

Chemical Analysis Report

SW-DIST-2016-07-01-01

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

Event Description: **1329F WITHREF SCI**
Request ID: **RQ-2016-06-20-41**
Customer: **SW-DIST**
Project ID: **SCIREF**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: matthew.bearden@dep.state.fl.us

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 22-JUL-2016 16:02



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: Metals, 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: Fish Hawk Creek Ref. Stream

Collection Date/Time: 06/30/2016 12:00

Field ID: TP31

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1812948	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P307246	
	EPA 300.0	Bromide**	0.27		mg Br/L	P307527	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P307575	
		Sulfate	25		mg SO4/L	P307576	
	SM 2120 B	Color (true)	100		PCU	P307234	
	SM 2320 B-97	Total Alkalinity	39		mg CaCO3/L	P307628	
	SM 2540 C-97	TDS	116	A	mg/L	P307732	
	SM 2540 D-97	TSS	7	I	mg/L	P307698	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P307632	
1812949	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P307481	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P307443	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P307464	
	EPA 365.1 Rev. 2.0	Total-P	0.56		mg P/L	P307377	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P307768	
1812953	EPA 200.7 Rev. 4.4	Calcium	17.3		mg/L	P307372	
		Magnesium	7.91		mg/L	P307372	
		Potassium	3.5		mg/L	P307372	
		Sodium	8.2		mg/L	P307372	
1812954	EPA 8321B	Sucralose**	0.043	J	ug/L	P307293	MS, SUR
	USGS O-2060-01	Diuron	0.023		ug/L	P307384	
		Fenuron	0.0080	U	ug/L	P307384	
		Imidacloprid	0.16	J	ug/L	P307384	MS
		Linuron	0.0040	U	ug/L	P307384	
		Acetaminophen**	0.0040	U	ug/L	P307384	
		Carbamazepine**	4.0E-04	U	ug/L	P307384	
		Primidone**	0.0080	U	ug/L	P307384	
		Fluridone**	4.0E-04	UJ	ug/L	P307384	RPD

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed in re-extraction.

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P307246

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P307372

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P307372

Component	Result	Code	Units
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P307527

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307575

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307481

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307443

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307464

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307377

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

Reference Method: EPA 8321B
Batch ID: P307293

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P307234

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307628

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

Reference Method: SM 2540 C-97
Batch ID: P307732

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307698

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307768

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

Reference Method: USGS O-2060-01
Batch ID: P307384

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P307372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	101		P	85 - 115
Sodium	103		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P307527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307575

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307481

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307464

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: P307377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P307293

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	84.1		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P307628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P307384

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	89.6		P	40 - 140
Carbamazepine	93.2		P	40 - 140
Diuron	89.6		P	40 - 140
Fenuron	86.8		P	40 - 140
Fluridone	99.6		P	40 - 140
Imidacloprid	90.0		P	40 - 160
Linuron	88.8		P	40 - 140
Primidone	95.6		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P307372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812209	Calcium	104	104	P/P	80 - 120
1812209	Magnesium	103	104	P/P	80 - 120
1812209	Potassium	102	102	P/P	80 - 120
1812209	Sodium	101	105	P/P	80 - 120
1812806	Calcium	103		P	80 - 120
1812806	Magnesium	104		P	80 - 120
1812806	Potassium	103		P	80 - 120
1812806	Sodium	101		P	80 - 120

