Ketone	3.8600		"	4.0000		96.5	50-150			MRL-1
Methyl Isobutyl Ketone	3.7600		"	4.0000		94.0	50-150			
Methyl T-Butyl Ether (MTBE)	1.7800		"	2.0000		89.0	50-150			
Methylcyclohexane	1.9600		"	2.0000		98.0	50-150			
Methylene Chloride	1.7100		"	2.0000		85.5	50-150			
Naphthalene	2.0800		"	2.0000		104	50-150			
n-Butylbenzene	2.2100		"	2.0000		110	50-150			
n-Propylbenzene	2.1800		"	2.0000		109	50-150			
o-Chlorotoluene	2.1100		"	2.0000		106	50-150			
o-Xylene	2.0600		"	2.0000		103	50-150			
p-Chlorotoluene	2.1400		"	2.0000		107	50-150			
p-Isopropyltoluene	2.1500		"	2.0000		108	50-150			
sec-Butylbenzene	2.1400		"	2.0000		107	50-150			
Styrene	2.0000		"	2.0000		100	50-150			
tert-Butylbenzene	2.1900		"	2.0000		110	50-150			
Tetrachloroethene (Tetrachloroethylene)	2.1800		"	2.0000		109	50-150			
Toluene	2.0800		"	2.0000		104	50-150			
trans-1,2-Dichloroethene	1.8500		"	2.0000		92.5	50-150			
trans-1,3-Dichloropropene	1.9800		"	2.0000		99.0	50-150			
Trichloroethene (Trichloroethylene)	2.0200		"	2.0000		101	50-150			
Trichlorofluoromethane (Freon 11)	1.8600		"	2.0000		93.0	50-150			
Vinyl chloride	1.6400		"	2.0000		82.0	50-150			



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Volatile Organics (VOA) - Quality Control
US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904043 - V 524.4 VOA Drinking Water

Blank (1904043-BLK4)

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromo-3-Chloropropane (DBCP)	U	0.20	ug/L							U
1,2-Dibromoethane (EDB)	U	0.050	"							U

LCS (1904043-BS1)

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromo-3-Chloropropane (DBCP)	0.43690		ug/L	0.50000		87.4	70-130			
1,2-Dibromoethane (EDB)	0.48690		"	0.50000		97.4	70-130			

LCS (1904043-BS2)

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromo-3-Chloropropane (DBCP)	1.8164		ug/L	2.0000		90.8	70-130			
1,2-Dibromoethane (EDB)	2.1797		"	2.0000		109	70-130			

Matrix Spike (1904043-MS1)

Source: E191405-13

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromo-3-Chloropropane (DBCP)	1.0418		ug/L	1.0233	0.0000	102	70-130			
1,2-Dibromoethane (EDB)	1.1637		"	1.0233	0.0000	114	70-130			

Matrix Spike Dup (1904043-MSD1)

Source: E191405-13

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromo-3-Chloropropane (DBCP)	1.1946		ug/L	1.0233	0.0000	117	70-130	13.7	30	
1,2-Dibromoethane (EDB)	1.2250		"	1.0233	0.0000	120	70-130	5.13	30	

MRL Verification (1904043-PS1)

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromoethane (EDB)	0.064900		ug/L	0.050000		130	50-150			MRL-1
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MRL Verification (1904043-PS2)

Prepared & Analyzed: 04/15/19

EPA 524.4 SIM

1,2-Dibromo-3-Chloropropane (DBCP)	0.20330		ug/L	0.20000		102	50-150			MRL-1
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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Sallie Hale

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
MRL-1	MRL verification for Potable Water matrix (Drinking Water)
QC-2	Analyte concentration high in continuing calibration verification standard
QM-2	Matrix Spike Recovery greater than method control limits



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Jason Collum

May 1, 2019

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 19-0106, Drinking Water Sampling in Denmark,SC

FROM: Jason Collum
 OCS Analyst

THRU: Jeffrey Hendel, Chief
 LSB Organic Chemistry Section

TO: Bill Simpson

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Semi Volatile Organics (SVOA)		
Semivolatile organic compounds	EPA 525.2 (Water)	ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Report Narrative for Work Order: E191405 Analysis: SVOA

5/1/19, JC2, 525.2 - The original analysis of the samples revealed a severe matrix effect that would have resulted in the rejection of the data due to the loss of quality control standards in the samples. The matrix effect was addressed by treating the samples with a dehalogenating reagent. The samples were then re-extracted and reanalyzed. The laboratory's efforts to mitigate the matrix interference in the samples resulted in an exceedance of the holding time criteria

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



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Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Jason Collum

SAMPLES INCLUDED IN THIS REPORT

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GW-01	E191405-12	Potable Water	4/2/19 10:40	4/4/19 11:30
GW-02	E191405-13	Potable Water	4/2/19 11:25	4/4/19 11:30
GW-03	E191405-14	Potable Water	4/2/19 12:10	4/4/19 11:30



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
H-7	Recommended preparation holding time exceeded
J	The identification of the analyte is acceptable; the reported value is an estimate.
QI-1	Internal standard was outside of method control limits.
QL-1	Laboratory Control Spike Recovery less than method control limits
QL-3	Laboratory Control Spike Precision outside method control limits
QR-1	MRL verification recovery less than lower control limits.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Laboratory Services and Applied Science Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Semi Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
83-32-9	Acenaphthene	0.98	U, J, QI-1, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
208-96-8	Acenaphthylene	0.98	U, J, QI-1, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
120-12-7	Anthracene	0.98	U, J, H-7, QL-3, QL-1, QR-1	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
56-55-3	Benzo(a)anthracene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
50-32-8	Benzo(a)pyrene	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 15:46	EPA 525.2
205-99-2	Benzo(b)fluoranthene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
191-24-2	Benzo(g,h,i)perylene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
207-08-9	Benzo(k)fluoranthene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
85-68-7	Benzyl butyl phthalate	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
103-23-1	Bis-(2-Ethylhexyl) Adipate	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
117-81-7	Bis(2-ethylhexyl) phthalate	2.0	U, J, H-7	ug/L	2.0	4/26/19 9:02	4/30/19 15:46	EPA 525.2
218-01-9	Chrysene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
53-70-3	Dibenz(a,h)anthracene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
84-66-2	Diethyl phthalate	0.98	U, J, QI-1, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
131-11-3	Dimethyl phthalate	0.98	U, J, QI-1, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
84-74-2	Di-n-butylphthalate	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
117-84-0	Di-n-octylphthalate	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
72-20-8	Endrin	2.0	U, J, H-7	ug/L	2.0	4/26/19 9:02	4/30/19 15:46	EPA 525.2
206-44-0	Fluoranthene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
86-73-7	Fluorene	0.98	U, J, QI-1, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
58-89-9	gamma-BHC (Lindane)	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 15:46	EPA 525.2
76-44-8	Heptachlor	0.39	U, J, H-7	ug/L	0.39	4/26/19 9:02	4/30/19 15:46	EPA 525.2
1024-57-3	Heptachlor epoxide	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 15:46	EPA 525.2
118-74-1	Hexachlorobenzene (HCB)	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
193-39-5	Indeno (1,2,3-cd) pyrene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
72-43-5	Methoxychlor	9.8	U, J, H-7	ug/L	9.8	4/26/19 9:02	4/30/19 15:46	EPA 525.2
91-20-3	Naphthalene	0.98	U, J, QI-1, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Jason Collum

