Chemical Analysis Report

SO-DIST-2012-12-19-01

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

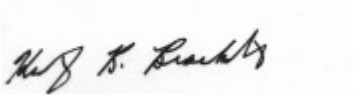
Event Description: **Tamiami Canal Criteria**
Request ID: **RQ-2012-12-24-08**
Customer: **SO-DIST**
Project ID: **SMP**

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

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: Kathryn Brackett, Environmental Administrator

Date Certified: 11-JAN-2013 09:17



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-2012-12-24-08 SITE #6 TMT **Collection Date/Time: 12/18/2012 10:05 AM**

Field ID: SD121812-1 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473988	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P247743	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P247801	
		Sulfate	0.30	I	mg SO4/L	P247804	
	SM 2120 B	Color (true)	19		PCU	P247735	
	SM 2320 B-97	Alkalinity	149		mg CaCO3/L	P247896	
	SM 2540 C-97	TDS	182		mg/L	P247991	
	SM 2540 D-97	TSS	2	U	mg/L	P247943	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P247900	
1473994	SM 5310 B-00 dissolved	Organic Carbon	12		mg C/L	P247858	
1474000	EPA 350.1 Rev. 2.0	Ammonia-N	0.088		mg N/L	P247818	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P247832	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P247776	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P247916	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P247858	
1474006	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P247729	

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-2012-12-24-08 SITE #7A TMT **Collection Date/Time: 12/18/2012 10:40 AM**

Field ID: SD121812-2 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473989	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P247743	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P247801	
		Sulfate	0.29	I	mg SO4/L	P247804	
	SM 2120 B	Color (true)	23		PCU	P247735	
	SM 2320 B-97	Alkalinity	187		mg CaCO3/L	P247896	
	SM 2540 C-97	TDS	206		mg/L	P247991	
	SM 2540 D-97	TSS	2	U	mg/L	P247943	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P247900	
1473995	SM 5310 B-00 dissolved	Organic Carbon	9.2		mg C/L	P247858	
1474001	EPA 350.1 Rev. 2.0	Ammonia-N	0.079		mg N/L	P247818	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P247832	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.099		mg N/L	P247776	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P247916	
	SM 5310 B-00	Organic Carbon	9.3		mg C/L	P247858	
1474007	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P247729	

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-2012-12-24-08 SITE #7B TMT **Collection Date/Time: 12/18/2012 11:30 AM**

Field ID: SD121812-4 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473991	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P247744	

Field ID: SD121812-4 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473991	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P247801	
		Sulfate	0.75		mg SO4/L	P247804	
	SM 2120 B	Color (true)	40	A	PCU	P247736	
	SM 2320 B-97	Alkalinity	196		mg CaCO3/L	P247896	
	SM 2540 C-97	TDS	243		mg/L	P247992	
	SM 2540 D-97	TSS	2	I	mg/L	P247944	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P247900	
1473997	SM 5310 B-00 dissolved	Organic Carbon	12		mg C/L	P247858	
1474003	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P247818	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P247832	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P247776	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P247916	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P247858	
1474009	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P247729	

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-2012-12-24-08 SITE #7C TMT **Collection Date/Time: 12/18/2012 11:15 AM**

Field ID: SD121812-3 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473990	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P247743	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P247801	
		Sulfate	0.42	I	mg SO4/L	P247804	
	SM 2120 B	Color (true)	29		PCU	P247735	
	SM 2320 B-97	Alkalinity	221		mg CaCO3/L	P247896	
	SM 2540 C-97	TDS	234		mg/L	P247992	
	SM 2540 D-97	TSS	2	I	mg/L	P247944	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P247900	
1473996	SM 5310 B-00 dissolved	Organic Carbon	8.5		mg C/L	P247858	
1474002	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P247818	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P247832	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P247776	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P247916	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P247858	
1474008	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P247729	

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-2012-12-24-08 SITE #8 TMT **Collection Date/Time: 12/18/2012 12:34 PM**

Field ID: SD121812-6 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473993	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P247744	
	EPA 300.0 Rev. 2.1	Chloride	620		mg Cl/L	P247801	
		Sulfate	30		mg SO4/L	P247804	

