

Chemical Analysis Report

NE-DIST-2016-04-06-02

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

Event Description: **Nassau West**
Request ID: **RQ-2016-04-04-27**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 25-APR-2016 17:06



Case Narrative

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

Results for the following analytical group are included in this report: Nutrients.

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: 19010135 Cedar at 127

Collection Date/Time: 04/05/2016 10:15

Field ID: 19010135 Cedar at 127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787055	EPA 180.1 Rev. 2.0	Turbidity	3.9	A	NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	8.7		mg Cl/L	P301956	
		Sulfate	0.72		mg SO4/L	P301958	
	SM 2120 B	Color (true)	410		PCU	P301741	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	78		mg/L	P302481	
	SM 2540 D-97	TSS	4	I	mg/L	P302396	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P301991	
1787062	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P302388	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P302013	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P302222	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P301989	
1787069	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P301718	

Sample Location: G4NE0006 Dinkins at 127

Collection Date/Time: 04/05/2016 10:30

Field ID: G4NE0006 Dinkins at 127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787056	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	7.6		mg Cl/L	P301956	
		Sulfate	0.66		mg SO4/L	P301958	
	SM 2120 B	Color (true)	590		PCU	P301741	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	88		mg/L	P302481	
	SM 2540 D-97	TSS	3	I	mg/L	P302396	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P301991	
1787063	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P302390	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P302013	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P302222	
	SM 5310 B-00	Organic Carbon	57		mg C/L	P302246	
1787070	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P301718	

Ref. Method and Comment:

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19010042 Calkins trib Hamp reg

Collection Date/Time: 04/05/2016 10:40

Field ID: 19010042 Calkins trib Hamp reg

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787057	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P301956	
		Sulfate	0.63		mg SO4/L	P301958	
	SM 2120 B	Color (true)	520		PCU	P301741	

Field ID: 19010042 Calkins trib Hamp reg

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787057	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	99		mg/L	P302481	
	SM 2540 D-97	TSS	2	I	mg/L	P302396	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P301991	
1787064	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P302390	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P302013	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P302222	
	SM 5310 B-00	Organic Carbon	46		mg C/L	P302246	
1787071	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P301718	

Ref. Method and Comment:

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19010071 Cedar Hamp register

Collection Date/Time: 04/05/2016 11:00

Field ID: 19010071 Cedar Hamp register

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787058	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	8.9		mg Cl/L	P301956	
		Sulfate	0.86		mg SO4/L	P301958	
	SM 2120 B	Color (true)	380		PCU	P301741	
1787065	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	80		mg/L	P302481	
	SM 2540 D-97	TSS	4	I	mg/L	P302396	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P301991	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P302390	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P302013	
1787072	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P302223	
	SM 5310 B-00	Organic Carbon	37		mg C/L	P302246	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P301719	

Ref. Method and Comment:

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19010123 Un. Br. at 125

Collection Date/Time: 04/05/2016 11:20

Field ID: 19010123 Un. Br. at 125

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787059	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	9.6		mg Cl/L	P301956	
		Sulfate	1.5		mg SO4/L	P301958	
	SM 2120 B	Color (true)	290		PCU	P301741	
1787060	SM 2320 B-97	Total Alkalinity	4.4		mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	90		mg/L	P302481	
	SM 2540 D-97	TSS	7	I	mg/L	P302396	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P301991	

Field ID: 19010123 Un. Br. at 125

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787066	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P302390	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P302013	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P302223	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P302246	
1787073	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P301719	

Ref. Method and Comment:

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19010023 SMR at 23C

Collection Date/Time: 04/05/2016 11:45

Field ID: 19010023 SMR at 23C

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787060	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P301956	
		Sulfate	4.9		mg SO4/L	P301958	
	SM 2120 B	Color (true)	300		PCU	P301741	
	SM 2320 B-97	Total Alkalinity	6.0		mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	98		mg/L	P302481	
	SM 2540 D-97	TSS	6	I	mg/L	P302396	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P301991	
1787067	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P302390	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P302013	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P302223	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P302246	
1787074	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P301719	

Ref. Method and Comment:

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19010021 SMR at US90

Collection Date/Time: 04/05/2016 09:30

Field ID: 19010021 SMR at US90

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787061	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P301755	
	EPA 300.0 Rev. 2.1	Chloride	11	A	mg Cl/L	P302024	
		Sulfate	1.3	A	mg SO4/L	P302027	
	SM 2120 B	Color (true)	320		PCU	P301741	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P301981	
	SM 2540 C-97	TDS	87		mg/L	P302482	
	SM 2540 D-97	TSS	3	I	mg/L	P302397	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P301991	
1787068	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P302170	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2	J	mg N/L	P302390	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P302013	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P302223	

Field ID: 19010021 SMR at US90

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1787068	SM 5310 B-00	Organic Carbon	32		mg C/L	P302246	
1787075	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P301719	

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: Refer to the narrative for an explanation of QC Codes.

