

Chemical Analysis Report

SO-DIST-2016-06-22-01

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

Event Description: **SMP: Horseshoe Hermosa Canals 3240A3**
Request ID: **RQ-2016-06-20-59**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 18-JUL-2016 13:42

A handwritten signature in black ink, appearing to read "Timothy W. Fitzpatrick", with a stylized flourish at the end.

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: Zurich Canal at Banjo Canal

Collection Date/Time: 06/21/2016 13:15

Field ID: G2SD0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809977	EPA 180.1 Rev. 2.0	Turbidity	2.9	A	NTU	P306703	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P307641	
		Sulfate	17		mg SO4/L	P307642	
	SM 2120 B	Color (true)	74	A	PCU	P307073	
	SM 2320 B-97	Total Alkalinity	226		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	361		mg/L	P307300	
	SM 2540 D-97	TSS	5	I	mg/L	P307304	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P307284	
1809978	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P306929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P306713	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306940	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P306800	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P307062	
1809979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P306676	

Ref. Method and Comment:

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

Sample Location: Zurich Canal at Banjo Canal dup

Collection Date/Time: 06/21/2016 13:15

Field ID: G2SD0020-DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809983	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P306703	
	EPA 300.0 Rev. 2.1	Chloride	51		mg Cl/L	P307641	
		Sulfate	17		mg SO4/L	P307642	
	SM 2120 B	Color (true)	73		PCU	P307073	
	SM 2320 B-97	Total Alkalinity	225		mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	378		mg/L	P307300	
	SM 2540 D-97	TSS	6	I	mg/L	P307304	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P307284	
1809984	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P306929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P306712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306940	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P306801	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P307062	
1809985	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P306676	

Ref. Method and Comment:

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

Sample Location: G2SD-FieldBlank

Collection Date/Time: 06/21/2016 14:15

Field ID: FieldBlank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809980	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P306703	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P307236	
		Sulfate	0.20	U	mg SO4/L	P307238	

Field ID: FieldBlank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1809980	SM 2120 B	Color (true)	2.5	U	PCU	P307073	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P307277	
	SM 2540 C-97	TDS	15	U	mg/L	P307299	
	SM 2540 D-97	TSS	2	U	mg/L	P307303	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P307284	
1809981	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P306929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P306712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306940	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P306801	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P307062	
1809982	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P306676	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P306703

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P307236

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P307238

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P307641

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P307642

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P306929

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: P306712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306801

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

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

Reference Method: SM 2120 B
Batch ID: P307073

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P307277

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

Reference Method: SM 2540 C-97
Batch ID: P307299

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P307300

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307303

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P307304

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P307062

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: P307236

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307641

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307642

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: P307642

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

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

Reference Method: SM 2320 B-97
Batch ID: P307277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P307062

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809715	Chloride	100		P	90 - 110
1809716	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809715	Sulfate	100		P	90 - 110
1809716	Sulfate	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811608	Chloride	105		P	90 - 110
1811609	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1811608	Sulfate	103		P	90 - 110
1811609	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809931	Ammonia-N	97.9	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809862	Kjeldahl Nitrogen	95.0	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809863	Kjeldahl Nitrogen	93.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809933	NO2NO3-N	96.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809931	Total-P	99.5	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809984	Total-P	102	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809969	O-Phosphate-P	98.7	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1810672	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P307062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1809968	Organic Carbon	98.0	99.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809977	Turbidity	2.08	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809715	Chloride	0.499	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809715	Sulfate	0.922	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811608	Chloride	0.0554	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1811608	Sulfate	2.09	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809931	Ammonia-N	1.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809862	Kjeldahl Nitrogen	4.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809863	Kjeldahl Nitrogen	5.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809933	NO2NO3-N	0.277	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809931	Total-P	5.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809984	Total-P	7.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809969	O-Phosphate-P	0.174	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P307073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809977	Color (true)	1.53	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P307277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810672	Total Alkalinity	0.317	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P307299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809861	TDS	4.39	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P307300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810018	TDS	4.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P307284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1810672	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P307062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1809968	Organic Carbon	0.674	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A70171
Included Lab Sample IDs: 1809979, 1809982, 1809985

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70179
Included Lab Sample IDs: 1809977, 1809980, 1809983