Field ID: SD121812-6 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473993	SM 2120 B	Color (true)	160		PCU	P247736	
	SM 2320 B-97	Alkalinity	233		mg CaCO3/L	P247896	
	SM 2540 C-97	TDS	1.28E+03		mg/L	P247992	
	SM 2540 D-97	TSS	2	U	mg/L	P247944	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P247900	
1473999	SM 5310 B-00 dissolved	Organic Carbon	35		mg C/L	P247858	
1474005	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P247818	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P247832	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P247776	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P247916	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P247858	
1474011	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P247729	

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-2012-12-24-08 SITE BR #78 TMT **Collection Date/Time: 12/18/2012 11:54 AM**

Field ID: SD121812-5 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1473992	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P247744	
	EPA 300.0 Rev. 2.1	Chloride	97		mg Cl/L	P247801	
		Sulfate	12		mg SO4/L	P247804	
	SM 2120 B	Color (true)	35		PCU	P247736	
	SM 2320 B-97	Alkalinity	230	A	mg CaCO3/L	P247896	
	SM 2540 C-97	TDS	393		mg/L	P247992	
	SM 2540 D-97	TSS	2	U	mg/L	P247944	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P247900	
1473998	SM 5310 B-00 dissolved	Organic Carbon	8.7		mg C/L	P247858	
1474004	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P247818	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P247832	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P247776	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P247916	
	SM 5310 B-00	Organic Carbon	9.4		mg C/L	P247858	
1474010	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P247729	

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: P247743

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: P247744

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247801

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247804

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P247818

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P247832

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P247776

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P247916

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P247729

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

Reference Method: SM 2120 B
Batch ID: P247735

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P247736

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P247896

Component	Result	Code	Units
Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P247991

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P247992

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P247943

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P247944

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P247900

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P247858

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P247858

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: P247801

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247804

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P247818

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P247832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P247776

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P247916

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P247729

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

Reference Method: SM 2320 B-97
Batch ID: P247896

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

Reference Method: SM 4500 F-C-97
Batch ID: P247900

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P247858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	90.4		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P247858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	90.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473943	Chloride	101		P	90 - 110
1473988	Chloride	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473943	Sulfate	98.5		P	90 - 110
1473988	Sulfate	97.7	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P247818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1474000	Ammonia-N	95.2	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P247832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473964	Kjeldahl Nitrogen	92.5	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P247776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1474000	NO2NO3-N	98.3	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P247916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1474002	Total-P	101	99.2	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P247729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473944	O-Phosphate-P	97.2	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P247900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473992	Fluoride	102	103	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P247858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473975	Organic Carbon	103	104	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P247858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1473975	Organic Carbon	103	104	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P247743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473941	Turbidity	2.67	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P247744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1474052	Turbidity	0.712	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473988	Chloride	0.153	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P247804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473988	Sulfate	0.576	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P247818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1474000	Ammonia-N	0.108	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P247832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473964	Kjeldahl Nitrogen	4.98	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P247776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1474000	NO2NO3-N	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P247916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1474002	Total-P	0.812	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P247729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473944	O-Phosphate-P	3.14	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P247735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473972	Color (true)	5.43	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P247736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473991	Color (true)	5.99	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P247896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473992	Alkalinity	0.278	Sample	P	0 - 20
1474103	Alkalinity	0.147	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P247991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473804	TDS	3.11	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P247992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1474152	TDS	7.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P247900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473992	Fluoride	0.953	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P247858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473975	Organic Carbon	1.46	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P247858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1473975	Organic Carbon	1.46	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
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A48405
Included Lab Sample IDs: 1474006, 1474007, 1474008, 1474009, 1474010, 1474011

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A48408
Included Lab Sample IDs: 1473988, 1473989, 1473990, 1473991, 1473992, 1473993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	85 - 115
Color (true)	101	103	P/P	85 - 115

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A48408
Included Lab Sample IDs: 1473988, 1473989, 1473990, 1473991, 1473992, 1473993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A48410
Included Lab Sample IDs: 1473988, 1473989, 1473990, 1473991, 1473992, 1473993

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A48422
Included Lab Sample IDs: 1474000, 1474001, 1474002, 1474003, 1474004, 1474005

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A48428
Included Lab Sample IDs: 1473988, 1473989, 1473990, 1473991, 1473992, 1473993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	105	P/P	90 - 110
Sulfate	95.2	98.0	P/P	90 - 110
Sulfate	98.0	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A48435
Included Lab Sample IDs: 1474000, 1474001, 1474002, 1474003, 1474004, 1474005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	107	P/P	90 - 110
Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A48448
Included Lab Sample IDs: 1474000, 1474001, 1474002, 1474003, 1474004, 1474005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A48450
Included Lab Sample IDs: 1474000, 1474001, 1474002, 1474003, 1474004, 1474005