Semi Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
85-01-8	Phenanthrene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2
129-00-0	Pyrene	0.98	U, J, H-7	ug/L	0.98	4/26/19 9:02	4/30/19 15:46	EPA 525.2



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Semi Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
83-32-9	Acenaphthene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
208-96-8	Acenaphthylene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
120-12-7	Anthracene	1.0	U, J, QR-1, H-7, QL-3, QL-1	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
56-55-3	Benzo(a)anthracene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
50-32-8	Benzo(a)pyrene	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 16:10	EPA 525.2
205-99-2	Benzo(b)fluoranthene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
191-24-2	Benzo(g,h,i)perylene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
207-08-9	Benzo(k)fluoranthene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
85-68-7	Benzyl butyl phthalate	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
103-23-1	Bis-(2-Ethylhexyl) Adipate	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
117-81-7	Bis(2-ethylhexyl) phthalate	2.0	U, J, H-7	ug/L	2.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
218-01-9	Chrysene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
53-70-3	Dibenz(a,h)anthracene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
84-66-2	Diethyl phthalate	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
131-11-3	Dimethyl phthalate	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
84-74-2	Di-n-butylphthalate	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
117-84-0	Di-n-octylphthalate	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
72-20-8	Endrin	2.0	U, J, H-7	ug/L	2.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
206-44-0	Fluoranthene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
86-73-7	Fluorene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
58-89-9	gamma-BHC (Lindane)	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 16:10	EPA 525.2
76-44-8	Heptachlor	0.40	U, J, H-7	ug/L	0.40	4/26/19 9:02	4/30/19 16:10	EPA 525.2
1024-57-3	Heptachlor epoxide	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 16:10	EPA 525.2
118-74-1	Hexachlorobenzene (HCB)	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
193-39-5	Indeno (1,2,3-cd) pyrene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
72-43-5	Methoxychlor	10	U, J, H-7	ug/L	10	4/26/19 9:02	4/30/19 16:10	EPA 525.2
91-20-3	Naphthalene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Jason Collum

Semi Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
85-01-8	Phenanthrene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2
129-00-0	Pyrene	1.0	U, J, H-7	ug/L	1.0	4/26/19 9:02	4/30/19 16:10	EPA 525.2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Laboratory Services and Applied Science Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Semi Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
83-32-9	Acenaphthene	0.99	U, J, QI-1, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
208-96-8	Acenaphthylene	0.99	U, J, QI-1, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
120-12-7	Anthracene	0.99	U, J, QR-1, H-7, QL-3, QL-1	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
56-55-3	Benzo(a)anthracene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
50-32-8	Benzo(a)pyrene	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 16:35	EPA 525.2
205-99-2	Benzo(b)fluoranthene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
191-24-2	Benzo(g,h,i)perylene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
207-08-9	Benzo(k)fluoranthene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
85-68-7	Benzyl butyl phthalate	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
103-23-1	Bis-(2-Ethylhexyl) Adipate	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
117-81-7	Bis(2-ethylhexyl) phthalate	2.0	U, J, H-7	ug/L	2.0	4/26/19 9:02	4/30/19 16:35	EPA 525.2
218-01-9	Chrysene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
53-70-3	Dibenz(a,h)anthracene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
84-66-2	Diethyl phthalate	0.99	U, J, QI-1, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
131-11-3	Dimethyl phthalate	0.99	U, J, QI-1, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
84-74-2	Di-n-butylphthalate	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
117-84-0	Di-n-octylphthalate	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
72-20-8	Endrin	2.0	U, J, H-7	ug/L	2.0	4/26/19 9:02	4/30/19 16:35	EPA 525.2
206-44-0	Fluoranthene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
86-73-7	Fluorene	0.99	U, J, QI-1, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
58-89-9	gamma-BHC (Lindane)	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 16:35	EPA 525.2
76-44-8	Heptachlor	0.40	U, J, H-7	ug/L	0.40	4/26/19 9:02	4/30/19 16:35	EPA 525.2
1024-57-3	Heptachlor epoxide	0.20	U, J, H-7	ug/L	0.20	4/26/19 9:02	4/30/19 16:35	EPA 525.2
118-74-1	Hexachlorobenzene (HCB)	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
193-39-5	Indeno (1,2,3-cd) pyrene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
72-43-5	Methoxychlor	9.9	U, J, H-7	ug/L	9.9	4/26/19 9:02	4/30/19 16:35	EPA 525.2
91-20-3	Naphthalene	0.99	U, J, QI-1, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Semi Volatile Organics

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
85-01-8	Phenanthrene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2
129-00-0	Pyrene	0.99	U, J, H-7	ug/L	0.99	4/26/19 9:02	4/30/19 16:35	EPA 525.2



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D.A.R.T. Id: 19-0106

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Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

Blank (1904084-BLK1)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Acenaphthene	U	1.0	ug/L							U
Acenaphthylene	U	1.0	"							U
Anthracene	U	1.0	"							U
Benzo(a)anthracene	U	1.0	"							U
Benzo(a)pyrene	U	0.20	"							U
Benzo(b)fluoranthene	U	1.0	"							U
Benzo(g,h,i)perylene	U	1.0	"							U
Benzo(k)fluoranthene	U	1.0	"							U
Benzyl butyl phthalate	U	1.0	"							U
Bis-(2-Ethylhexyl) Adipate	U	1.0	"							U
Bis(2-ethylhexyl) phthalate	U	2.0	"							U
Chrysene	U	1.0	"							U
Dibenz(a,h)anthracene	U	1.0	"							U
Diethyl phthalate	U	1.0	"							U
Dimethyl phthalate	U	1.0	"							U
Di-n-butylphthalate	U	1.0	"							U
Di-n-octylphthalate	U	1.0	"							U
Endrin	U	2.0	"							U
Fluoranthene	U	1.0	"							U
Fluorene	U	1.0	"							U
gamma-BHC (Lindane)	U	0.20	"							U
Heptachlor	U	0.40	"							U
Heptachlor epoxide	U	0.20	"							U
Hexachlorobenzene (HCB)	U	1.0	"							U
Indeno (1,2,3-cd) pyrene	U	1.0	"							U
Methoxychlor	U	10	"							U
Naphthalene	U	1.0	"							U
Phenanthrene	U	1.0	"							U
Pyrene	U	1.0	"							U



