

Chemical Analysis Report

NE-DIST-2016-08-26-01

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

Event Description: **UEC North**
Request ID: **RQ-2016-08-15-20**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way
Suite 100
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 19-SEP-2016 16:33

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: OYSTER AT DIXIE HWY

Collection Date/Time: 08/25/2016 11:10

Field ID: OYSTER AT DIXIE HWY

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827390	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	8.3E+03		mg Cl/L	P311121	
		Sulfate	1.2E+03		mg SO4/L	P311124	
	SM 2120 B	Color (true)	50		PCU	P310424	
	SM 2320 B-97	Total Alkalinity	176		mg CaCO3/L	P310717	
	SM 2540 C-97	TDS	1.52E+04		mg/L	P311043	
	SM 2540 D-97	TSS	11		mg/L	P310857	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P310720	
1827392	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P310453	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P310703	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P310672	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P310730	MS
	SM 5310 B-00	Organic Carbon	10		mg C/L	P311164	
1827394	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P310429	

Ref. Method and Comment:

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 24600 umhos/cm.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FIELD BLANK

Collection Date/Time: 08/25/2016 13:15

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827391	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P311121	
		Sulfate	0.20	U	mg SO4/L	P311124	
	SM 2120 B	Color (true)	2.5	U	PCU	P310424	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P310504	
	SM 2540 C-97	TDS	15	U	mg/L	P311039	
	SM 2540 D-97	TSS	2	U	mg/L	P310852	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310506	
1827393	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P310452	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P310796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310889	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P310968	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P311163	
1827395	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310429	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P310421

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310421

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311121

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310452

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310453

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310703

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310796

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310672

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310889

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310730

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310429

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

Reference Method: SM 2120 B
Batch ID: P310424

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P310504

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

Reference Method: SM 2320 B-97
Batch ID: P310717

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

Reference Method: SM 2540 C-97
Batch ID: P311039

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P311043

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310852

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P310857

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P310720

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P311163

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

Reference Method: SM 5310 B-00
Batch ID: P311164

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: P311121

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310452

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310453

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: P310453

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310703

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310889

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310730

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310429

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

Reference Method: SM 2320 B-97
Batch ID: P310504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P310717

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P310720

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P311163

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

Reference Method: SM 5310 B-00
Batch ID: P311164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	107		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827339	Chloride	101		P	90 - 110
1827360	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827339	Sulfate	100		P	90 - 110
1827360	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827382	Ammonia-N	102	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826991	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827392	Kjeldahl Nitrogen	102	95.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826991	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828224	NO2NO3-N	95.1	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826894	Total-P	90.5	87.7	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827406	Total-P	95.6	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827394	O-Phosphate-P	96.6	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827360	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P310720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827975	Fluoride	97.2	98.7	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P311163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829587	Organic Carbon	110		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P311164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826897	Organic Carbon	95.2	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827390	Turbidity	0.966	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827339	Chloride	0.672	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827339	Sulfate	5.06	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827382	Ammonia-N	0.946	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826991	Ammonia-N	0.598	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310703

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827392	Kjeldahl Nitrogen	4.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827356	Kjeldahl Nitrogen	7.28	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826991	NO2NO3-N	0.917	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828224	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826894	Total-P	3.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827406	Total-P	0.996	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827394	O-Phosphate-P	2.20	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827353	Color (true)	4.02	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P310504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827360	Total Alkalinity	0.203	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P310717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827975	Total Alkalinity	0.532	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P311039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827293	TDS	3.20	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P311043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827955	TDS	5.62	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P310852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827293	TSS	9.23	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827360	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P310720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827975	Fluoride	0.979	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P311163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829587	Organic Carbon	0.0381	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P311164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826897	Organic Carbon	1.10	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 180.1 Rev. 2.0
Run ID: A71351
Included Lab Sample IDs: 1827390, 1827391

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

Reference Method: SM 2120 B
Run ID: A71352
Included Lab Sample IDs: 1827390, 1827391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	92.1	94.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71353
Included Lab Sample IDs: 1827394, 1827395

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A71364
Included Lab Sample IDs: 1827392, 1827393

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

Reference Method: SM 2320 B-97
Run ID: A71389
Included Lab Sample IDs: 1827391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A71389
Included Lab Sample IDs: 1827391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71443

Included Lab Sample IDs: 1827392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71460

Included Lab Sample IDs: 1827390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71460