Reference Method: EPA 300.0
Batch ID: P307527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810758	Bromide	106	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810758	Chloride	103	103	P/P	90 - 110
1810759	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810758	Sulfate	99.8	100	P/P	90 - 110
1810759	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812849	Ammonia-N	97.4	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812849	Kjeldahl Nitrogen	98.4	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812949	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812944	Total-P	94.6	95.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P307293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812954	Sucralose	38.4	38.2	F/F	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1814122	Fluoride	97.3	97.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812895	Organic Carbon	96.7	97.8	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P307384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1812954	Acetaminophen	94.4	86.4	P/P	40 - 140
1812954	Carbamazepine	78.4	66.4	P/P	40 - 140
1812954	Diuron	78.8	63.6	P/P	40 - 140
1812954	Fenuron	82.0	73.2	P/P	40 - 140
1812954	Fluridone	104	60.8	P/P	40 - 140
1812954	Imidacloprid	208	159	F/P	40 - 160
1812954	Linuron	94.4	78.8	P/P	40 - 140
1812954	Primidone	94.4	87.6	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P307246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812877	Turbidity	4.34	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P307372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812209	Calcium	0.377	Spike	P	0 - 20
1812209	Magnesium	1.53	Spike	P	0 - 20
1812209	Potassium	0.208	Spike	P	0 - 20
1812209	Sodium	3.88	Spike	P	0 - 20

Reference Method: EPA 300.0
 Batch ID: P307527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810758	Bromide	0.0325	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810758	Chloride	0.321	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P307576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810758	Sulfate	0.181	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P307481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812849	Ammonia-N	0.0220	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P307443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812849	Kjeldahl Nitrogen	2.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P307464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812949	NO2NO3-N	1.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P307377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812944	Total-P	0.815	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P307293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812954	Sucralose	0.407	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P307234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812942	Color (true)	0.116	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814122	Total Alkalinity	0.0450	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812948	TDS	2.58	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P307632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1814122	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P307768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812895	Organic Carbon	0.803	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P307384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1812954	Acetaminophen	8.85	Spike	P	0 - 30
1812954	Carbamazepine	16.6	Spike	P	0 - 30
1812954	Diuron	16.2	Spike	P	0 - 30
1812954	Fenuron	11.3	Spike	P	0 - 30
1812954	Fluridone	52.1	Spike	F	0 - 30
1812954	Imidacloprid	14.3	Spike	P	0 - 30
1812954	Linuron	18.0	Spike	P	0 - 30
1812954	Primidone	7.47	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: 1812954
Field Sample ID: TP31

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	85.2	P	30 - 150
EPA 8321B	Carbamazepine-d10	85.6	P	40 - 160
EPA 8321B	Diuron-d6	83.6	P	40 - 150
EPA 8321B	Primidone-d5	95.0	P	40 - 150
EPA 8321B	Sucralose-d6	29.6	F	40 - 150
USGS O-2060-01	Acetaminophen-d4	85.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	85.6	P	40 - 160
USGS O-2060-01	Diuron-d6	83.6	P	40 - 150
USGS O-2060-01	Primidone-d5	95.0	P	40 - 150
USGS O-2060-01	Sucralose-d6	29.6	F	40 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A70362
Included Lab Sample IDs: 1812948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.7	95.7	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70365
Included Lab Sample IDs: 1812948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70432
Included Lab Sample IDs: 1812949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70433
Included Lab Sample IDs: 1812949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70436
Included Lab Sample IDs: 1812949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A70443
Included Lab Sample IDs: 1812948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	103	107	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70443
Included Lab Sample IDs: 1812948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	107	P/P	90 - 110
Sulfate	100	107	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A70461
Included Lab Sample IDs: 1812953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A70461

Included Lab Sample IDs: 1812953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	102	102	P/P	90 - 110
Potassium	98.6	100	P/P	90 - 110
Sodium	99.6	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70470

Included Lab Sample IDs: 1812949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	94.3	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A70472

Included Lab Sample IDs: 1812954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	115	117	P/P	60 - 150
Carbamazepine	115	120	P/P	60 - 150
Diuron	120	119	P/P	60 - 150
Fenuron	120	126	P/P	60 - 150
Fluridone	123	128	P/P	60 - 150
Imidacloprid	118	122	P/P	60 - 150
Linuron	138	140	P/P	60 - 150
Primidone	119	109	P/P	60 - 150

Reference Method: SM 2320 B-97

Run ID: A70476

Included Lab Sample IDs: 1812948

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

Reference Method: SM 4500 F-C-97

Run ID: A70476

Included Lab Sample IDs: 1812948

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

Reference Method: EPA 8321B

Run ID: A70480

Included Lab Sample IDs: 1812954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	115	88.0	P/P	70 - 150