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Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

Blank (1904084-BLK2)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Acenaphthene	U	1.0	ug/L							U
Acenaphthylene	U	1.0	"							U
Anthracene	U	1.0	"							U
Benzo(a)anthracene	U	1.0	"							U
Benzo(a)pyrene	U	0.20	"							U
Benzo(b)fluoranthene	U	1.0	"							U
Benzo(g,h,i)perylene	U	1.0	"							U
Benzo(k)fluoranthene	U	1.0	"							U
Benzyl butyl phthalate	U	1.0	"							U
Bis-(2-Ethylhexyl) Adipate	U	1.0	"							U
Bis(2-ethylhexyl) phthalate	U	2.0	"							U
Chrysene	U	1.0	"							U
Dibenz(a,h)anthracene	U	1.0	"							U
Diethyl phthalate	U	1.0	"							U
Dimethyl phthalate	U	1.0	"							U
Di-n-butylphthalate	U	1.0	"							U
Di-n-octylphthalate	U	1.0	"							U
Endrin	U	2.0	"							U
Fluoranthene	U	1.0	"							U
Fluorene	U	1.0	"							U
gamma-BHC (Lindane)	U	0.20	"							U
Heptachlor	U	0.40	"							U
Heptachlor epoxide	U	0.20	"							U
Hexachlorobenzene (HCB)	U	1.0	"							U
Indeno (1,2,3-cd) pyrene	U	1.0	"							U
Methoxychlor	U	10	"							U
Naphthalene	U	1.0	"							U
Phenanthrene	U	1.0	"							U
Pyrene	U	1.0	"							U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Laboratory Services and Applied Science Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Semi Volatile Organics (SVOA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

LCS (1904084-BS1)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Acenaphthene	5.0970	1.0	ug/L	5.0000		102	70-130			
Acenaphthylene	5.0550	1.0	"	5.0000		101	70-130			
Anthracene	2.5470	1.0	"	5.0000		50.9	70-130			QL-1
Benzo(a)anthracene	4.7590	1.0	"	5.0000		95.2	70-130			
Benzo(a)pyrene	0.99200	0.20	"	1.0000		99.2	70-130			
Benzo(b)fluoranthene	5.7220	1.0	"	5.0000		114	70-130			
Benzo(g,h,i)perylene	5.1350	1.0	"	5.0000		103	70-130			
Benzo(k)fluoranthene	5.0290	1.0	"	5.0000		101	70-130			
Benzyl butyl phthalate	5.9350	1.0	"	5.0000		119	70-130			
Bis-(2-Ethylhexyl) Adipate	5.5900	1.0	"	5.0000		112	70-130			
Bis(2-ethylhexyl) phthalate	6.5810	2.0	"	5.0000		132	70-130			QL-2
Chrysene	5.1860	1.0	"	5.0000		104	70-130			
Dibenz(a,h)anthracene	5.0800	1.0	"	5.0000		102	70-130			
Diethyl phthalate	5.8490	1.0	"	5.0000		117	70-130			
Dimethyl phthalate	5.7160	1.0	"	5.0000		114	70-130			
Di-n-butylphthalate	5.6500	1.0	"	5.0000		113	70-130			
Di-n-octylphthalate	5.1280	1.0	"	5.0000		103	70-130			
Fluoranthene	5.3640	1.0	"	5.0000		107	70-130			
Fluorene	5.1040	1.0	"	5.0000		102	70-130			
Indeno (1,2,3-cd) pyrene	5.2860	1.0	"	5.0000		106	70-130			
Naphthalene	5.2040	1.0	"	5.0000		104	70-130			
Phenanthrene	5.0000	1.0	"	5.0000		100	70-130			
Pyrene	5.0820	1.0	"	5.0000		102	70-130			

LCS (1904084-BS2)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Endrin	4.4220	2.0	ug/L	4.0000		111	70-130			
gamma-BHC (Lindane)	2.0590	0.20	"	2.0000		103	70-130			
Heptachlor	1.9880	0.40	"	2.0000		99.4	70-130			
Heptachlor epoxide	1.9270	0.20	"	2.0000		96.4	70-130			
Hexachlorobenzene (HCB)	8.5880	1.0	"	10.000		85.9	70-130			
Methoxychlor	19.782	10	"	20.000		98.9	70-130			



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Semi Volatile Organics (SVOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

LCS Dup (1904084-BSD1)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Acenaphthene	5.0680	1.0	ug/L	5.0000		101	70-130	0.571	30	
Acenaphthylene	4.9500	1.0	"	5.0000		99.0	70-130	2.10	30	
Anthracene	1.5600	1.0	"	5.0000		31.2	70-130	48.1	30	QL-1, QL-3
Benzo(a)anthracene	4.3960	1.0	"	5.0000		87.9	70-130	7.93	30	
Benzo(a)pyrene	0.93000	0.20	"	1.0000		93.0	70-130	6.45	30	
Benzo(b)fluoranthene	5.7510	1.0	"	5.0000		115	70-130	0.506	30	
Benzo(g,h,i)perylene	4.7760	1.0	"	5.0000		95.5	70-130	7.24	30	
Benzo(k)fluoranthene	4.6260	1.0	"	5.0000		92.5	70-130	8.35	30	
Benzyl butyl phthalate	5.8770	1.0	"	5.0000		118	70-130	0.982	30	
Bis-(2-Ethylhexyl) Adipate	5.8670	1.0	"	5.0000		117	70-130	4.84	30	
Bis(2-ethylhexyl) phthalate	5.3460	2.0	"	5.0000		107	70-130	20.7	30	
Chrysene	4.9500	1.0	"	5.0000		99.0	70-130	4.66	30	
Dibenz(a,h)anthracene	4.7750	1.0	"	5.0000		95.5	70-130	6.19	30	
Diethyl phthalate	6.0210	1.0	"	5.0000		120	70-130	2.90	30	
Dimethyl phthalate	5.8660	1.0	"	5.0000		117	70-130	2.59	30	
Di-n-butylphthalate	5.5800	1.0	"	5.0000		112	70-130	1.25	30	
Di-n-octylphthalate	5.1020	1.0	"	5.0000		102	70-130	0.508	30	
Fluoranthene	5.2130	1.0	"	5.0000		104	70-130	2.86	30	
Fluorene	5.3120	1.0	"	5.0000		106	70-130	3.99	30	
Indeno (1,2,3-cd) pyrene	4.9480	1.0	"	5.0000		99.0	70-130	6.61	30	
Naphthalene	5.1460	1.0	"	5.0000		103	70-130	1.12	30	
Phenanthrene	4.9910	1.0	"	5.0000		99.8	70-130	0.180	30	
Pyrene	4.9190	1.0	"	5.0000		98.4	70-130	3.26	30	

