Chemical Analysis Report

CEN-DIST-2016-12-21-02

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

Event Description: **Howey Height/Holiday Springs**
Request ID: **RQ-2016-12-19-38**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 09-JAN-2017 14:16

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: DOUBLE RUN @ 800M DS OF DOUBLE RUN ROAD **Collection Date/Time: 12/20/2016 11:30**

Field ID: G1CE0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1859415	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P317191	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P317691	
		Sulfate	8.5		mg SO4/L	P317693	
	SM 2120 B	Color (true)	56	A	PCU	P317196	
	SM 2320 B-97	Total Alkalinity	75		mg CaCO3/L	P317327	
	SM 2540 C-97	TDS	134	A	mg/L	P317658	
	SM 2540 D-97	TSS	2	I	mg/L	P317636	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P317328	
1859418	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P317754	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P317199	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P317372	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P317344	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P317236	
1859421	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P317188	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HOLIDAY SPRINGS ABOVE PUMP HOUSE **Collection Date/Time: 12/20/2016 12:45**

Field ID: G1CE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1859416	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P317191	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P317691	
		Sulfate	11		mg SO4/L	P317693	
	SM 2120 B	Color (true)	2.5	U	PCU	P317196	
	SM 2320 B-97	Total Alkalinity	111		mg CaCO3/L	P317327	
	SM 2540 C-97	TDS	158		mg/L	P317658	
	SM 2540 D-97	TSS	2	I	mg/L	P317636	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P317328	
1859419	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P317680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P317199	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P317372	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P317344	
	SM 5310 B-00	Organic Carbon	0.53	I	mg C/L	P317236	
1859422	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P317188	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HOLIDAY SPRINGS ABOVE PUMP HOUSE (DUP) **Collection Date/Time: 12/20/2016 12:50**

Field ID: G1CE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1859417	EPA 180.1 Rev. 2.0	Turbidity	0.10		NTU	P317191	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P317691	
		Sulfate	11		mg SO4/L	P317693	
	SM 2120 B	Color (true)	2.5	U	PCU	P317196	
	SM 2320 B-97	Total Alkalinity	112		mg CaCO3/L	P317327	
	SM 2540 C-97	TDS	151		mg/L	P317658	
	SM 2540 D-97	TSS	2	I	mg/L	P317636	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P317328	
1859420	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P317680	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P317199	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.2		mg N/L	P317373	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P317344	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P317236	
1859423	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P317188	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: 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: P317191

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317691

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317693

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317680

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317754

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: P317199

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317372

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317373

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317344

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317188

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

Reference Method: SM 2120 B
Batch ID: P317196

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P317327

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

Reference Method: SM 2540 C-97
Batch ID: P317658

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317636

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P317328

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P317236

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: P317691

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317693

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317680

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317754

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317199

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317373

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317344

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P317327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P317328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P317236

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: P317691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859627	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859627	Sulfate	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859418	Ammonia-N	102	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859419	Kjeldahl Nitrogen	97.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859375	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859636	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859419	Total-P	98.0	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1859421	O-Phosphate-P	97.4	98.2	P/P	90 - 110

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P317191

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859372	Turbidity	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859627	Chloride	0.00841	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P317693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859627	Sulfate	0.115	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859377	Ammonia-N	0.487	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P317754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859418	Ammonia-N	2.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P317199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859419	Kjeldahl Nitrogen	2.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859375	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P317373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859636	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P317344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859419	Total-P	0.872	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P317188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859421	O-Phosphate-P	0.769	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P317196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859415	Color (true)	1.63	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P317327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859342	Total Alkalinity	0.299	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P317658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859415	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P317328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859342	Fluoride	0.959	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P317236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1859108	Organic Carbon	0.223	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: A73527
Included Lab Sample IDs: 1859421, 1859422, 1859423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.3	P/P	90 - 110
O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73528
Included Lab Sample IDs: 1859415, 1859416, 1859417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A73530
Included Lab Sample IDs: 1859415, 1859416, 1859417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.8	99.9	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A73539
Included Lab Sample IDs: 1859418, 1859419, 1859420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A73565
Included Lab Sample IDs: 1859415, 1859416, 1859417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	97.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73565
Included Lab Sample IDs: 1859415, 1859416, 1859417

