

Chemical Analysis Report

NE-DIST-2017-07-07-05

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **LSJR Downtown Salt**
Request ID: **RQ-2017-07-03-12**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-JUL-2017 11:14

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: POTTSBURG CR. @ BEACH BLVD.

Collection Date/Time: 07/06/2017 08:50

Field ID: G2NE0823 01042017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1911770	EPA 180.1 Rev. 2.0	Turbidity	3.3	A	NTU	P328132	
	EPA 300.0 Rev. 2.1	Sulfate	23		mg SO4/L	P328504	
	SM 2320 B-97	Total Alkalinity	84		mg CaCO3/L	P328319	
	SM 2540 D-97	TSS	3	I	mg/L	P328654	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P328323	
1911774	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P328409	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P328480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P328336	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P328259	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P328791	
1911778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P328125	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: GOODBYS CREEK @ SANCHEZ RD.

Collection Date/Time: 07/06/2017 08:05

Field ID: G2NE0601 01042017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1911771	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P328132	
	EPA 300.0 Rev. 2.1	Sulfate	29		mg SO4/L	P328504	
	SM 2320 B-97	Total Alkalinity	104		mg CaCO3/L	P328319	
	SM 2540 D-97	TSS	3	I	mg/L	P328654	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P328323	
1911775	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P328409	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P328480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P328337	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P328259	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P328791	
1911779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P328125	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BIG FISHWEIR CR. @ HERSCHEL ST.

Collection Date/Time: 07/06/2017 09:40

Field ID: G2NE0146 01042017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1911772	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P328132	
	EPA 300.0 Rev. 2.1	Sulfate	150		mg SO4/L	P328504	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P328319	
	SM 2540 D-97	TSS	10		mg/L	P328654	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P328323	
1911776	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P328409	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P328480	

Field ID: G2NE0146 01042017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1911776	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P328337	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P328259	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P328791	
1911780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P328125	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ORTEGA R BR @ TIMUQUANA RD.

Collection Date/Time: 07/06/2017 10:15

Field ID: G2NE0086 01042017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1911773	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P328132	
	EPA 300.0 Rev. 2.1	Sulfate	38		mg SO4/L	P328504	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P328319	
	SM 2540 D-97	TSS	3	IA	mg/L	P328655	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P328323	
1911777	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P328409	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P328480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P328337	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P328259	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P328791	
1911781	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P328125	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ORTEGA R BR @ TIMUQUANA RD.

Collection Date/Time: 07/06/2017 10:15

Field ID: G2NE0086 01042017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1911791	EPA 8321B	Sucralose**	0.16		ug/L	P327821	
	USGS O-2060-01	2,4-D	0.19		ug/L	P328267	
		Diuron	0.0043		ug/L	P328267	
		Fenuron	0.0080	U	ug/L	P328267	
		Imidacloprid	0.040		ug/L	P328267	
		Bentazon	0.010		ug/L	P328267	
		Linuron	0.0040	U	ug/L	P328267	
		Acetaminophen**	0.0080	U	ug/L	P328267	
		MCP	0.0025	I	ug/L	P328267	
		Carbamazepine**	4.0E-04	U	ug/L	P328267	
		Triclopyr**	0.0040	U	ug/L	P328267	
		Primidone**	0.0040	U	ug/L	P328267	
		Fluridone**	0.0095		ug/L	P328267	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for carbamazepine and imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328132

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328504

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328409

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328480

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328336

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328337

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328259

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328125

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P327821

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P328319

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
 Batch ID: P328654

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P328655

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P328323

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P328791

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: USGS O-2060-01
 Batch ID: P328267

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P328504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.0		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328409

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	102		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328337

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	94.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P327821

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	85.2		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P328319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P328323