LCS Dup (1904084-BSD2)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Endrin	4.5460	2.0	ug/L	4.0000		114	70-130	2.77	30	
gamma-BHC (Lindane)	2.1220	0.20	"	2.0000		106	70-130	3.01	30	
Heptachlor	2.0220	0.40	"	2.0000		101	70-130	1.70	30	
Heptachlor epoxide	2.0760	0.20	"	2.0000		104	70-130	7.44	30	
Hexachlorobenzene (HCB)	8.8580	1.0	"	10.000		88.6	70-130	3.10	30	
Methoxychlor	20.599	10	"	20.000		103	70-130	4.05	30	



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Semi Volatile Organics (SVOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

Duplicate (1904084-DUP1)

Source: E191405-14RE2

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Surrogate: 2-Nitro-m-xylene	9.01		ug/L	4.9751		181	70-130			J, QI-1, QS-5
Surrogate: Perylene-d12	4.51		"	4.9751		90.6	70-130			
Surrogate: Triphenyl phosphate	5.55		"	4.9751		112	70-130			
Acenaphthene	U	1.0	"		U			200		J, QI-1, U
Acenaphthylene	U	1.0	"		U			200		J, QI-1, U
Anthracene	U	1.0	"		U			200		J, QL-1, QL-3, QR-1, U
Benzo(a)anthracene	U	1.0	"		U			200		U
Benzo(a)pyrene	U	0.20	"		U			200		U
Benzo(b)fluoranthene	U	1.0	"		U			200		U
Benzo(g,h,i)perylene	U	1.0	"		U			200		U
Benzo(k)fluoranthene	U	1.0	"		U			200		U
Benzyl butyl phthalate	U	1.0	"		U			200		U
Bis-(2-Ethylhexyl) Adipate	U	1.0	"		U			200		U
Bis(2-ethylhexyl) phthalate	U	2.0	"		U			200		U
Chrysene	U	1.0	"		U			200		U
Dibenz(a,h)anthracene	U	1.0	"		U			200		U
Diethyl phthalate	U	1.0	"		U			200		J, QI-1, U
Dimethyl phthalate	U	1.0	"		U			200		J, QI-1, U
Di-n-butylphthalate	U	1.0	"		U			200		U
Di-n-octylphthalate	U	1.0	"		U			200		U
Endrin	U	2.0	"		U			200		U
Fluoranthene	U	1.0	"		U			200		U
Fluorene	U	1.0	"		U			200		J, QI-1, U
gamma-BHC (Lindane)	U	0.20	"		U			200		U
Heptachlor	U	0.40	"		U			200		U
Heptachlor epoxide	U	0.20	"		U			200		U
Hexachlorobenzene (HCB)	U	1.0	"		U			200		U
Indeno (1,2,3-cd) pyrene	U	1.0	"		U			200		U
Methoxychlor	U	10	"		U			200		U
Naphthalene	U	1.0	"		U			200		J, QI-1, U
Phenanthrene	U	1.0	"		U			200		U
Pyrene	U	1.0	"		U			200		U



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Semi Volatile Organics (SVOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

MRL Verification (1904084-PS1)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Acenaphthene	0.97500	1.0	ug/L	1.0000		97.5	50-150			MRL-1, Q-2, J
Acenaphthylene	0.92200	1.0	"	1.0000		92.2	50-150			MRL-1, Q-2, J
Anthracene	0.63600	1.0	"	1.0000		63.6	50-150			MRL-1, Q-2, J
Benzo(a)anthracene	0.85500	1.0	"	1.0000		85.5	50-150			MRL-1, Q-2, J
Benzo(a)pyrene	0.17700	0.20	"	0.20000		88.5	50-150			MRL-1, Q-2, J
Benzo(b)fluoranthene	1.0200	1.0	"	1.0000		102	50-150			MRL-1
Benzo(g,h,i)perylene	0.92200	1.0	"	1.0000		92.2	50-150			MRL-1, Q-2, J
Benzo(k)fluoranthene	0.91100	1.0	"	1.0000		91.1	50-150			MRL-1, Q-2, J
Benzyl butyl phthalate	1.1490	1.0	"	1.0000		115	50-150			MRL-1
Bis-(2-Ethylhexyl) Adipate	1.1060	1.0	"	1.0000		111	50-150			MRL-1
Bis(2-ethylhexyl) phthalate	1.3250	2.0	"	1.0000		132	50-150			MRL-1, Q-2, J
Chrysene	0.96100	1.0	"	1.0000		96.1	50-150			MRL-1, Q-2, J
Dibenz(a,h)anthracene	0.82800	1.0	"	1.0000		82.8	50-150			MRL-1, Q-2, J
Diethyl phthalate	1.1460	1.0	"	1.0000		115	50-150			MRL-1
Dimethyl phthalate	1.0650	1.0	"	1.0000		106	50-150			MRL-1
Di-n-butylphthalate	1.1500	1.0	"	1.0000		115	50-150			MRL-1
Di-n-octylphthalate	0.92600	1.0	"	1.0000		92.6	50-150			MRL-1, Q-2, J
Fluoranthene	1.0060	1.0	"	1.0000		101	50-150			MRL-1
Fluorene	1.0030	1.0	"	1.0000		100	50-150			MRL-1
Indeno (1,2,3-cd) pyrene	0.90800	1.0	"	1.0000		90.8	50-150			MRL-1, Q-2, J
Naphthalene	0.99900	1.0	"	1.0000		99.9	50-150			MRL-1, Q-2, J
Phenanthrene	1.0000	1.0	"	1.0000		100	50-150			MRL-1
Pyrene	1.0650	1.0	"	1.0000		106	50-150			MRL-1

MRL Verification (1904084-PS2)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Acenaphthene	0.95400	1.0	ug/L	1.0000		95.4	50-150			MRL-1, Q-2, J
Acenaphthylene	0.87100	1.0	"	1.0000		87.1	50-150			MRL-1, Q-2, J



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Semi Volatile Organics (SVOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

MRL Verification (1904084-PS2)

