

Chemical Analysis Report

SO-DIST-2013-01-24-01

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

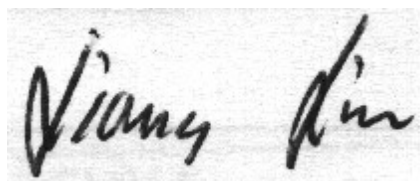
Event Description: **Tamiami Canal Criteria**
Request ID: **RQ-2013-01-21-26**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-FEB-2013 11:03

A handwritten signature in black ink, appearing to read "Liang Lin", is written over a light gray, textured background.

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.

Sample Location: RQ-2013-01-21-26 SITE #6 TMT

Collection Date/Time: 01/23/2013 10:20 AM

Field ID: SD012313-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479443	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P248664	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P249016	
		Sulfate	0.52		mg SO4/L	P249030	
	SM 2120 B	Color (true)	24	A	PCU	P248648	
	SM 2320 B-97	Alkalinity	164		mg CaCO3/L	P248801	
	SM 2540 C-97	TDS	227		mg/L	P248923	
	SM 2540 D-97	TSS	3	I	mg/L	P248724	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P248804	
1479449	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P248791	
1479455	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P248827	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P248784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P248852	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P248748	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P248791	
1479461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P248640	

Ref. Method and Comment:

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

Sample Location: RQ-2013-01-21-26 SITE #7A TMT

Collection Date/Time: 01/23/2013 10:50 AM

Field ID: SD012313-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479444	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P248664	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P249016	
		Sulfate	0.58		mg SO4/L	P249030	
	SM 2120 B	Color (true)	17		PCU	P248648	
	SM 2320 B-97	Alkalinity	197		mg CaCO3/L	P248801	
	SM 2540 C-97	TDS	222		mg/L	P248923	
	SM 2540 D-97	TSS	2	U	mg/L	P248724	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P248804	
1479450	SM 5310 B-00 dissolved	Organic Carbon	6.6		mg C/L	P248791	
1479456	EPA 350.1 Rev. 2.0	Ammonia-N	0.080		mg N/L	P248827	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P248784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.090		mg N/L	P248852	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P248748	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P248791	
1479462	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P248640	

Ref. Method and Comment:

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

Sample Location: RQ-2013-01-21-26 SITE #7B TMT

Collection Date/Time: 01/23/2013 11:33 AM

Field ID: SD012313-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479446	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P248664	

Field ID: SD012313-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479446	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P249016	
		Sulfate	0.37	I	mg SO4/L	P249030	
	SM 2120 B	Color (true)	20		PCU	P248648	
	SM 2320 B-97	Alkalinity	194		mg CaCO3/L	P248801	
	SM 2540 C-97	TDS	226	A	mg/L	P248924	
	SM 2540 D-97	TSS	3	I	mg/L	P248725	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P248804	
1479452	SM 5310 B-00 dissolved	Organic Carbon	6.8		mg C/L	P248791	
1479458	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P248827	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P248784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P248852	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P248875	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P248791	
1479464	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010	I	mg P/L	P248640	

Ref. Method and Comment:

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

Sample Location: RQ-2013-01-21-26 SITE #7C TMT

Collection Date/Time: 01/23/2013 11:15 AM

Field ID: SD012313-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479445	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P248664	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P249016	
		Sulfate	0.39	I	mg SO4/L	P249030	
	SM 2120 B	Color (true)	18		PCU	P248648	
	SM 2320 B-97	Alkalinity	200		mg CaCO3/L	P248801	
	SM 2540 C-97	TDS	226		mg/L	P248923	
	SM 2540 D-97	TSS	2	I	mg/L	P248724	
1479451	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P248804	
		Organic Carbon	6.2		mg C/L	P248791	
	SM 5310 B-00 dissolved	Organic Carbon	6.2		mg C/L	P248791	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P248827	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P248784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P248852	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P248748	
1479457	SM 5310 B-00	Organic Carbon	6.8		mg C/L	P248791	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P248640	

Ref. Method and Comment:

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

Sample Location: RQ-2013-01-21-26 SITE #8 TMT

Collection Date/Time: 01/23/2013 12:18 PM

Field ID: SD012313-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479448	EPA 180.1 Rev. 2.0	Turbidity	2.0	A	NTU	P248665	
	EPA 300.0 Rev. 2.1	Chloride	1.4E+03		mg Cl/L	P249016	
		Sulfate	95		mg SO4/L	P249030	

Field ID: SD012313-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479448	SM 2120 B	Color (true)	130		PCU	P248649	
	SM 2320 B-97	Alkalinity	323		mg CaCO3/L	P248801	
	SM 2540 C-97	TDS	2.66E+03		mg/L	P248924	
	SM 2540 D-97	TSS	6	I	mg/L	P248725	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P248804	
1479454	SM 5310 B-00 dissolved	Organic Carbon	37		mg C/L	P248791	
1479460	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P248831	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.2		mg N/L	P248811	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P248852	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P248762	
	SM 5310 B-00	Organic Carbon	37		mg C/L	P248791	
1479466	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P248642	

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.