Reference Method: SM 5310 B-00

Run ID: A70509

Included Lab Sample IDs: 1812949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A70509
Included Lab Sample IDs: 1812949

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

* 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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.34	
EPA 200.7 Rev. 4.4	Calcium	103	104	104		0.377
	Magnesium	104	103	104		1.53
	Potassium	101	102	102		0.208
	Sodium	103	101	105		3.88
EPA 300.0	Bromide	108	106	106		0.0325
EPA 300.0 Rev. 2.1	Chloride	104	103	103		0.321
	Sulfate	101	99.8	100		0.181
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	97.4	97.4		0.0220
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.6	98.4	94.0		2.75
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101			1.15
EPA 365.1 Rev. 2.0	Total-P	96.2	94.6	95.4		0.815
EPA 8321B	Sucralose	84.1	38.4	38.2		0.407
SM 2120 B	Color (true)				0.116	
SM 2320 B-97	Total Alkalinity	103			0.0450	
SM 2540 C-97	TDS				2.58	
SM 4500 F-C-97	Fluoride	98.6	97.3	97.3		0.0
SM 5310 B-00	Organic Carbon	97.7	96.7	97.8		0.803
USGS O-2060-01	Acetaminophen	89.6	94.4	86.4		8.85
	Carbamazepine	93.2	78.4	66.4		16.6
	Diuron	89.6	78.8	63.6		16.2
	Fenuron	86.8	82.0	73.2		11.3
	Fluridone	99.6	104	60.8		52.1
	Imidacloprid	90.0	208	159		14.3
	Linuron	88.8	94.4	78.8		18.0
	Primidone	95.6	94.4	87.6		7.47

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1812948
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1812953
EPA 300.0 / E31780	Bromide in aqueous matrices	1812948
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1812948
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1812948

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1812949
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1812949
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1812949
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1812949
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1812954
SM 2120 B / E31780	True Color measured at 450 nm	1812948
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1812948
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1812948
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1812948
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1812948
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1812949
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1812954

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	07/01/2016			07/01/2016 15:27	Sima Feizi	1812948
EPA 200.7 Rev. 4.4	07/01/2016	07/05/2016	Elliott D. Healy	07/07/2016	Joshua Ayres	1812953
EPA 300.0	07/01/2016			07/07/2016	Ping Hua	1812948
EPA 300.0 Rev. 2.1	07/01/2016			07/07/2016	Ping Hua	1812948
EPA 350.1 Rev. 2.0	07/01/2016			07/07/2016	Diana M. Turner	1812949
EPA 351.2 Rev. 2.0	07/01/2016	07/07/2016	Sofia Elnemr	07/08/2016	Christopher Armour	1812949
EPA 353.2 Rev. 2.0	07/01/2016			07/07/2016	Beverly Y. Sanders	1812949
EPA 365.1 Rev. 2.0	07/01/2016	07/06/2016	Vijayalakshmi Reddy	07/07/2016	Lipi Saha	1812949
EPA 8321B	07/01/2016	07/07/2016	Hoor Shaik	07/11/2016	Mohammad Ghaffari	1812954
SM 2120 B	07/01/2016			07/01/2016 14:47	Rochelle Y Jackson	1812948
SM 2320 B-97	07/01/2016			07/09/2016	Dale L. Simmons	1812948
SM 2540 C-97	07/01/2016			07/06/2016	Yijie Li	1812948
SM 2540 D-97	07/01/2016			07/06/2016	Yijie Li	1812948
SM 4500 F-C-97	07/01/2016			07/09/2016	Dale L. Simmons	1812948
SM 5310 B-00	07/01/2016			07/11/2016	Diana M. Turner	1812949
USGS O-2060-01	07/01/2016	07/07/2016	Hoor Shaik	07/09/2016	Juyoung Kim	1812954