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73577
Included Lab Sample IDs: 1859418, 1859419, 1859420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	106	P/P	90 - 110
Kjeldahl Nitrogen	109	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73580
Included Lab Sample IDs: 1859418, 1859419, 1859420

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73615
Included Lab Sample IDs: 1859418, 1859419, 1859420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73714
Included Lab Sample IDs: 1859419, 1859420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73714
Included Lab Sample IDs: 1859419, 1859420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73721
Included Lab Sample IDs: 1859415, 1859416, 1859417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	97.7	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73745
Included Lab Sample IDs: 1859418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.664	
EPA 300.0 Rev. 2.1	Chloride	101	100			0.0084	
	Sulfate	94.5	94.6			0.115	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9					0.487
	Ammonia-N	104	102	98.1			2.40
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	97.0	100			2.79
EPA 353.2 Rev. 2.0	NO2NO3-N	107	106	106			0.0
	NO2NO3-N	106	99.5	98.5			1.01
EPA 365.1 Rev. 2.0	Total-P	99.2	98.0	97.1			0.872
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	97.4	98.2			0.769
SM 2120 B	Color (true)					1.63	
SM 2320 B-97	Total Alkalinity	99.0				0.299	
SM 2540 C-97	TDS					6.74	
SM 4500 F-C-97	Fluoride	97.5					0.959
SM 5310 B-00	Organic Carbon	96.2					0.223

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1859415, 1859416, 1859417
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1859415, 1859416, 1859417

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1859415, 1859416, 1859417
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1859418, 1859419, 1859420
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1859418, 1859419, 1859420
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1859418, 1859419, 1859420
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1859418, 1859419, 1859420
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1859421, 1859422, 1859423
SM 2120 B / E31780	True Color measured at 450 nm	1859415, 1859416, 1859417
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1859415, 1859416, 1859417
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1859415, 1859416, 1859417
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1859415, 1859416, 1859417
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1859415, 1859416, 1859417
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1859418, 1859419, 1859420

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	12/21/2016			12/21/2016 14:24	Julie Michelle Frank	1859415, 1859416, 1859417
EPA 300.0 Rev. 2.1	12/21/2016			01/03/2017	Elisa J Lutz	1859415, 1859416, 1859417
EPA 350.1 Rev. 2.0	12/21/2016			01/03/2017	Sofia Elnemr	1859419, 1859420
	12/21/2016			01/04/2017	Sofia Elnemr	1859418
EPA 351.2 Rev. 2.0	12/21/2016	12/22/2016	Adrian Shelby	12/23/2016	Joseph Suarez	1859418, 1859419, 1859420
EPA 353.2 Rev. 2.0	12/21/2016			12/23/2016	Beverly Y. Sanders	1859418, 1859419, 1859420
EPA 365.1 Rev. 2.0	12/21/2016	12/23/2016	Vijayalakshmi Reddy	12/28/2016	Lipi Saha	1859418, 1859419, 1859420
EPA 365.1 Rev. 2.0 dissolved	12/21/2016			12/21/2016 15:06	Julia Storbeck	1859421
	12/21/2016			12/21/2016 15:19	Julia Storbeck	1859422
	12/21/2016			12/21/2016 15:20	Julia Storbeck	1859423
SM 2120 B	12/21/2016			12/21/2016 16:41	Jared I. Manley	1859415
	12/21/2016			12/21/2016 16:42	Jared I. Manley	1859416
	12/21/2016			12/21/2016 16:43	Jared I. Manley	1859417
SM 2320 B-97	12/21/2016			12/22/2016	Dale L. Simmons	1859415, 1859416, 1859417
SM 2540 C-97	12/21/2016			12/23/2016	Yijie Li	1859415, 1859416, 1859417
SM 2540 D-97	12/21/2016			12/23/2016	Yijie Li	1859415, 1859416, 1859417
SM 4500 F-C-97	12/21/2016			12/22/2016	Dale L. Simmons	1859415, 1859416, 1859417
SM 5310 B-00	12/21/2016			12/22/2016	Julie Michelle Frank	1859418, 1859419, 1859420