

Chemical Analysis Report

WTRSHD-MGT-2013-08-23-03

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

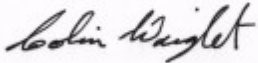
Event Description: **SPRS1305 - Santa Fe Springs/GW Restoration**
Request ID: **RQ-2013-08-19-37**
Customer: **WTRSHD-MGT**
Project ID: **TMDL**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
Attn: Gary Maddox

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

Certified by: Colin Wright, Environmental Administrator

Date Certified: 12-SEP-2013 10:07



Abbreviations and data remark codes

CERT # - NELAP (National Environmental Laboratory Accreditation Program) Certification Number of the laboratory that performed the analysis.

LCS - Laboratory Control Sample; in the QC Failures column, this notation indicates a batch recovery failure.

MS - Matrix Spike; in the QC Failures column, this notation indicates a batch recovery failure.

RPD - Relative Percent Difference; in the QC Failures column, this notation indicates a batch failure for precision.

CCV - Continuing Calibration Verification; in the QC Failures column, this notation indicates a failure of the calibration verification check sample.

SUR - Surrogate; in the QC Failures column, this notation indicates a recovery failure for the associated surrogate.

RSD - Relative Standard Deviation expressed as a percentage.

SMP - Sample.

** - The laboratory is not NELAP certified for this analyte/method, or certification is not applicable.

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

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).

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.

Precision is reported as relative percent difference unless otherwise noted.

Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

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.

All sample collection performed by Bureau of Laboratories staff followed the field Standard Operating Procedures adopted by reference in Rule 62-160 FAC unless otherwise noted.

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.

Results for NELAP accredited tests contained in this report meet the requirements specified by the National Environmental Laboratory Accreditation Conference (NELAC). All samples received were in acceptable condition and met NELAC requirements unless otherwise noted. Results generated in this report pertain to the samples collected and submitted for analysis.

Job: TLH-2013-08-23-55

Group: Nutrients

Job: TLH-2013-08-23-56

Group: Metals

Job: TLH-2013-08-23-57

Group: Pesticides

Sample Location: EQUIPMENT BLANK #1**Collection Date/Time: 08/22/2013 12:06 PM****Field ID: EQUIPMENT BLANK #1****Matrix: W-EQPMT-BK**

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1528477	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P256849	
	EPA 300.0	Bromide**	0.016	U	mg Br/L	P256906	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P256867	
		Sulfate	0.20	U	mg SO4/L	P256870	
	SM 2120 B	Color (true)	2.5	U	PCU	P256818	
	SM 2320 B-97	Alkalinity	0.65	U	mg CaCO3/L	P257076	
	SM 2540 C-97	TDS	15	U	mg/L	P257071	
	SM 2540 D-97	TSS	2	U	mg/L	P257139	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P257083	
1528480	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P257006	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P257059	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P257124	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P257052	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P257031	
1528483	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P256796	
1528486	EPA 200.7 Rev. 4.4	Calcium	0.13	I	mg/L	P257068	
		Magnesium	0.040	U	mg/L	P257068	
		Potassium	0.30	U	mg/L	P257068	
		Sodium	0.50	U	mg/L	P257068	
	EPA 200.8 Rev. 5.4	Boron**	2.0	U	ug/L	P257098	
1528489	DEP SOP: LC-001-2 (based on EPA 8321B)	Sucralose**	0.0098	U	ug/L	P257015	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recoveries are unavailable due to high analyte concentration in the QC sample. The presence of calcium was confirmed in the undigested sample on 08/29/2013.

Sample Location: MSFMW15**Collection Date/Time: 08/22/2013 11:41 AM****Field ID: MSFMW15****Matrix: W-GROUND**

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1528476	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P256849	
	EPA 300.0	Bromide**	0.016	U	mg Br/L	P256906	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P256867	
		Sulfate	7.1		mg SO4/L	P256870	
	SM 2120 B	Color (true)	2.5	U	PCU	P256818	
	SM 2320 B-97	Alkalinity	310	A	mg CaCO3/L	P257076	
	SM 2540 C-97	TDS	340		mg/L	P257074	
	SM 2540 D-97	TSS	2	I	mg/L	P257142	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P257083	
1528479	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P257005	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P257059	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P257124	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P257052	
	SM 5310 B-00	Organic Carbon	0.72	I	mg C/L	P257031	

Field ID: MSFMW15

Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1528482	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P256796	
1528485	EPA 200.7 Rev. 4.4	Calcium	135		mg/L	P257068	
		Magnesium	3.03		mg/L	P257068	
		Potassium	1.4		mg/L	P257068	
		Sodium	6.4		mg/L	P257068	
	EPA 200.8 Rev. 5.4	Boron**	8.2		ug/L	P257098	
1528488	DEP SOP: LC-001-2 (based on EPA 8321B)	Sucralose**	0.010	U	ug/L	P257015	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: The calcium matrix spike recoveries are unavailable due to high analyte concentration in the QC sample.