Prepared: 04/26/19 Analyzed: 04/30/19

Anthracene	0.47100	1.0	ug/L	1.0000		47.1	50-150			MRL-1, Q-2, QR-1, J
Benzo(a)anthracene	0.81200	1.0	"	1.0000		81.2	50-150			MRL-1, Q-2, J
Benzo(a)pyrene	0.17600	0.20	"	0.20000		88.0	50-150			MRL-1, Q-2, J
Benzo(b)fluoranthene	1.0090	1.0	"	1.0000		101	50-150			MRL-1
Benzo(g,h,i)perylene	0.89000	1.0	"	1.0000		89.0	50-150			MRL-1, Q-2, J
Benzo(k)fluoranthene	0.95300	1.0	"	1.0000		95.3	50-150			MRL-1, Q-2, J
Benzyl butyl phthalate	1.0970	1.0	"	1.0000		110	50-150			MRL-1
Bis-(2-Ethylhexyl) Adipate	1.0240	1.0	"	1.0000		102	50-150			MRL-1
Bis(2-ethylhexyl) phthalate	1.7250	2.0	"	1.0000		172	50-150			MRL-1, Q-2, QR-2, J
Chrysene	0.99800	1.0	"	1.0000		99.8	50-150			MRL-1, Q-2, J
Dibenz(a,h)anthracene	0.85000	1.0	"	1.0000		85.0	50-150			MRL-1, Q-2, J
Diethyl phthalate	1.0600	1.0	"	1.0000		106	50-150			MRL-1
Dimethyl phthalate	1.0330	1.0	"	1.0000		103	50-150			MRL-1
Di-n-butylphthalate	1.1250	1.0	"	1.0000		112	50-150			MRL-1
Di-n-octylphthalate	0.94800	1.0	"	1.0000		94.8	50-150			MRL-1, Q-2, J
Fluoranthene	0.96700	1.0	"	1.0000		96.7	50-150			MRL-1, Q-2, J
Fluorene	0.91500	1.0	"	1.0000		91.5	50-150			MRL-1, Q-2, J
Indeno (1,2,3-cd) pyrene	0.88300	1.0	"	1.0000		88.3	50-150			MRL-1, Q-2, J
Naphthalene	1.0120	1.0	"	1.0000		101	50-150			MRL-1
Phenanthrene	0.94400	1.0	"	1.0000		94.4	50-150			MRL-1, Q-2, J
Pyrene	0.95600	1.0	"	1.0000		95.6	50-150			MRL-1, Q-2, J

MRL Verification (1904084-PS3)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

gamma-BHC (Lindane)	0.24300	0.20	ug/L	0.20000		122	50-150			MRL-1
Heptachlor	0.14000	0.40	"	0.20000		70.0	50-150			MRL-1, Q-2, J
Heptachlor epoxide	0.24300	0.20	"	0.20000		122	50-150			MRL-1
Hexachlorobenzene (HCB)	0.80600	1.0	"	1.0000		80.6	50-150			MRL-1, Q-2, J



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Semi Volatile Organics (SVOA) - Quality Control
US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1904084 - E 525.2 SPE-SV Drinking Water

MRL Verification (1904084-PS3)

Prepared: 04/26/19 Analyzed: 04/30/19

MRL Verification (1904084-PS4)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

gamma-BHC (Lindane)	0.23800	0.20	ug/L	0.20000		119	50-150			MRL-1
Heptachlor	0.17600	0.40	"	0.20000		88.0	50-150			MRL-1, Q-2, J
Heptachlor epoxide	0.24100	0.20	"	0.20000		120	50-150			MRL-1
Hexachlorobenzene (HCB)	0.89200	1.0	"	1.0000		89.2	50-150			MRL-1, Q-2, J

MRL Verification (1904084-PS5)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Endrin	2.9670	2.0	ug/L	3.0000		98.9	50-150			MRL-1
Methoxychlor	14.405	10	"	15.000		96.0	50-150			MRL-1

MRL Verification (1904084-PS6)

Prepared: 04/26/19 Analyzed: 04/30/19

EPA 525.2

Endrin	3.1780	2.0	ug/L	3.0000		106	50-150			MRL-1
Methoxychlor	14.327	10	"	15.000		95.5	50-150			MRL-1



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Jason Collum

Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
J	The identification of the analyte is acceptable; the reported value is an estimate.
MRL-1	MRL verification for Potable Water matrix (Drinking Water)
Q-2	Result greater than MDL but less than MRL.
QI-1	Internal standard was outside of method control limits.
QL-1	Laboratory Control Spike Recovery less than method control limits
QL-2	Laboratory Control Spike Recovery greater than method control limits
QL-3	Laboratory Control Spike Precision outside method control limits
QR-1	MRL verification recovery less than lower control limits.
QR-2	MRL verification recovery greater than upper control limits.
QS-5	Surrogate recovery is higher than established control limits



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Daniel Adams

May 1, 2019

4LSASD-LSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 19-0106, Drinking Water Sampling in Denmark,SC

FROM: Daniel Adams
ICS Analyst

THRU: Floyd Wellborn, Chief
LSB Inorganic Chemistry Section

TO: Bill Simpson

Attached are the final results for the analytical groups listed below. This report shall not be reproduced except in full without approval of the Region 4 laboratory. These analyses were performed in accordance with the Laboratory Services Branch's Laboratory Operations and Quality Assurance Manual (LSB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the LSB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Chapter 5 of the LSB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
Classical/Nutrient Analyses (CNA)		
Classical/Nutrients	EPA 300.0 (Water)	ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Sample Disposal Policy

Due to limited space for long term sample storage, LSB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 4 Laboratory Services and Applied Science Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

SAMPLES INCLUDED IN THIS REPORT

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
DS-01	E191405-02	Potable Water	4/3/19 09:50	4/4/19 11:30
DS-02	E191405-03	Potable Water	4/3/19 10:20	4/4/19 11:30
DS-03	E191405-04	Potable Water	4/3/19 11:00	4/4/19 11:30
DS-04	E191405-05	Potable Water	4/3/19 11:25	4/4/19 11:30
DS-05	E191405-06	Potable Water	4/3/19 11:50	4/4/19 11:30
DS-06	E191405-07	Potable Water	4/3/19 12:30	4/4/19 11:30
DS-07	E191405-08	Potable Water	4/3/19 13:00	4/4/19 11:30
DS-08	E191405-09	Potable Water	4/3/19 13:35	4/4/19 11:30
DS-09	E191405-10	Potable Water	4/3/19 15:05	4/4/19 11:30
DS-10	E191405-11	Potable Water	4/3/19 16:20	4/4/19 11:30
GW-01	E191405-12	Potable Water	4/2/19 10:40	4/4/19 11:30
GW-02	E191405-13	Potable Water	4/2/19 11:25	4/4/19 11:30
GW-03	E191405-14	Potable Water	4/2/19 12:10	4/4/19 11:30



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DATA QUALIFIER DEFINITIONS

- U The analyte was not detected at or above the reporting limit.
J The identification of the analyte is acceptable; the reported value is an estimate.
QM-1 Matrix Spike Recovery less than method control limits

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board.