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

Reference Method: SM 2120 B
Run ID: A70182
Included Lab Sample IDs: 1809977, 1809980, 1809983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	96.5	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A70231
Included Lab Sample IDs: 1809978, 1809981, 1809984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	100	P/P	90 - 110
Kjeldahl Nitrogen	100	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70236
Included Lab Sample IDs: 1809978, 1809984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70240
Included Lab Sample IDs: 1809981

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70249

Included Lab Sample IDs: 1809978, 1809981, 1809984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70250

Included Lab Sample IDs: 1809978, 1809981, 1809984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	P/P	90 - 110
Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70299

Included Lab Sample IDs: 1809978, 1809981, 1809984

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70313

Included Lab Sample IDs: 1809980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Sulfate	97.3	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A70372

Included Lab Sample IDs: 1809977, 1809980, 1809983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70372

Included Lab Sample IDs: 1809977, 1809980, 1809983

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70443

Included Lab Sample IDs: 1809977, 1809983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	107	P/P	90 - 110
Sulfate	103	107	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.08	
EPA 300.0 Rev. 2.1	Chloride	101	100	100		0.499	
	Chloride	104	105	105		0.0554	
	Sulfate	100	100	99.5		0.922	
	Sulfate	103	103	104		2.09	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	97.9	99.4			1.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	95.0	102			4.86
	Kjeldahl Nitrogen	95.9	93.3	101			5.70
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.5	97.0			0.277
EPA 365.1 Rev. 2.0	Total-P	95.3	99.5	93.7			5.86
	Total-P	93.6	102	93.7			7.28
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	98.7	98.9			0.174
SM 2120 B	Color (true)					1.53	
SM 2320 B-97	Total Alkalinity	103				0.317	
SM 2540 C-97	TDS					4.39	
	TDS					4.74	
SM 4500 F-C-97	Fluoride	98.0	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	99.0	98.0	99.1			0.674

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1809977, 1809980, 1809983
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1809977, 1809980, 1809983
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1809977, 1809980, 1809983
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1809978, 1809981, 1809984
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1809978, 1809981, 1809984
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1809978, 1809981, 1809984
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1809978, 1809981, 1809984
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1809979, 1809982, 1809985
SM 2120 B / E31780	True Color measured at 450 nm	1809977, 1809980, 1809983
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1809977, 1809980, 1809983
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1809977, 1809980, 1809983
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1809977, 1809980, 1809983
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1809977, 1809980, 1809983
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1809978, 1809981, 1809984

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	06/22/2016			06/22/2016 15:56	Sima Feizi	1809977, 1809980, 1809983
EPA 300.0 Rev. 2.1	06/22/2016			07/01/2016	Ping Hua	1809980
	06/22/2016			07/08/2016	Ping Hua	1809977, 1809983
EPA 350.1 Rev. 2.0	06/22/2016			06/27/2016	Diana M. Turner	1809978, 1809981, 1809984
EPA 351.2 Rev. 2.0	06/22/2016	06/23/2016	Sofia Elnemr	06/24/2016	Christopher Armour	1809978, 1809981, 1809984
EPA 353.2 Rev. 2.0	06/22/2016			06/27/2016	Beverly Y. Sanders	1809978, 1809981, 1809984
EPA 365.1 Rev. 2.0	06/22/2016	06/24/2016	Vijayalakshmi Reddy	06/27/2016	Lipi Saha	1809978, 1809981, 1809984
EPA 365.1 Rev. 2.0 dissolved	06/22/2016			06/22/2016 14:30	Julia Storbeck	1809982
	06/22/2016			06/22/2016 14:32	Julia Storbeck	1809979
	06/22/2016			06/22/2016 14:33	Julia Storbeck	1809985
SM 2120 B	06/22/2016			06/22/2016 17:23	Chrisoulla Rakowski	1809977
	06/22/2016			06/22/2016 17:24	Chrisoulla Rakowski	1809980
	06/22/2016			06/22/2016 17:25	Chrisoulla Rakowski	1809983
SM 2320 B-97	06/22/2016			07/02/2016	Dale L. Simmons	1809977, 1809980, 1809983
SM 2540 C-97	06/22/2016			06/24/2016	Yijie Li	1809977, 1809980, 1809983
SM 2540 D-97	06/22/2016			06/24/2016	Yijie Li	1809977, 1809980, 1809983
SM 4500 F-C-97	06/22/2016			07/02/2016	Dale L. Simmons	1809977, 1809980, 1809983
SM 5310 B-00	06/22/2016			06/28/2016	Diana M. Turner	1809978, 1809981, 1809984