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P328791

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	114		P	40 - 150
Acetaminophen	126		P	30 - 150
Bentazon	94.3		P	40 - 150
Carbamazepine	125		P	40 - 150
Diuron	128		P	40 - 150
Fenuron	128		P	40 - 150
Fluridone	127		P	40 - 150
Imidacloprid	118		P	40 - 160
Linuron	129		P	40 - 150
MCP	109		P	40 - 150
Primidone	117		P	40 - 150
Triclopyr	115		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911813	Sulfate	98.5		P	90 - 110
1911827	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911814	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911704	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911776	NO2NO3-N	99.2	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P328259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911774	Total-P	101	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P328125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911735	O-Phosphate-P	98.8	95.0	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P327821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910706	Sucralose	75.8	87.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P328323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911729	Fluoride	98.7	100	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P328791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911705	Organic Carbon	100		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P328267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911688	2,4-D	125	110	P/P	40 - 150
1911688	Acetaminophen	114	96.4	P/P	30 - 150
1911688	Bentazon	71.5	86.8	P/P	40 - 150
1911688	Diuron	92.5	97.0	P/P	40 - 150
1911688	Fenuron	99.9	88.6	P/P	40 - 150
1911688	Fluridone	78.1	75.8	P/P	40 - 150
1911688	Linuron	127	127	P/P	40 - 150
1911688	MCPP	133	120	P/P	40 - 150
1911688	Primidone	129	118	P/P	40 - 150
1911688	Triclopyr	115	107	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P328132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911770	Turbidity	3.02	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911813	Sulfate	0.872	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911814	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911836	Kjeldahl Nitrogen	4.06	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911704	NO2NO3-N	0.368	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911776	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911774	Total-P	3.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911735	O-Phosphate-P	2.11	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P327821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910706	Sucralose	13.6	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P328319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911729	Total Alkalinity	0.157	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P328323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911729	Fluoride	0.979	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P328791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911705	Organic Carbon	0.122	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P328267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911688	2,4-D	11.4	Spike	P	0 - 30
1911688	Acetaminophen	17.0	Spike	P	0 - 30
1911688	Bentazon	16.1	Spike	P	0 - 30
1911688	Carbamazepine	8.58	Spike	P	0 - 30
1911688	Diuron	4.14	Spike	P	0 - 30
1911688	Fenuron	12.0	Spike	P	0 - 30
1911688	Fluridone	2.82	Spike	P	0 - 30
1911688	Imidacloprid	8.36	Spike	P	0 - 30
1911688	Linuron	0.567	Spike	P	0 - 30
1911688	MCP	10.2	Spike	P	0 - 30
1911688	Primidone	4.59	Spike	P	0 - 30
1911688	Triclopyr	7.43	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1911791
Field Sample ID: G2NE0086 01042017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	94.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	134	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	94.2	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	94.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	108	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	108	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1911791
Field Sample ID: G2NE0086 01042017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Diuron-d6	67.4	P	30 - 160
USGS O-2060-01	Diuron-d6	67.4	P	30 - 160
USGS O-2060-01	Primidone-d5	83.7	P	30 - 160
USGS O-2060-01	Primidone-d5	83.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77592
Included Lab Sample IDs: 1911778, 1911779, 1911780, 1911781

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77595
Included Lab Sample IDs: 1911770, 1911771, 1911772, 1911773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A77651
Included Lab Sample IDs: 1911770, 1911771, 1911772, 1911773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A77651
Included Lab Sample IDs: 1911770, 1911771, 1911772, 1911773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77655
Included Lab Sample IDs: 1911774, 1911775, 1911776, 1911777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A77670
Included Lab Sample IDs: 1911774, 1911775, 1911776, 1911777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77680

Included Lab Sample IDs: 1911774, 1911775, 1911776, 1911777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77695

Included Lab Sample IDs: 1911770, 1911771, 1911772, 1911773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	104	106	P/P	90 - 110
Sulfate	106	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77729

Included Lab Sample IDs: 1911774, 1911775, 1911776, 1911777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.8	95.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A77777

Included Lab Sample IDs: 1911791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	82.1	118	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A77819

Included Lab Sample IDs: 1911774, 1911775, 1911776, 1911777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	97.4	P/P	90 - 110
Organic Carbon	97.4	97.8	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A77880

Included Lab Sample IDs: 1911791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	90.9	83.2	P/P	50 - 150
Acetaminophen	99.3	97.2	P/P	60 - 150
Bentazon	108	100	P/P	50 - 150
Carbamazepine	92.5	82.9	P/P	60 - 150
Diuron	91.9	81.9	P/P	60 - 150
Fenuron	86.8	84.7	P/P	60 - 150
Fluridone	89.4	103	P/P	60 - 160
Imidacloprid	71.4	72.4	P/P	60 - 150
Linuron	93.8	95.4	P/P	60 - 150
MCPP	93.5	85.8	P/P	50 - 150
Primidone	89.1	69.6	P/P	60 - 150
Triclopyr	90.2	84.7	P/P	50 - 150

