

Chemical Analysis Report

NE-DIST-2016-03-03-01

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

Event Description: **Nassau Middle**
Request ID: **RQ-2016-02-29-36**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 21-MAR-2016 13:47

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular 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: 19010127Unnamed Str@CR121

Collection Date/Time: 03/02/2016 09:45

Field ID: 19010127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776566	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P299699	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P299992	
		Sulfate	1.5		mg SO4/L	P299994	
	SM 2120 B	Color (true)	430		PCU	P299714	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300245	
	SM 2540 C-97	TDS	81		mg/L	P300231	
	SM 2540 D-97	TSS	2	U	mg/L	P300196	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P300249	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P300430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P300044	
1776571	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300162	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P300139	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P299932	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P299718	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: 19010127Unnamed Str@CR121

Collection Date/Time: 03/02/2016 09:45

Field ID: 19010127 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776567	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P299699	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P299992	
		Sulfate	1.5		mg SO4/L	P299994	
	SM 2120 B	Color (true)	430		PCU	P299714	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300245	
	SM 2540 C-97	TDS	79		mg/L	P300231	
	SM 2540 D-97	TSS	2	U	mg/L	P300196	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P300249	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P300430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P300044	
1776572	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300162	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P300139	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P299932	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P299718	
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: G4NE0007Unnamed Str@CrawfordRd

Collection Date/Time: 03/02/2016 10:20

Field ID: G4NE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4NE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776568	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P299699	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P299992	
		Sulfate	1.1		mg SO4/L	P299994	
	SM 2120 B	Color (true)	410		PCU	P299714	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300245	
	SM 2540 C-97	TDS	98		mg/L	P300231	
	SM 2540 D-97	TSS	3	I	mg/L	P300196	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P300249	
1776573	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P300431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P300044	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300162	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P300139	
	SM 5310 B-00	Organic Carbon	39		mg C/L	P299932	
1776578	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299718	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: Unnamed Trib Mill Cr @ CR108

Collection Date/Time: 03/02/2016 10:50

Field ID: 19010159

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776569	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P299699	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P299992	
		Sulfate	1.3		mg SO4/L	P299994	
	SM 2120 B	Color (true)	160		PCU	P299714	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300245	
	SM 2540 C-97	TDS	64		mg/L	P300231	
	SM 2540 D-97	TSS	17		mg/L	P300196	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P300249	
1776574	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P300431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P300044	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300162	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P300139	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P299932	
1776579	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299718	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: Field Blank

Collection Date/Time: 03/02/2016 11:00

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776570	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P299699	

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776570	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P299992	
		Sulfate	0.20	U	mg SO4/L	P299994	
	SM 2120 B	Color (true)	2.5	U	PCU	P299714	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300245	
	SM 2540 C-97	TDS	15	U	mg/L	P300231	
	SM 2540 D-97	TSS	2	U	mg/L	P300196	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300249	
1776575	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P300044	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300162	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P300139	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P299932	
1776580	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299718	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data for one of two spiked samples is unavailable due to high analyte concentration in the QC sample.

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: P299699

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299992

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299994

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300430

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P300431

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300044

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300162

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300139

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299718

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

Reference Method: SM 2120 B
Batch ID: P299714

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300245

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

Reference Method: SM 2540 C-97
Batch ID: P300231

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300196

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300249

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P299932

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: P299992

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299994

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300431

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300044

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300139

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299718

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299718

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

Reference Method: SM 2320 B-97
Batch ID: P300245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300249

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	88.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299992

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776219	Chloride	102		P	90 - 110
1776583	Chloride	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776219	Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776554	Ammonia-N	98.9	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776608	Ammonia-N	99.9	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776571	Kjeldahl Nitrogen	94.5	92.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776572	NO2NO3-N	95.0	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776571	Total-P	99.2	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776579	O-Phosphate-P	99.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776724	Fluoride	98.5	99.1	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776325	Organic Carbon	98.9		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776568	Turbidity	1.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299992

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776583	Chloride	0.0570	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776583	Sulfate	0.155	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776554	Ammonia-N	1.44	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776608	Ammonia-N	1.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776571	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776572	NO2NO3-N	0.528	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776571	Total-P	6.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776579	O-Phosphate-P	2.18	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776581	Color (true)	0.534	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P300245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776724	Total Alkalinity	1.16	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776581	TDS	3.84	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776724	Fluoride	0.490	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776325	Organic Carbon	0.235	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: A67983
Included Lab Sample IDs: 1776566, 1776567, 1776568, 1776569, 1776570

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: A67985
Included Lab Sample IDs: 1776566, 1776567, 1776568, 1776569, 1776570

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.4	93.1	P/P	85 - 115
Color (true)	96.9	96.8	P/P	85 - 115
Color (true)	97.1	96.7	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67986
Included Lab Sample IDs: 1776576, 1776577, 1776578, 1776579, 1776580

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 dissolved

Run ID: A67986

Included Lab Sample IDs: 1776576, 1776577, 1776578, 1776579, 1776580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.0	P/P	90 - 110
O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A68077

Included Lab Sample IDs: 1776571, 1776572, 1776573, 1776574, 1776575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	94.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68089

Included Lab Sample IDs: 1776566, 1776567, 1776568, 1776569, 1776570

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.2	99.9	P/P	90 - 110
Chloride	99.5	98.2	P/P	90 - 110
Sulfate	98.2	98.8	P/P	90 - 110
Sulfate	98.7	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68145