Refer to the certificate and scope of accreditation AT-1644 at:
<http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd>

NR The EPA Region 4 Laboratory has not requested accreditation for this test.



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-01

Lab ID: E191405-02

Station ID: DS-01

Matrix: Potable Water

Date Collected: 4/3/19 9:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U, J, QM-1	mg/L	0.10	4/24/19 12:47	4/26/19 5:06	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-02

Lab ID: E191405-03

Station ID: DS-02

Matrix: Potable Water

Date Collected: 4/3/19 10:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 5:48	EPA 300.0



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Region 4 Laboratory Services and Applied Science Division

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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-03

Lab ID: E191405-04

Station ID: DS-03

Matrix: Potable Water

Date Collected: 4/3/19 11:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 6:09	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-04

Lab ID: E191405-05

Station ID: DS-04

Matrix: Potable Water

Date Collected: 4/3/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 6:30	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark,SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark,SC

Sample ID: DS-05

Lab ID: E191405-06

Station ID: DS-05

Matrix: Potable Water

Date Collected: 4/3/19 11:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 6:51	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-06

Lab ID: E191405-07

Station ID: DS-06

Matrix: Potable Water

Date Collected: 4/3/19 12:30

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 7:12	EPA 300.0



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-07

Lab ID: E191405-08

Station ID: DS-07

Matrix: Potable Water

Date Collected: 4/3/19 13:00

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U, J, QM-1	mg/L	0.10	4/24/19 12:47	4/26/19 7:33	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-08

Lab ID: E191405-09

Station ID: DS-08

Matrix: Potable Water

Date Collected: 4/3/19 13:35

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 8:15	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-09

Lab ID: E191405-10

Station ID: DS-09

Matrix: Potable Water

Date Collected: 4/3/19 15:05

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 8:36	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: DS-10

Lab ID: E191405-11

Station ID: DS-10

Matrix: Potable Water

Date Collected: 4/3/19 16:20

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 8:57	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-01

Lab ID: E191405-12

Station ID: GW-01

Matrix: Potable Water

Date Collected: 4/2/19 10:40

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 10:22	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Laboratory Services and Applied Science Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-02

Lab ID: E191405-13

Station ID: GW-02

Matrix: Potable Water

Date Collected: 4/2/19 11:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 10:43	EPA 300.0



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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses

Project: 19-0106, Drinking Water Sampling in Denmark, SC

Sample ID: GW-03

Lab ID: E191405-14

Station ID: GW-03

Matrix: Potable Water

Date Collected: 4/2/19 12:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
24959-67-9	Bromide	0.10	U	mg/L	0.10	4/24/19 12:47	4/26/19 11:04	EPA 300.0



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 19-0106

Project: 19-0106, Drinking Water Sampling in Denmark, SC - Reported by Daniel Adams

Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, LSASD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1904076 - C 300.0 Ion Chromat										
Blank (1904076-BLK1) Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	U	0.10	mg/L							U
Blank (1904076-BLK2) Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	U	0.10	mg/L							U
Blank (1904076-BLK3) Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	U	0.10	mg/L							U
LCS (1904076-BS1) Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	1.8310	0.10	mg/L	2.0000		91.6	90-110			
LCS Dup (1904076-BSD1) Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	1.8170	0.10	mg/L	2.0000		90.8	90-110	0.768	10	
Matrix Spike (1904076-MS1) Source: E191405-02 Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	0.63000	0.10	mg/L	1.0000	U	63.0	90-110			QM-1
Matrix Spike (1904076-MS2) Source: E191405-08 Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	0.77000	0.10	mg/L	1.0000	U	77.0	90-110			QM-1
MRL Verification (1904076-PS1) Prepared: 04/24/19 Analyzed: 04/26/19										
EPA 300.0										
Bromide	0.099000	0.10	mg/L	0.10000		99.0	70-130			MRL-2, U



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Notes and Definitions for QC Samples

- U The analyte was not detected at or above the reporting limit.
- MRL-2 MRL verification for Non-Potable Water matrix
- QM-1 Matrix Spike Recovery less than method control limits



Laboratory Report

Client	US EPA, Region 4 Bill Simpson 980 College Station Rd Athens, GA 30605	Project:	Drinking Water
		Work Order:	9040487
		Received:	04/04/2019 08:07

Dear Client:

Rogers and Callcott appreciates the opportunity to be of service to you. The attached laboratory services report includes analytical results and chain of custody for samples that were received on April 04, 2019. Rogers and Callcott maintains a formal QA/QC program. Unless otherwise noted, all analyses performed under NELAP certification have complied with all the requirements for the TNI standard. The analyses met the QA/QC confidence interval for each test method unless otherwise qualified. Estimated uncertainty is available upon request.

Privileged / Confidential information may be contained in this report and is intended only for the use of the addressee. If you are not the addressee, or the person responsible for delivering to the person addressed, you may not copy or deliver this message to anyone else. If you receive this message by mistake, please notify Rogers and Callcott immediately.

We strive to provide excellent service to our clients. Please contact Lauren Woodrum, your Project Manager, at lauren.woodrum@rogersandcallcott.com or (864)-232-1556 if you have any questions about this report.

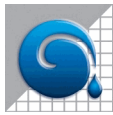
Report Approved By:

Lauren Woodrum
Project Manager

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*South Carolina Greenville Laboratory Identification 23105
 South Carolina Columbia Laboratory Identification 40572
 North Carolina Laboratory Certification Number 27
 North Carolina Drinking Water Lab Number 45710
 NELAP Utah Certificate Number SC000042014-1
 Georgia Drinking Water Lab ID 880*

Certificate of Analysis

Client US EPA, Region 4
 Bill Simpson
 980 College Station Rd
 Athens, GA 30605

Project: Drinking Water
Work Order: 9040487
Received: 04/04/2019 08:07

Sample Number	Sample Description	Matrix	Sampled	Type
9040487-01	DS-01	Drinking Water	04/03/19 09:50	Grab
9040487-02	DS-02	Drinking Water	04/03/19 10:20	Grab
9040487-03	DS-03	Drinking Water	04/03/19 11:00	Grab
9040487-04	DS-04	Drinking Water	04/03/19 11:25	Grab
9040487-05	DS-05	Drinking Water	04/03/19 11:50	Grab
9040487-06	DS-06	Drinking Water	04/03/19 12:30	Grab
9040487-07	DS-07	Drinking Water	04/03/19 13:00	Grab
9040487-08	DS-08	Drinking Water	04/03/19 13:35	Grab
9040487-09	DS-09	Drinking Water	04/03/19 15:05	Grab
9040487-10	DS-10	Drinking Water	04/03/19 16:20	Grab