Sample Location: MSFMW7**Collection Date/Time: 08/22/2013 12:33 PM****Field ID: MSFMW7**

Matrix: W-GROUND

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1528478	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P256849	
	EPA 300.0	Bromide**	0.073		mg Br/L	P256906	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P256867	
		Sulfate	5.2		mg SO4/L	P256870	
	SM 2120 B	Color (true)	2.5	U	PCU	P256818	
	SM 2320 B-97	Alkalinity	216		mg CaCO3/L	P257076	
	SM 2540 C-97	TDS	519		mg/L	P257074	
	SM 2540 D-97	TSS	2	U	mg/L	P257142	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P257083	
1528481	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P257006	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40	U	mg N/L	P257321	
	EPA 353.2 Rev. 2.0	NO2NO3-N	24		mg N/L	P257124	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P257052	
	SM 5310 B-00	Organic Carbon	0.58	I	mg C/L	P257031	
1528484	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P256796	
1528487	EPA 200.7 Rev. 4.4	Calcium	134		mg/L	P257068	
		Magnesium	2.67		mg/L	P257068	
		Potassium	1.1	I	mg/L	P257068	
		Sodium	5.6		mg/L	P257068	
	EPA 200.8 Rev. 5.4	Boron**	11.9		ug/L	P257098	
1528490	DEP SOP: LC-001-2 (based on EPA 8321B)	Sucralose**	0.010	U	ug/L	P257015	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample. The MDL was elevated due to high nitrate concentration in the sample.

EPA 200.7 Rev. 4.4: The calcium matrix spike recoveries are unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P257015

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P256849

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P257068

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P257098

Component	Result	Code	Units
Boron	2.0	U	ug/L

Reference Method: EPA 300.0

Batch ID: P256906

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256867

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256870

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257005

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257006

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257059

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257321

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P257124

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P257052

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P256796

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

Reference Method: SM 2120 B

Batch ID: P256818

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97

Batch ID: P257076

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

Reference Method: SM 2540 C-97

Batch ID: P257071

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97

Batch ID: P257074

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97

Batch ID: P257139

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97

Batch ID: P257142

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97

Batch ID: P257083

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00

Batch ID: P257031

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P257015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	72.4	70.0	P/P	40 - 130

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P257068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	102		P	85 - 115
Sodium	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P257098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Boron	101		P	85 - 115

Reference Method: EPA 300.0

Batch ID: P256906

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257321

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P257124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P257052

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P256796

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97

Batch ID: P257076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Alkalinity	97.8		P	85 - 115

Reference Method: SM 4500 F-C-97

Batch ID: P257083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	85 - 115

Reference Method: SM 5310 B-00

Batch ID: P257031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	90.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P257015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528808	Sucralose	46.7	43.1	P/P	40 - 130

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P257068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528310	Magnesium	104	105	P/P	80 - 120
1528310	Potassium	107	107	P/P	80 - 120
1528310	Sodium	104		P	80 - 120
1528487	Magnesium	102		P	80 - 120
1528487	Potassium	107		P	80 - 120
1528487	Sodium	110		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P257098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528310	Boron	97.3	96.6	P/P	80 - 120
1528487	Boron	105		P	80 - 120

Reference Method: EPA 300.0

Batch ID: P256906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1527876	Bromide	98.8		P	90 - 110
1528299	Bromide	91.7		P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1527876	Chloride	97.6		P	90 - 110
1528299	Chloride	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1527876	Sulfate	92.6		P	90 - 110
1528299	Sulfate	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528447	Ammonia-N	97.1	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528796	Ammonia-N	99.3	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528473	Kjeldahl Nitrogen	93.9	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P257124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528479	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P257052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528479	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P256796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528438	O-Phosphate-P	99.2	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Batch ID: P257083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528476	Fluoride	101	101	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00

Batch ID: P257031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1528447	Organic Carbon	90.0	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Batch ID: P257015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528808	Sucralose	4.83	Spike	P	0 - 30
LFB	Sucralose	3.37	LCS	P	0 - 30

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P256849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528462	Turbidity	0.604	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P257068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528310	Calcium	1.89	Spike	P	0 - 20
1528310	Magnesium	0.549	Spike	P	0 - 20
1528310	Potassium	0.400	Spike	P	0 - 20
1528310	Sodium	1.08	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P257098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528310	Boron	0.407	Spike	P	0 - 20

Reference Method: EPA 300.0

Batch ID: P256906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1527876	Bromide	1.11	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1527876	Chloride	0.110	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P256870

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1527876	Sulfate	0.868	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257005