Sample Location: RQ-2013-01-21-26 SITE BR #78 TMT

Collection Date/Time: 01/23/2013 11:54 AM

Field ID: SD012313-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1479447	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P248665	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P249016	
		Sulfate	12		mg SO4/L	P249030	
	SM 2120 B	Color (true)	19		PCU	P248649	
	SM 2320 B-97	Alkalinity	232		mg CaCO3/L	P248801	
	SM 2540 C-97	TDS	401		mg/L	P248924	
	SM 2540 D-97	TSS	2	I	mg/L	P248725	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P248804	
1479453	SM 5310 B-00 dissolved	Organic Carbon	6.1		mg C/L	P248791	
1479459	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P248831	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P248784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P248852	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P248875	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P248791	
1479465	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P248640	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P248664

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P248665

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249016

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249030

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248827

Component	Result	Code	Units
Ammonia-N	0.010	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248831

Component	Result	Code	Units
Ammonia-N	0.010	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248784

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248811

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P248852

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248748

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248762

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248875

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248640

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248642

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

Reference Method: SM 2120 B
Batch ID: P248648

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P248649

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P248801

Component	Result	Code	Units
Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P248923

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P248924

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P248724

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P248725

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P248804

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P248791

Component	Result	Code	Units
Organic Carbon	0.40	U	mg C/L

Reference Method: SM 5310 B-00 dissolved
Batch ID: P248791

Component	Result	Code	Units
Organic Carbon	0.40	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249016

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248827

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248831

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248831

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248811

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P248852

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248748

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248762

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248875

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248640

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	106		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P248801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Alkalinity	94.0		P	85 - 115

Reference Method: SM 4500 F-C-97
Batch ID: P248804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P248791

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P248791

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249016

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479443	Chloride	99.1	99.8	P/P	90 - 110
1479496	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479443	Sulfate	95.2	95.3	P/P	90 - 110
1479496	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479421	Ammonia-N	98.5	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479521	Ammonia-N	99.8	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479421	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P248852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479459	NO2NO3-N	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479420	Total-P	97.2	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479458	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479145	Total-P	99.8	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479426	O-Phosphate-P	96.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479466	O-Phosphate-P	93.2	93.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P248804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479494	Fluoride	100	99.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P248791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479449	Organic Carbon	102	97.5	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P248791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1479449	Organic Carbon	102	97.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P248664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479413	Turbidity	4.74	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P248665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479448	Turbidity	3.47	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479443	Chloride	0.384	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P249030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479443	Sulfate	0.0537	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479421	Ammonia-N	0.401	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P248831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479521	Ammonia-N	1.07	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479421	Kjeldahl Nitrogen	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P248811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479460	Kjeldahl Nitrogen	19.3	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P248852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479459	NO2NO3-N	0.266	Spike	P	0 - 15

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479420	Total-P	0.329	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479458	Total-P	1.92	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P248875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479145	Total-P	1.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479426	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P248642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479466	O-Phosphate-P	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P248648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479443	Color (true)	1.99	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P248649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479534	Color (true)	2.15	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P248801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479096	Alkalinity	0.676	Sample	P	0 - 20
1479494	Alkalinity	0.288	Sample	P	0 - 20

Reference Method: SM 2540 C-97
Batch ID: P248923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479405	TDS	2.77	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P248924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479446	TDS	6.65	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P248804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479494	Fluoride	0.953	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P248791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479449	Organic Carbon	2.58	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P248791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1479449	Organic Carbon	2.58	Spike	P	0 - 20

Quality Assurance Report Precision

* 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 Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A48761

Included Lab Sample IDs: 1479461, 1479462, 1479463, 1479464, 1479465, 1479466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.8	P/P	90 - 110
O-Phosphate-P	99.4	98.1	P/P	90 - 110
O-Phosphate-P	99.8	99.4	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A48763

Included Lab Sample IDs: 1479443, 1479444, 1479445, 1479446, 1479447, 1479448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	105	P/P	85 - 115
Color (true)	105	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A48767

Included Lab Sample IDs: 1479443, 1479444, 1479445, 1479446, 1479447, 1479448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A48801

Included Lab Sample IDs: 1479455, 1479456, 1479457

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.5	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A48803

Included Lab Sample IDs: 1479460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A48804

Included Lab Sample IDs: 1479443, 1479444, 1479445, 1479446, 1479447, 1479448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	98.6	96.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A48813

Included Lab Sample IDs: 1479455, 1479456, 1479457, 1479458, 1479459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A48815

Included Lab Sample IDs: 1479455, 1479456, 1479457, 1479458, 1479459, 1479460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.4	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A48815

Included Lab Sample IDs: 1479449, 1479450, 1479451, 1479452, 1479453, 1479454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	96.3	P/P	90 - 110
Organic Carbon	96.3	96.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A48820

Included Lab Sample IDs: 1479443, 1479444, 1479445, 1479446, 1479447, 1479448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Alkalinity	94.0	93.5	P/P	85 - 115