Included Lab Sample IDs: 1776571, 1776572, 1776573, 1776574, 1776575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68170

Included Lab Sample IDs: 1776571, 1776572, 1776573, 1776574, 1776575

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

Reference Method: SM 2320 B-97

Run ID: A68179

Included Lab Sample IDs: 1776566, 1776567, 1776568, 1776569, 1776570

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.9	P/P	90 - 110
Total Alkalinity	98.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68179

Included Lab Sample IDs: 1776566, 1776567, 1776568, 1776569, 1776570

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68182

Included Lab Sample IDs: 1776571, 1776572, 1776573, 1776574, 1776575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.3	P/P	90 - 110
Kjeldahl Nitrogen	97.3		P	90 - 110
Kjeldahl Nitrogen	98.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68230

Included Lab Sample IDs: 1776571, 1776572, 1776573, 1776574, 1776575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.1	P/P	90 - 110
Ammonia-N	99.5	98.9	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								1.13	
EPA 300.0 Rev. 2.1	Chloride	103			101	101	102			0.0570
	Sulfate	100			99.9					0.155
EPA 350.1 Rev. 2.0	Ammonia-N	98.0			98.9	97.5				1.44
	Ammonia-N	98.3			99.9	102				1.03
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101			94.5	92.0				1.36
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5			95.0	94.5				0.528
EPA 365.1 Rev. 2.0	Total-P	98.2			99.2	106				6.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101			99.6	102				2.18
SM 2120 B	Color (true)								0.534	
SM 2320 B-97	Total Alkalinity	101							1.16	
SM 2540 C-97	TDS								3.84	
SM 4500 F-C-97	Fluoride	98.4			98.5	99.1				0.490
SM 5310 B-00	Organic Carbon	88.6			98.9					0.235

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1776566, 1776567, 1776568, 1776569, 1776570
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1776566, 1776567, 1776568, 1776569, 1776570
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1776566, 1776567, 1776568, 1776569, 1776570
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1776571, 1776572, 1776573, 1776574, 1776575
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1776571, 1776572, 1776573, 1776574, 1776575
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1776571, 1776572, 1776573, 1776574, 1776575

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1776571, 1776572, 1776573, 1776574, 1776575
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1776576, 1776577, 1776578, 1776579, 1776580
SM 2120 B / E31780	True Color measured at 450 nm	1776566, 1776567, 1776568, 1776569, 1776570
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1776566, 1776567, 1776568, 1776569, 1776570
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1776566, 1776567, 1776568, 1776569, 1776570
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1776566, 1776567, 1776568, 1776569, 1776570
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1776566, 1776567, 1776568, 1776569, 1776570
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1776571, 1776572, 1776573, 1776574, 1776575

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	03/03/2016			03/03/2016 14:38	Sima Feizi	1776566, 1776567, 1776568, 1776569, 1776570
EPA 300.0 Rev. 2.1	03/03/2016			03/08/2016	Julia Storbeck	1776566, 1776567, 1776568, 1776569, 1776570
EPA 350.1 Rev. 2.0	03/03/2016			03/15/2016	Diana M. Turner	1776571, 1776572, 1776573, 1776574, 1776575
EPA 351.2 Rev. 2.0	03/03/2016	03/09/2016	Sofia Elnemr	03/14/2016	Rochelle Y Jackson	1776571, 1776572, 1776573, 1776574, 1776575
EPA 353.2 Rev. 2.0	03/03/2016			03/10/2016	Peter D. Kaus	1776571, 1776572, 1776573, 1776574, 1776575
EPA 365.1 Rev. 2.0	03/03/2016	03/10/2016	Christopher Armour	03/11/2016	Lipi Saha	1776571, 1776572, 1776573, 1776574, 1776575
EPA 365.1 Rev. 2.0 dissolved	03/03/2016			03/03/2016 15:49	Julia Storbeck	1776579
	03/03/2016			03/03/2016 16:05	Julia Storbeck	1776580
	03/03/2016			03/03/2016 16:06	Julia Storbeck	1776576
	03/03/2016			03/03/2016 16:07	Julia Storbeck	1776577
	03/03/2016			03/03/2016 16:08	Julia Storbeck	1776578
SM 2120 B	03/03/2016			03/03/2016 15:14	Blanca Fach	1776570
	03/03/2016			03/03/2016 15:54	Blanca Fach	1776566
	03/03/2016			03/03/2016 15:55	Blanca Fach	1776567
	03/03/2016			03/03/2016 15:56	Blanca Fach	1776568
	03/03/2016			03/03/2016 16:11	Blanca Fach	1776569
SM 2320 B-97	03/03/2016			03/10/2016	Dale L. Simmons	1776566, 1776567, 1776568, 1776569, 1776570
SM 2540 C-97	03/03/2016			03/07/2016	Sima Feizi	1776566, 1776567, 1776568, 1776569, 1776570
SM 2540 D-97	03/03/2016			03/07/2016	Sima Feizi	1776566, 1776567, 1776568, 1776569, 1776570
SM 4500 F-C-97	03/03/2016			03/10/2016	Dale L. Simmons	1776566, 1776567, 1776568, 1776569, 1776570
SM 5310 B-00	03/03/2016			03/08/2016	Sofia Elnemr	1776571, 1776572, 1776573, 1776574, 1776575