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528447	Ammonia-N	0.267	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P257006

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528796	Ammonia-N	0.200	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257059

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528473	Kjeldahl Nitrogen	6.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P257321

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1530931	Kjeldahl Nitrogen	3.89	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P257124

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528479	NO2NO3-N	0.265	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P257052

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528479	Total-P	1.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P256796

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528438	O-Phosphate-P	0.101	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B

Batch ID: P256818

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528472	Color (true)	3.64	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P257076

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528472	Alkalinity	1.18	Sample	P	0 - 20
1528476	Alkalinity	0.0283	Sample	P	0 - 20

Reference Method: SM 2540 C-97

Batch ID: P257071

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1527980	TDS	5.49	Sample	P	0 - 10

Reference Method: SM 2540 C-97

Batch ID: P257074

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528386	TDS	0.881	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97

Batch ID: P257083

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528476	Fluoride	0.477	Spike	P	0 - 20

Reference Method: SM 5310 B-00

Batch ID: P257031

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1528447	Organic Carbon	2.79	Spike	P	0 - 20

* 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: 1528488

Field Sample ID: MSFMW15

Reference Method

DEP SOP: LC-001-2 (based on EPA 8321B)

Surrogate

Sucralose-d6

% Rec.

57.3

Pass/Fail

P

Control Limits

40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1528489

Field Sample ID: EQUIPMENT BLANK #1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
DEP SOP: LC-001-2 (based on EPA 8321B)	Sucralose-d6	72.9	P	40 - 150

Lab Sample ID: 1528490

Field Sample ID: MSFMW7

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
DEP SOP: LC-001-2 (based on EPA 8321B)	Sucralose-d6	63.2	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A52079

Included Lab Sample IDs: 1528482, 1528483, 1528484

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.5	99.4	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A52090

Included Lab Sample IDs: 1528476, 1528477, 1528478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	98.8	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A52101

Included Lab Sample IDs: 1528476, 1528477, 1528478

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A52109

Included Lab Sample IDs: 1528476, 1528477, 1528478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	99.3	P/P	90 - 110
Sulfate	96.6	97.3	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A52123

Included Lab Sample IDs: 1528477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.1	93.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A52172

Included Lab Sample IDs: 1528479, 1528480, 1528481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	P/P	90 - 110
Ammonia-N	101	100	P/P	90 - 110

Reference Method: DEP SOP: LC-001-2 (based on EPA 8321B)

Run ID: A52175

Included Lab Sample IDs: 1528488, 1528489, 1528490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	101	P/P	70 - 150

Reference Method: SM 5310 B-00

Run ID: A52180

Included Lab Sample IDs: 1528479, 1528480, 1528481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.8	92.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A52193

Included Lab Sample IDs: 1528479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A52194

Included Lab Sample IDs: 1528479, 1528480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	101	P/P	90 - 110
Kjeldahl Nitrogen	99.4	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A52197

Included Lab Sample IDs: 1528485, 1528486, 1528487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Calcium	103	103	P/P	90 - 110
Calcium	104	103	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Magnesium	102	99.7	P/P	90 - 110
Magnesium	99.7	101	P/P	90 - 110
Potassium	101	103	P/P	90 - 110
Potassium	101	102	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	104	104	P/P	90 - 110
Sodium	104	104	P/P	90 - 110
Sodium	104	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A52199

Included Lab Sample IDs: 1528480, 1528481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.0	97.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A52201

Included Lab Sample IDs: 1528476, 1528477, 1528478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Alkalinity	96.1	97.6	P/P	85 - 115

Reference Method: SM 4500 F-C-97

Run ID: A52201

Included Lab Sample IDs: 1528476, 1528477, 1528478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A52220

Included Lab Sample IDs: 1528479, 1528480, 1528481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.6	99.4	P/P	90 - 110
NO2NO3-N	99.4	99.2	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A52244

Included Lab Sample IDs: 1528476, 1528478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	95.0	97.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A52258

Included Lab Sample IDs: 1528485, 1528486, 1528487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	93.9	95.0	P/P	90 - 110
Boron	95.7	93.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A52305