Reference Method: SM 4500 F-C-97

Run ID: A48820

Included Lab Sample IDs: 1479443, 1479444, 1479445, 1479446, 1479447, 1479448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	95.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A48823

Included Lab Sample IDs: 1479460

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A48832

Included Lab Sample IDs: 1479455, 1479456, 1479457, 1479458, 1479459, 1479460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	99.2	P/P	90 - 110
Ammonia-N	97.8	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A48837

Included Lab Sample IDs: 1479455, 1479456, 1479457, 1479458, 1479459, 1479460

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A48837

Included Lab Sample IDs: 1479455, 1479456, 1479457, 1479458, 1479459, 1479460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110
NO2NO3-N	99.2	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A48846

Included Lab Sample IDs: 1479458, 1479459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.2	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				4.74	
	Turbidity				3.47	
EPA 300.0 Rev. 2.1	Chloride	98.4	100 99.1 99.8			0.384
	Sulfate	95.9	96.2 95.2 95.3			0.0537
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.5 97.9			0.401
	Ammonia-N	101	99.8 98.3			1.07
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.0	102 104			1.11
	Kjeldahl Nitrogen	94.0				19.3
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.6 100			0.266 RSD
EPA 365.1 Rev. 2.0	Total-P	101	97.2 98.0			0.329
	Total-P	102	105 103			1.92
	Total-P	103	99.8 102			1.07
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.0 96.0			0.0
	O-Phosphate-P	106	93.2 93.2			0.0
SM 2120 B	Color (true)				1.99	
	Color (true)				2.15	
SM 2320 B-97	Alkalinity	94.0			0.288	
					0.676	
SM 2540 C-97	TDS				2.77	
	TDS				6.65	
SM 4500 F-C-97	Fluoride	98.7	100 99.2			0.953
SM 5310 B-00	Organic Carbon	96.4	102 97.5			2.58
SM 5310 B-00 dissolved	Organic Carbon	96.4	102 97.5			2.58

Reference Method Descriptions

Method / NELAC Cert. #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1479443, 1479444, 1479445, 1479446, 1479447, 1479448

Reference Method Descriptions

Method / NELAC Cert. #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1479461, 1479462, 1479463, 1479464, 1479465, 1479466
SM 2120 B / E31780	True Color measured at 450 nm or Apparent Color	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	1479449, 1479450, 1479451, 1479452, 1479453, 1479454

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	01/24/2013			01/24/2013 16:20	Blanca Fach	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
EPA 300.0 Rev. 2.1	01/24/2013			01/31/2013	Gary Dearman	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
EPA 350.1 Rev. 2.0	01/24/2013			01/30/2013	Diana M. Turner	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 351.2 Rev. 2.0	01/24/2013	01/28/2013	Christopher Armour	01/29/2013	Bryan A. Werth	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 353.2 Rev. 2.0	01/24/2013			01/30/2013	Peter D. Kaus	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
EPA 365.1 Rev. 2.0	01/24/2013	01/25/2013	Christopher Armour	01/28/2013	Pallavi R. Gadwal	1479455, 1479456, 1479457
	01/24/2013	01/28/2013	Christopher Armour	01/28/2013	Pallavi R. Gadwal	1479460
	01/24/2013	01/30/2013	Pallavi R. Gadwal	01/31/2013	Pallavi R. Gadwal	1479458, 1479459
EPA 365.1 Rev. 2.0 dissolved	01/24/2013			01/24/2013 15:04	Bryan A. Werth	1479466
	01/24/2013			01/24/2013 15:21	Bryan A. Werth	1479461
	01/24/2013			01/24/2013 15:22	Bryan A. Werth	1479462
	01/24/2013			01/24/2013 15:23	Bryan A. Werth	1479463
	01/24/2013			01/24/2013 15:24	Bryan A. Werth	1479464
	01/24/2013			01/24/2013 15:28	Bryan A. Werth	1479465
SM 2120 B	01/24/2013			01/24/2013 15:37	Rochelle Y Jackson	1479443
	01/24/2013			01/24/2013 15:38	Rochelle Y Jackson	1479444
	01/24/2013			01/24/2013 15:39	Rochelle Y Jackson	1479445, 1479446
	01/24/2013			01/24/2013 15:43	Rochelle Y Jackson	1479447
	01/24/2013			01/24/2013 15:44	Rochelle Y Jackson	1479448
SM 2320 B-97	01/24/2013			01/29/2013	Dale L. Simmons	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 2540 C-97	01/24/2013			01/25/2013	Yijie Li	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 2540 D-97	01/24/2013			01/25/2013	Yijie Li	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 4500 F-C-97	01/24/2013			01/29/2013	Dale L. Simmons	1479443, 1479444, 1479445, 1479446, 1479447, 1479448
SM 5310 B-00	01/24/2013			01/30/2013	Rochelle Y Jackson	1479455, 1479456, 1479457, 1479458, 1479459, 1479460
SM 5310 B-00 dissolved	01/24/2013			01/30/2013	Rochelle Y Jackson	1479449, 1479450, 1479451, 1479452, 1479453, 1479454