Quality Assurance Report Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					3.02	
EPA 300.0 Rev. 2.1	Sulfate	97.0	98.5	99.1		0.872	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	103			1.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					4.06
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	101	101			0.368
	NO ₂ NO ₃ -N	102	99.2	99.2			0.0
EPA 365.1 Rev. 2.0	Total-P	99.4	101	95.9			3.39
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	94.9	98.8	95.0			2.11
EPA 8321B	Sucralose	85.2	75.8	87.2			13.6
SM 2320 B-97	Total Alkalinity	105				0.157	
SM 4500 F-C-97	Fluoride	97.5	98.7	100			0.979
SM 5310 B-00	Organic Carbon	96.8	100				0.122
USGS O-2060-01	2,4-D	114	125	110			11.4
	Acetaminophen	126	114	96.4			17.0
	Bentazon	94.3	71.5	86.8			16.1
	Carbamazepine	125					8.58
	Diuron	128	92.5	97.0			4.14
	Fenuron	128	99.9	88.6			12.0
	Fluridone	127	78.1	75.8			2.82
	Imidacloprid	118					8.36
	Linuron	129	127	127			0.567
	MCPD	109	133	120			10.2
	Primidone	117	129	118			4.59
	Triclopyr	115	115	107			7.43

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1911770, 1911771, 1911772, 1911773
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1911770, 1911771, 1911772, 1911773
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1911774, 1911775, 1911776, 1911777
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1911774, 1911775, 1911776, 1911777
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1911774, 1911775, 1911776, 1911777
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1911774, 1911775, 1911776, 1911777
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1911778, 1911779, 1911780, 1911781
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1911791
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1911770, 1911771, 1911772, 1911773
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1911770, 1911771, 1911772, 1911773
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1911770, 1911771, 1911772, 1911773
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1911774, 1911775, 1911776, 1911777

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1911791
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1911791

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	07/07/2017			07/07/2017 15:38	DeAsia Armster	1911770, 1911771, 1911772, 1911773
EPA 300.0 Rev. 2.1	07/07/2017			07/13/2017	Julia Storbeck	1911770, 1911771, 1911772, 1911773
EPA 350.1 Rev. 2.0	07/07/2017			07/12/2017	Sofia Elnemr	1911774, 1911775, 1911776, 1911777
EPA 351.2 Rev. 2.0	07/07/2017	07/13/2017	Adrian Shelby	07/14/2017	Joseph Suarez	1911774, 1911775, 1911776, 1911777
EPA 353.2 Rev. 2.0	07/07/2017			07/12/2017	Beverly Y. Sanders	1911774, 1911775, 1911776, 1911777
EPA 365.1 Rev. 2.0	07/07/2017	07/11/2017	Vijayalakshmi Reddy	07/12/2017	Lipi Saha	1911774, 1911775, 1911776, 1911777
EPA 365.1 Rev. 2.0 dissolved	07/07/2017			07/07/2017 13:53	Anthony C. Onicha	1911778, 1911779
	07/07/2017			07/07/2017 13:54	Anthony C. Onicha	1911780
	07/07/2017			07/07/2017 13:55	Anthony C. Onicha	1911781
EPA 8321B	07/07/2017	07/13/2017	Mohammad Ghaffari	07/14/2017	Mohammad Ghaffari	1911791
SM 2320 B-97	07/07/2017			07/11/2017	Dale L. Simmons	1911770, 1911771, 1911772, 1911773
SM 2540 D-97	07/07/2017			07/11/2017	Yijie Li	1911770, 1911771, 1911772, 1911773
SM 4500 F-C-97	07/07/2017			07/11/2017	Dale L. Simmons	1911770, 1911771, 1911772, 1911773
SM 5310 B-00	07/07/2017			07/18/2017	Sofia Elnemr	1911774, 1911775, 1911776, 1911777
USGS O-2060-01	07/07/2017	07/12/2017	Hoor Shaik	07/20/2017	Juyoung Kim	1911791