Included Lab Sample IDs: 1528481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	107	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			Precision		
							LCS	SMP	MS
DEP SOP: LC-001-2 (based on EPA 8321B)	Sucralose	72.4	70.0	46.7	43.1		3.37		4.83
EPA 180.1 Rev. 2.0	Turbidity							0.604	
EPA 200.7 Rev. 4.4	Calcium	103							1.89
	Magnesium	104		104	105	102			0.549
	Potassium	102		107	107	107			0.400
	Sodium	105		104	110				1.08
EPA 200.8 Rev. 5.4	Boron	101		97.3	96.6	105			0.407
EPA 300.0	Bromide	100		98.8	91.7			1.11	
EPA 300.0 Rev. 2.1	Chloride	97.8		97.6	97.4			0.110	
	Sulfate	94.4		92.6	94.7			0.868	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7		97.1	97.5				0.267
	Ammonia-N	98.0		99.3	98.9				0.200
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6		93.9	105				6.07
	Kjeldahl Nitrogen	99.4							3.89
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100		106	106				0.265
EPA 365.1 Rev. 2.0	Total-P	108		108	107				1.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104		99.2	99.1				0.101
SM 2120 B	Color (true)							3.64	
SM 2320 B-97	Alkalinity	97.8						0.0283	
								1.18	
SM 2540 C-97	TDS							5.49	
	TDS							0.881	
SM 4500 F-C-97	Fluoride	102		101	101				0.477
SM 5310 B-00	Organic Carbon	90.6		90.0	94.4				2.79

Reference Method Descriptions

Method / NELAC Cert. #	Description	Associated Samples
DEP SOP: LC-001-2 (based on EPA 8321B) / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1528488, 1528489, 1528490
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1528476, 1528477, 1528478
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1528485, 1528486, 1528487
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1528485, 1528486, 1528487
EPA 300.0 / E31780	Bromide in aqueous matrices	1528476, 1528477, 1528478
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1528476, 1528477, 1528478
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1528476, 1528477, 1528478
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1528479, 1528480, 1528481
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1528479, 1528480, 1528481
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1528479, 1528480, 1528481
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1528479, 1528480, 1528481
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1528482, 1528483, 1528484
SM 2120 B / E31780	True Color measured at 450 nm	1528476, 1528477, 1528478
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1528476, 1528477, 1528478
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1528476, 1528477, 1528478

Reference Method Descriptions

Method / NELAC Cert. #	Description	<u>Associated Samples</u>
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1528476, 1528477, 1528478
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1528476, 1528477, 1528478
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1528479, 1528480, 1528481

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: LC-001-2 (based on EPA 8321B)	08/23/2013	08/28/2013	Juyoung Kim	08/28/2013	S. M. Reddy	1528488, 1528489, 1528490
EPA 180.1 Rev. 2.0	08/23/2013			08/23/2013 15:58	Ping Hua	1528476, 1528477, 1528478
EPA 200.7 Rev. 4.4	08/23/2013	08/27/2013	Elliott D. Healy	08/29/2013	Joshua Ayres	1528485, 1528486, 1528487
EPA 200.8 Rev. 5.4	08/23/2013	08/27/2013	Elliott D. Healy	09/03/2013	Charles J. Peterson	1528485, 1528486, 1528487
EPA 300.0	08/23/2013			08/23/2013	Gary Dearman	1528477
	08/23/2013			08/28/2013	Gary Dearman	1528476, 1528478
EPA 300.0 Rev. 2.1	08/23/2013			08/23/2013	Gary Dearman	1528476, 1528477, 1528478
EPA 350.1 Rev. 2.0	08/23/2013			08/28/2013	Diana M. Turner	1528479, 1528480, 1528481
EPA 351.2 Rev. 2.0	08/23/2013	08/28/2013	Christopher Armour	08/29/2013	Bryan A. Werth	1528479, 1528480
	08/23/2013	09/05/2013	Christopher Armour	09/06/2013	Bryan A. Werth	1528481
EPA 353.2 Rev. 2.0	08/23/2013			08/30/2013	Sima Feizi	1528479, 1528480, 1528481
EPA 365.1 Rev. 2.0	08/23/2013	08/28/2013	Christopher Armour	08/29/2013	Pallavi R. Gadwal	1528479, 1528480, 1528481
EPA 365.1 Rev. 2.0 dissolved	08/23/2013			08/23/2013 11:45	Bryan A. Werth	1528482
	08/23/2013			08/23/2013 11:46	Bryan A. Werth	1528484
	08/23/2013			08/23/2013 11:47	Bryan A. Werth	1528483
SM 2120 B	08/23/2013			08/23/2013 15:06	Blanca Fach	1528476
	08/23/2013			08/23/2013 15:07	Blanca Fach	1528477
	08/23/2013			08/23/2013 15:08	Blanca Fach	1528478
SM 2320 B-97	08/23/2013			08/29/2013	Dale L. Simmons	1528476, 1528477, 1528478
SM 2540 C-97	08/23/2013			08/26/2013	Yijie Li	1528476, 1528477, 1528478
SM 2540 D-97	08/23/2013			08/26/2013	Yijie Li	1528476, 1528477, 1528478
SM 4500 F-C-97	08/23/2013			08/29/2013	Dale L. Simmons	1528476, 1528477, 1528478
SM 5310 B-00	08/23/2013			08/28/2013	Rochelle Y Jackson	1528479, 1528480, 1528481