Included Lab Sample IDs: 1827390

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71488

Included Lab Sample IDs: 1827392

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71504

Included Lab Sample IDs: 1827393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71520

Included Lab Sample IDs: 1827392

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71567

Included Lab Sample IDs: 1827393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71574

Included Lab Sample IDs: 1827393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A71576
Included Lab Sample IDs: 1827390, 1827391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	99.7	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A71630
Included Lab Sample IDs: 1827392, 1827393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	99.4	P/P	90 - 110
Organic Carbon	105	105	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						0.966	
EPA 300.0 Rev. 2.1	Chloride	101		101	98.6		0.672	
	Sulfate	99.6		100	100		5.06	
EPA 350.1 Rev. 2.0	Ammonia-N	104		102	101			0.946
	Ammonia-N	103		105	106			0.598
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103		102	95.3			4.45
	Kjeldahl Nitrogen	94.9						7.28
EPA 353.2 Rev. 2.0	NO2NO3-N	102		106	105			0.917
	NO2NO3-N	103		95.1	94.6			0.512
EPA 365.1 Rev. 2.0	Total-P	99.8		90.5	87.7			3.05
	Total-P	94.4		95.6	96.6			0.996
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100		96.6	100			2.20
SM 2120 B	Color (true)						4.02	
SM 2320 B-97	Total Alkalinity	104					0.203	
	Total Alkalinity	104					0.532	
SM 2540 C-97	TDS						3.20	
	TDS						5.62	
SM 2540 D-97	TSS						9.23	
SM 4500 F-C-97	Fluoride	96.7		97.4	97.4			0.0
	Fluoride	98.2		97.2	98.7			0.979
SM 5310 B-00	Organic Carbon	104		110				0.0381
	Organic Carbon	107		95.2	96.4			1.10

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1827390, 1827391
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1827390, 1827391

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1827390, 1827391
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1827392, 1827393
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1827392, 1827393
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1827392, 1827393
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1827392, 1827393
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1827394, 1827395
SM 2120 B / E31780	True Color measured at 450 nm	1827390, 1827391
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1827390, 1827391
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1827390, 1827391
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1827390, 1827391
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1827390, 1827391
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1827392, 1827393

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	08/26/2016			08/26/2016 15:08	Sima Feizi	1827390, 1827391
EPA 300.0 Rev. 2.1	08/26/2016			09/14/2016	Ping Hua	1827390, 1827391
EPA 350.1 Rev. 2.0	08/26/2016			08/26/2016	Julie Michelle Frank	1827392, 1827393
EPA 351.2 Rev. 2.0	08/26/2016	09/07/2016	Adrian Shelby	09/09/2016	Virginia P. Brown	1827392
	08/26/2016	09/08/2016	Adrian Shelby	09/10/2016	Virginia P. Brown	1827393
EPA 353.2 Rev. 2.0	08/26/2016			09/01/2016	Beverly Y. Sanders	1827392
	08/26/2016			09/09/2016	Beverly Y. Sanders	1827393
EPA 365.1 Rev. 2.0	08/26/2016	09/07/2016	Vijayalakshmi Reddy	09/08/2016	Lipi Saha	1827392
	08/26/2016	09/12/2016	Vijayalakshmi Reddy	09/13/2016	Lipi Saha	1827393
EPA 365.1 Rev. 2.0 dissolved	08/26/2016			08/26/2016 16:40	Julia Storbeck	1827394
	08/26/2016			08/26/2016 16:51	Julia Storbeck	1827395
SM 2120 B	08/26/2016			08/26/2016 14:47	Blanca Fach	1827391
	08/26/2016			08/26/2016 14:48	Blanca Fach	1827390
SM 2320 B-97	08/26/2016			08/29/2016	Dale L. Simmons	1827391
	08/26/2016			09/01/2016	Dale L. Simmons	1827390
SM 2540 C-97	08/26/2016			08/31/2016	Yijie Li	1827390, 1827391
SM 2540 D-97	08/26/2016			08/31/2016	Yijie Li	1827390, 1827391
SM 4500 F-C-97	08/26/2016			08/29/2016	Dale L. Simmons	1827391
	08/26/2016			09/01/2016	Dale L. Simmons	1827390
SM 5310 B-00	08/26/2016			09/14/2016	Sofia Elnemr	1827393
	08/26/2016			09/15/2016	Sofia Elnemr	1827392