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P301755

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301956

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P301958

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P302024

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P302027

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P302170

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P302388

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302390

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302013

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302222

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302223

Component	Result	Code	Units
Total-P	0.003	I	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301718

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301719

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

Reference Method: SM 2120 B
Batch ID: P301741

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P301981

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P302481

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P302482

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302396

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302397

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P301991

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P301989

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

Reference Method: SM 5310 B-00
Batch ID: P302246

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301956

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301958

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302024

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302024

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302027

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302170

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: P302388

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302390

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302223

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301718

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301719

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

Reference Method: SM 2320 B-97
Batch ID: P301981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P301991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P301989

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

Reference Method: SM 5310 B-00
Batch ID: P302246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787002	Chloride	99.2		P	90 - 110
1787055	Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787002	Sulfate	98.5		P	90 - 110
1787055	Sulfate	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787061	Chloride	98.4		P	90 - 110
1787473	Chloride	96.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787061	Sulfate	97.9		P	90 - 110
1787473	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787062	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786949	Kjeldahl Nitrogen	107	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787068	Kjeldahl Nitrogen	114	95.8	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787067	NO2NO3-N	94.0	93.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786971	Total-P	100	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787065	Total-P	97.9	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787005	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787095	O-Phosphate-P	100	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P301991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1787001	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P301989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1786942	Organic Carbon	95.4	95.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P301755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787055	Turbidity	0.253	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787002	Chloride	0.111	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P301958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787002	Sulfate	3.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787061	Chloride	0.0476	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787061	Sulfate	5.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P302170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787062	Ammonia-N	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786949	Kjeldahl Nitrogen	5.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P302390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787068	Kjeldahl Nitrogen	8.98	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787067	NO2NO3-N	0.411	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786971	Total-P	2.70	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787065	Total-P	1.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787005	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P301719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787095	O-Phosphate-P	0.891	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P301741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787146	Color (true)	1.84	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P301981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787001	Total Alkalinity	0.523	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787002	TDS	5.08	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P302482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787146	TDS	6.19	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P302396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787002	TSS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P301991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787001	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P301989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1786942	Organic Carbon	0.0454	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P302246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1787063	Organic Carbon	0.0269	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 300.0 Rev. 2.1

Run ID: A68637

Included Lab Sample IDs: 1787055, 1787056, 1787057, 1787058, 1787059, 1787060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	100	99.8	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110
Sulfate	99.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A68691

Included Lab Sample IDs: 1787069, 1787070, 1787071, 1787072, 1787073, 1787074, 1787075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.2	P/P	90 - 110
O-Phosphate-P	99.2	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A68699

Included Lab Sample IDs: 1787058, 1787059, 1787060, 1787061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	106	105	P/P	85 - 115

Reference Method: SM 2120 B

Run ID: A68703

Included Lab Sample IDs: 1787055, 1787056, 1787057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68705

Included Lab Sample IDs: 1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061

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

Reference Method: SM 2320 B-97

Run ID: A68783

Included Lab Sample IDs: 1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A68783

Included Lab Sample IDs: 1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061

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

Reference Method: SM 5310 B-00

Run ID: A68790

Included Lab Sample IDs: 1787062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68799

Included Lab Sample IDs: 1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68804

Included Lab Sample IDs: 1787061

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	98.6	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68853

Included Lab Sample IDs: 1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068

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

Reference Method: SM 5310 B-00

Run ID: A68878

Included Lab Sample IDs: 1787063, 1787064, 1787065, 1787066, 1787067, 1787068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68893

Included Lab Sample IDs: 1787066

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68904

Included Lab Sample IDs: 1787062, 1787063, 1787064

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68904

Included Lab Sample IDs: 1787062, 1787063, 1787064

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68945

Included Lab Sample IDs: 1787062

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68958

Included Lab Sample IDs: 1787067, 1787068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68966