US EPA, Region 4
980 College Station Rd
Athens, GA 30605

Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Sample Data

Sample Number 9040487-01
Sample Description DS-01 collected on 04/03/19 09:50

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 01:29	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 01:29	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 01:29	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 01:29	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 01:29	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits	Flag				
2-Bromobutanoic Acid				78	70-130					

Sample Number 9040487-02
Sample Description DS-02 collected on 04/03/19 10:20

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 02:14	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 02:14	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 02:14	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 02:14	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 02:14	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits	Flag				
2-Bromobutanoic Acid				85	70-130					



US EPA, Region 4
980 College Station Rd
Athens, GA 30605

Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Sample Number 9040487-03
Sample Description DS-03 collected on 04/03/19 11:00

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 04:28	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 04:28	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 04:28	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 04:28	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 04:28	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
2-Bromobutanoic Acid				89	70-130					

Sample Number 9040487-04
Sample Description DS-04 collected on 04/03/19 11:25

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 05:13	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 05:13	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 05:13	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 05:13	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 05:13	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
2-Bromobutanoic Acid				87	70-130					



US EPA, Region 4
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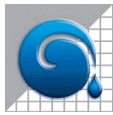
Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Sample Number 9040487-05
Sample Description DS-05 collected on 04/03/19 11:50

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 06:44	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 06:44	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 06:44	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 06:44	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 06:44	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
2-Bromobutanoic Acid				89	70-130					

Sample Number 9040487-06
Sample Description DS-06 collected on 04/03/19 12:30

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 07:29	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 07:29	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 07:29	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 07:29	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 07:29	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
2-Bromobutanoic Acid				84	70-130					



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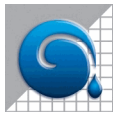
Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Sample Number 9040487-07
Sample Description DS-07 collected on 04/03/19 13:00

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:14	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:14	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:14	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 08:14	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:14	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
<i>2-Bromobutanoic Acid</i>				79	70-130					

Sample Number 9040487-08
Sample Description DS-08 collected on 04/03/19 13:35

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:59	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:59	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:59	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 08:59	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 08:59	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
<i>2-Bromobutanoic Acid</i>				87	70-130					



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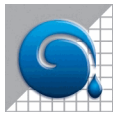
Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Sample Number 9040487-09
Sample Description DS-09 collected on 04/03/19 15:05

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 09:44	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 09:44	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 09:44	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 09:44	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 09:44	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
2-Bromobutanoic Acid				80	70-130					

Sample Number 9040487-10
Sample Description DS-10 collected on 04/03/19 16:20

Parameter	Result	Reporting Limit	Units	DF	Analyzed	Method	Flag	Analyst	Batch	Lab
Microbiological Parameters										
E. Coli	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Total Coliform / 100 ml	Absent		Present/ Absent		04/04/19 09:00	SM 9223B-2004		HBB	B9D0341	RC-C
Haloacetic Acids										
Dibromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 10:29	EPA 552.3		RKH	B9D0262	RC-G
Dichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 10:29	EPA 552.3		RKH	B9D0262	RC-G
Monobromoacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 10:29	EPA 552.3		RKH	B9D0262	RC-G
Monochloroacetic Acid	ND	0.0020	mg/L	1.00	04/09/19 10:29	EPA 552.3		RKH	B9D0262	RC-G
Trichloroacetic Acid	ND	0.0010	mg/L	1.00	04/09/19 10:29	EPA 552.3		RKH	B9D0262	RC-G
Total HAA5	0.00		mg/L			EPA 552.3		RKH	B9D0262	RC-G
Surrogates				%REC	%REC Limits		Flag			
2-Bromobutanoic Acid				84	70-130					



US EPA, Region 4
980 College Station Rd
Athens, GA 30605

Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Haloacetic Acids
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
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Batch B9D0262 - EPA 552.3

Blank (B9D0262-BLK1)

Dibromoacetic Acid	ND	0.0010	mg/L							
Dichloroacetic Acid	ND	0.0010	mg/L							
Monobromoacetic Acid	ND	0.0010	mg/L							
Monochloroacetic Acid	ND	0.0020	mg/L							
Trichloroacetic Acid	ND	0.0010	mg/L							
Total HAA5	0.00		mg/L							
<i>Surrogate: 2-Bromobutanoic Acid</i>						83	70-130			

Blank (B9D0262-BLK2)

Dibromoacetic Acid	ND	0.0010	mg/L							
Dichloroacetic Acid	ND	0.0010	mg/L							
Monobromoacetic Acid	ND	0.0010	mg/L							
Monochloroacetic Acid	ND	0.0020	mg/L							
Trichloroacetic Acid	ND	0.0010	mg/L							
Total HAA5	0.00		mg/L							
<i>Surrogate: 2-Bromobutanoic Acid</i>						79	70-130			

LCS (B9D0262-BS1)

Dibromoacetic Acid	0.0118	0.0010	mg/L	0.0120		99	70-130			
Dichloroacetic Acid	0.0119	0.0010	mg/L	0.0120		99	70-130			
Monobromoacetic Acid	0.0130	0.0010	mg/L	0.0120		108	70-130			
Monochloroacetic Acid	0.0236	0.0020	mg/L	0.0240		98	70-130			
Trichloroacetic Acid	0.0117	0.0010	mg/L	0.0120		97	70-130			
<i>Surrogate: 2-Bromobutanoic Acid</i>						94	70-130			

Duplicate (B9D0262-DUP1)

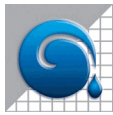
Source: 9040487-02

Dibromoacetic Acid	ND	0.0010	mg/L		ND				30	
Dichloroacetic Acid	ND	0.0010	mg/L		ND				30	
Monobromoacetic Acid	ND	0.0010	mg/L		ND				30	
Monochloroacetic Acid	ND	0.0020	mg/L		ND				30	
Trichloroacetic Acid	ND	0.0010	mg/L		ND				30	
<i>Surrogate: 2-Bromobutanoic Acid</i>						84	70-130			

Matrix Spike (B9D0262-MS1)

Source: 9040487-02

Dibromoacetic Acid	0.0118	0.0010	mg/L	0.0120	ND	98	70-130			
Dichloroacetic Acid	0.0123	0.0010	mg/L	0.0120	ND	103	70-130			