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00 dissolved
Run ID: A48450
Included Lab Sample IDs: 1473994, 1473995, 1473996, 1473997, 1473998, 1473999

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

Reference Method: SM 2320 B-97
Run ID: A48466
Included Lab Sample IDs: 1473988, 1473989, 1473990, 1473991, 1473992, 1473993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Alkalinity	102	101	P/P	85 - 115

Reference Method: SM 4500 F-C-97
Run ID: A48466
Included Lab Sample IDs: 1473988, 1473989, 1473990, 1473991, 1473992, 1473993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	104	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A48474
Included Lab Sample IDs: 1474000, 1474001, 1474002, 1474003, 1474004, 1474005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110
Total-P	99.0	98.5	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
EPA 180.1 Rev. 2.0	Turbidity						2.67	
	Turbidity						0.712	
EPA 300.0 Rev. 2.1	Chloride	101	101	100	101			0.153
	Sulfate	97.8	98.5	97.7	98.3			0.576
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	95.2	95.4				0.108
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	92.5	97.8				4.98
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.3	99.8				1.38
EPA 365.1 Rev. 2.0	Total-P	105	101	99.2				0.812
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.2	101				3.14
SM 2120 B	Color (true)						5.43	
	Color (true)						5.99	
SM 2320 B-97	Alkalinity	102					0.278	
							0.147	
SM 2540 C-97	TDS						3.11	
	TDS						7.33	
SM 4500 F-C-97	Fluoride	100	102	103				0.953

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 5310 B-00	Organic Carbon	90.4	103	104			1.46
SM 5310 B-00 dissolved	Organic Carbon	90.4	103	104			1.46

Reference Method Descriptions

Method / NELAC Cert. #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1474006, 1474007, 1474008, 1474009, 1474010, 1474011
SM 2120 B / E31780	True Color measured at 450 nm or Apparent Color	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	1473994, 1473995, 1473996, 1473997, 1473998, 1473999

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	12/19/2012			12/19/2012 16:23	Blanca Fach	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
EPA 300.0 Rev. 2.1	12/19/2012			12/20/2012	Gary Dearman	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
EPA 350.1 Rev. 2.0	12/19/2012			12/20/2012	Peter D. Kaus	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 351.2 Rev. 2.0	12/19/2012	12/20/2012	Christopher Armour	12/21/2012	Bryan A. Werth	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 353.2 Rev. 2.0	12/19/2012			12/20/2012	Sima Feizi	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 365.1 Rev. 2.0	12/19/2012	12/26/2012	Christopher Armour	12/27/2012	Pallavi R. Gadwal	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
EPA 365.1 Rev. 2.0 dissolved	12/19/2012			12/19/2012 14:49	Bryan A. Werth	1474006
	12/19/2012			12/19/2012 14:50	Bryan A. Werth	1474007
	12/19/2012			12/19/2012 14:51	Bryan A. Werth	1474008, 1474009
	12/19/2012			12/19/2012 14:52	Bryan A. Werth	1474010
	12/19/2012			12/19/2012 14:53	Bryan A. Werth	1474011
SM 2120 B	12/19/2012			12/19/2012 15:48	Rochelle Y Jackson	1473988
	12/19/2012			12/19/2012 15:49	Rochelle Y Jackson	1473989, 1473990
	12/19/2012			12/19/2012 15:54	Rochelle Y Jackson	1473991
	12/19/2012			12/19/2012 15:55	Rochelle Y Jackson	1473992
	12/19/2012			12/19/2012 16:43	Rochelle Y Jackson	1473993
SM 2320 B-97	12/19/2012			12/27/2012	Dale L. Simmons	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 2540 C-97	12/19/2012			12/21/2012	Yijie Li	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 2540 D-97	12/19/2012			12/21/2012	Yijie Li	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 4500 F-C-97	12/19/2012			12/27/2012	Dale L. Simmons	1473988, 1473989, 1473990, 1473991, 1473992, 1473993
SM 5310 B-00	12/19/2012			12/21/2012	Rochelle Y Jackson	1474000, 1474001, 1474002, 1474003, 1474004, 1474005
SM 5310 B-00 dissolved	12/19/2012			12/21/2012	Rochelle Y Jackson	1473994, 1473995, 1473996, 1473997, 1473998, 1473999