Included Lab Sample IDs: 1787063, 1787064, 1787065, 1787066, 1787067, 1787068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68978

Included Lab Sample IDs: 1787065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	97.5	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.253	
EPA 300.0 Rev. 2.1	Chloride	101	99.2 99.9		0.111	
	Chloride	99.5	98.4 96.8		0.0476	
	Sulfate	99.5	98.5 98.9		3.44	
	Sulfate	97.6	97.9 97.1		5.61	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101 102			1.05
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.1	107 99.8			5.82
	Kjeldahl Nitrogen	105	114 95.8			8.98
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	94.0 93.5			0.411
EPA 365.1 Rev. 2.0	Total-P	97.7	100 96.9			2.70
	Total-P	101	97.9 99.7			1.73

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	100	102			1.29
	O-Phosphate-P	101	100	102			0.891
SM 2120 B	Color (true)					1.84	
SM 2320 B-97	Total Alkalinity	104				0.523	
SM 2540 C-97	TDS					5.08	
	TDS					6.19	
SM 2540 D-97	TSS					8.00	
SM 4500 F-C-97	Fluoride	100	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	100	95.4	95.4			0.0454
	Organic Carbon	96.2					0.0269

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1787069, 1787070, 1787071, 1787072, 1787073, 1787074, 1787075
SM 2120 B / E31780	True Color measured at 450 nm	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068

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	04/06/2016			04/06/2016 16:24	Sima Feizi	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
EPA 300.0 Rev. 2.1	04/06/2016			04/08/2016	Julia Storbeck	1787055
	04/06/2016			04/09/2016	Julia Storbeck	1787056, 1787057, 1787058, 1787059, 1787060
	04/06/2016			04/11/2016	Ping Hua	1787061
EPA 350.1 Rev. 2.0	04/06/2016			04/13/2016	Diana M. Turner	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 351.2 Rev. 2.0	04/06/2016	04/18/2016	Sofia Elnemr	04/19/2016	Rochelle Y Jackson	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 353.2 Rev. 2.0	04/06/2016			04/11/2016	Diana M. Turner	1787062, 1787063, 1787064, 1787065, 1787066, 1787067, 1787068
EPA 365.1 Rev. 2.0	04/06/2016	04/14/2016	Christopher Armour	04/14/2016	Lipi Saha	1787066
	04/06/2016	04/14/2016	Christopher Armour	04/15/2016	Lipi Saha	1787062, 1787063, 1787064, 1787067, 1787068
EPA 365.1 Rev. 2.0 dissolved	04/06/2016	04/14/2016	Christopher Armour	04/18/2016	Lipi Saha	1787065
	04/06/2016			04/06/2016 15:02	Julia Storbeck	1787069
	04/06/2016			04/06/2016 15:03	Julia Storbeck	1787070
	04/06/2016			04/06/2016 15:08	Julia Storbeck	1787071
	04/06/2016			04/06/2016 15:09	Julia Storbeck	1787072
	04/06/2016			04/06/2016 15:10	Julia Storbeck	1787073, 1787074
	04/06/2016			04/06/2016 15:11	Julia Storbeck	1787075
SM 2120 B	04/06/2016			04/06/2016 16:33	Blanca Fach	1787058
	04/06/2016			04/06/2016 16:34	Blanca Fach	1787059
	04/06/2016			04/06/2016 16:35	Blanca Fach	1787060
	04/06/2016			04/06/2016 16:36	Blanca Fach	1787061
	04/06/2016			04/06/2016 17:53	Blanca Fach	1787055
	04/06/2016			04/06/2016 17:54	Blanca Fach	1787056, 1787057
SM 2320 B-97	04/06/2016			04/09/2016	Dale L. Simmons	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 2540 C-97	04/06/2016			04/11/2016	Yijie Li	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 2540 D-97	04/06/2016			04/11/2016	Yijie Li	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 4500 F-C-97	04/06/2016			04/09/2016	Dale L. Simmons	1787055, 1787056, 1787057, 1787058, 1787059, 1787060, 1787061
SM 5310 B-00	04/06/2016			04/09/2016	Sofia Elnemr	1787062
	04/06/2016			04/12/2016	Sofia Elnemr	1787063, 1787064, 1787065, 1787066, 1787067, 1787068