US EPA, Region 4
980 College Station Rd
Athens, GA 30605

Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Haloacetic Acids
Quality Control Summary

Parameter	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flags
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Batch B9D0262 - EPA 552.3

Matrix Spike (B9D0262-MS1) Source: 9040487-02

Monobromoacetic Acid	0.0134	0.0010	mg/L	0.0120	ND	112	70-130			
Monochloroacetic Acid	0.0180	0.0020	mg/L	0.0240	ND	75	70-130			
Trichloroacetic Acid	0.0119	0.0010	mg/L	0.0120	ND	99	70-130			
<i>Surrogate: 2-Bromobutanoic Acid</i>						94	70-130			

Sample Preparation Data

Parameter	Batch	Sample ID	Prepared	Analyst
EPA 552.3 HAA Extraction				
EPA 552.3	B9D0262	9040487-01	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-02	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-03	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-04	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-05	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-06	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-07	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-08	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-09	04/05/2019 09:00	SGM
EPA 552.3	B9D0262	9040487-10	04/05/2019 09:00	SGM



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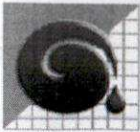
Project: Drinking Water
Work Order: 9040487
Reported: 04/10/19 14:33

Data Qualifiers and Definitions

ND Analyte NOT DETECTED at or above the reporting limit
NR Not reported
RPD Relative Percent Difference

Laboratory Reference:

RC-G = Rogers and Callcott, 426 Fairforest Way, Greenville, SC 29607 / SC Lab ID 23105
RC-C = Rogers and Callcott, 215B Stoneridge Drive, Columbia, SC 29210 / SC Lab ID 40572



Rogers & Callcott ENVIRONMENTAL

CHAIN OF CUSTODY RECORD

WORK ORDER 9040487

Mailing Address: PO Box 5655, Greenville, SC 29606
 Shipping Address: 426 Fairforest Way, Greenville, SC 29607
 215B Stoneridge Drive, Columbia, SC 29210
 Phone (864) 232-1556 Fax (864) 232-6140 Phone (803) 509-8999

Client Name: U.S. EPA
 Address: 980 COLLEGE STATION ROAD
ATHENS, GA. 30605
 Report To: Bill Simpson
 Email Address: SIMPSON.BILL@EPA.GOV
 Telephone #: (706) 355-8748
 PO #: _____ Project #: 19-0106

Total Number of Containers	Parameter(s) ↓	0	0					Filtered (Yes/No)
		4	4					Cooled (Yes/No)
		8	8					Container Type (Plastic/Glass)
		18	80					Container Volume (mL)
		6	6					Sample Type (Grab/Composite)
		0	0					Sample Source (WW, GW, DW, SW, S, Other)
		11	1					Preservation Code(s) A - None E - HCl I - Zn Acetate B - HNO ₃ F - Na ₂ S ₂ O ₃ J - H ₃ PO ₄ C - H ₂ SO ₄ G - Boric Acid K - MCAA D - NaOH H - Ascorbic Acid L - <u>WATER</u>
		<u>Total Coliform</u>						
		<u>E. coli</u>						
		<u>THAPS</u>						

R & C WORK ORDER	YR <u>2019</u> DATE	TIME	SAMPLE DESCRIPTION	Total Number of Containers
01	4/13/19	09:50	DS-01	3
02	4/13/19	10:20	DS-02	5
03	4/13/19	11:00	DS-03	3
04	4/13/19	11:25	DS-04	3
05	4/13/19	11:50	DS-05	3
06	4/13/19	12:30	DS-06	3
07	4/13/19	13:00	DS-07	3
08	4/13/19	13:35	DS-08	3
09	4/13/19	15:05	DS-09	3
10	4/13/19	16:20	DS-10	3

SAMPLER - RELINQUISHED BY: 1. <u>Bill Simpson</u>	DATE/TIME: <u>4/14/19/0807</u>	RECEIVED BY: 2. <u>[Signature]</u>	DATE/TIME: <u>4-14-19-0807</u>	Composite Start Date: _____
RELINQUISHED BY: 3. _____	DATE/TIME: _____	RECEIVED BY: 4. _____	DATE/TIME: _____	Composite Start Time: _____
RELINQUISHED BY: 5. _____	DATE/TIME: _____	RECEIVED BY: 6. _____	DATE/TIME: _____	Time or Flow (Circle one) Initials: _____
RELINQUISHED BY: 7. _____	DATE/TIME: _____	RECEIVED BY: 8. _____	DATE/TIME: _____	Temperature of blank or representative sample At time of collection _____ °C At time of lab receipt <u>12</u> °C



Sample Receipt Verification

Client: US EPA Date Received: 4-4-19 Work Order: 9040487

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: _____
Tracking Number: _____

Carrier Name: Client FedEx UPS US Mail Courier Field Services Other: _____
Tracking Number: 884399

Receipt Criteria	Y e s	No	N A	Comments
Shipping container / cooler intact?	X			Damaged Leaking Other:
Custody seals intact?			X	
COC included with samples?	X			
COC signed when relinquished and received?	X			
Sample bottles intact?	X			Damaged Leaking Other:
Sample ID on COC agree with label on bottle(s)?	X			
Date / time on COC agree with label on bottle(s)?	X			
Number of bottles on COC agrees with number of bottles received?	X			
Samples received within holding time?	X			
Sample volume sufficient for analysis?	X			
VOA vials free of headspace (<6mm bubble)?			X	
Samples requiring pH preservation at proper pH? <small>Note: Samples for metals analysis may be preserved upon receipt in the lab. Note: Samples for O&G and VOA analysis – preservation checked at bench.</small>			X	
Samples dechlorinated for parameters requiring chlorine removal at the time of sample collection? <small>Note: Chlorine checked at bench for samples requiring Bacterial, VOA, and HAA analysis.</small>	X			
Samples cooled when received in Columbia ?	Temp at time of receipt <u>1.2</u> °C Temp measured with IR SN: 36301069WS	X		<u>Ice</u> Cold Packs Dry Ice None
Samples cooled when received in Greenville ?	Temp at time of receipt <u>0.2</u> °C Temp measured with IR SN: 97050067	X		<u>Ice</u> Cold Packs Dry Ice None

If in-house preservation used – record Lot #			
HCL		H ₃ PO ₄	
H ₂ SO ₄		NaOH	
HNO ₃		Other	

Comments:

Were non-conformance issues noted at initial sample receipt? Yes or No
Non-Conformance issue other than noted above:

Note: Samples received initially in Columbia Facility. Sample preservation checks performed at Columbia Facility.

End of Report