Chemical Analysis Report

NE-DIST-2016-10-14-01

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

Event Description: **Nassau Mid /West**
Request ID: **RQ-2016-10-10-14**
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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 10-NOV-2016 16:46

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: Calkins trib at Hamp Register Rd **Collection Date/Time: 10/13/2016 11:55**

Field ID: 19010042 10132016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1841033	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P313229	
	EPA 300.0 Rev. 2.1	Chloride	8.9	A	mg Cl/L	P313891	
		Sulfate	0.87	A	mg SO4/L	P313894	
	SM 2120 B	Color (true)	210		PCU	P313211	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P313346	
	SM 2540 C-97	TDS	85		mg/L	P313744	
	SM 2540 D-97	TSS	3	I	mg/L	P313839	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P313348	
1841035	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P314219	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P314282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P313489	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P314062	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P313340	
1841037	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P313232	

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

Sample Location: Unnamed Branch @ CR 125 **Collection Date/Time: 10/13/2016 11:30**

Field ID: 19010123 10132016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1841034	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P313229	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P313891	
		Sulfate	2.0		mg SO4/L	P313894	
	SM 2120 B	Color (true)	300		PCU	P313211	
	SM 2320 B-97	Total Alkalinity	9.8		mg CaCO3/L	P313347	
	SM 2540 C-97	TDS	92		mg/L	P313744	
	SM 2540 D-97	TSS	6	I	mg/L	P313839	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P313350	
1841036	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P314219	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P314282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P313490	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P314062	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P313340	
1841038	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P313232	

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

Sample Location: FIELD BLANK 10132016 **Collection Date/Time: 10/13/2016 12:00**

Field ID: FIELD BLANK Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1841039	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P313229	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P313891	
		Sulfate	0.20	U	mg SO4/L	P313894	

Field ID: FIELD BLANK Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1841039	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P313347	
	SM 2540 C-97	TDS	15	U	mg/L	P313744	
	SM 2540 D-97	TSS	2	U	mg/L	P313839	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P313350	
1841040	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P314219	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P314282	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P313490	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P314587	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P313340	
1841041	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P313232	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313229

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313891

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313894

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314219

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314282

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313489

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313490

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314587

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313232

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

Reference Method: SM 2120 B
Batch ID: P313211

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P313346

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

Reference Method: SM 2320 B-97
Batch ID: P313347

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

Reference Method: SM 2540 C-97
Batch ID: P313744

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P313839

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P313348

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P313350

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P313340

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: P313891

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313894

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314219

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: P314282

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: P313489

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313490

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: P313490

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: P314062

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313232

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

Reference Method: SM 2320 B-97
Batch ID: P313346

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

Reference Method: SM 2320 B-97
Batch ID: P313347

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

Reference Method: SM 4500 F-C-97
Batch ID: P313348

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

Reference Method: SM 4500 F-C-97
Batch ID: P313350

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

Reference Method: SM 5310 B-00
Batch ID: P313340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841033	Chloride	99.9		P	90 - 110
1841034	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841033	Sulfate	92.7		P	90 - 110
1841034	Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841035	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841070	Kjeldahl Nitrogen	102	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1840907	NO2NO3-N	94.2	91.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841060	NO2NO3-N	100	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314062

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1840958	Total-P	101	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1843325	Total-P	97.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1840962	O-Phosphate-P	99.3	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P313348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841106	Fluoride	98.4	99.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P313350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841054	Fluoride	99.2	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P313340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1841035	Organic Carbon	100		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P313229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840949	Turbidity	5.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841033	Chloride	3.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P313894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841033	Sulfate	3.76	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P314219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841035	Ammonia-N	2.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P314282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841070	Kjeldahl Nitrogen	2.10	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840907	NO2NO3-N	2.28	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P313490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841060	NO2NO3-N	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840958	Total-P	2.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P314587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1843325	Total-P	3.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P313232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840962	O-Phosphate-P	0.661	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P313211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840949	Color (true)	2.14	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P313346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841106	Total Alkalinity	0.251	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P313347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841054	Total Alkalinity	0.177	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P313744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1840951	TDS	2.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P313348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841106	Fluoride	0.527	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P313350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841054	Fluoride	0.467	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P313340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1841035	Organic Carbon	0.866	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: SM 2120 B
Run ID: A72234
Included Lab Sample IDs: 1841033, 1841034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72238
Included Lab Sample IDs: 1841033, 1841034, 1841039

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72240
Included Lab Sample IDs: 1841037, 1841038, 1841041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.8	P/P	90 - 110
O-Phosphate-P	98.8	97.3	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72240
Included Lab Sample IDs: 1841037, 1841038, 1841041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A72266
Included Lab Sample IDs: 1841035, 1841036, 1841040

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

Reference Method: SM 2320 B-97
Run ID: A72268
Included Lab Sample IDs: 1841033, 1841034, 1841039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A72268
Included Lab Sample IDs: 1841033, 1841034, 1841039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	99.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72313
Included Lab Sample IDs: 1841035, 1841036, 1841040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	95.5	P/P	90 - 110
NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A72432
Included Lab Sample IDs: 1841033, 1841034, 1841039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	103	105	P/P	90 - 110
Sulfate	98.7	102	P/P	90 - 110
Sulfate	99.1	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72522
Included Lab Sample IDs: 1841036

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72528
Included Lab Sample IDs: 1841035, 1841036, 1841040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72531
Included Lab Sample IDs: 1841035

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72577
Included Lab Sample IDs: 1841035, 1841036, 1841040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72676
Included Lab Sample IDs: 1841040

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	102	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					5.34	
EPA 300.0 Rev. 2.1	Chloride	102	99.9	101		3.08	
	Sulfate	97.7	92.7	98.4		3.76	
EPA 350.1 Rev. 2.0	Ammonia-N	104	100	103			2.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	102	98.1			2.10
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	94.2	91.2			2.28
	NO2NO3-N	99.5	100	98.5			1.51
EPA 365.1 Rev. 2.0	Total-P	103	101	98.2			2.27
	Total-P	96.5	97.8	101			3.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	99.3	100			0.661
SM 2120 B	Color (true)					2.14	
SM 2320 B-97	Total Alkalinity	103				0.251	
	Total Alkalinity	103				0.177	
SM 2540 C-97	TDS					2.33	
SM 4500 F-C-97	Fluoride	98.0	98.4	99.0			0.527
	Fluoride	98.0	99.2	98.6			0.467
SM 5310 B-00	Organic Carbon	96.7	100				0.866

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1841033, 1841034, 1841039
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1841033, 1841034, 1841039
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1841033, 1841034, 1841039
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1841035, 1841036, 1841040
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1841035, 1841036, 1841040
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1841035, 1841036, 1841040
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1841035, 1841036, 1841040
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1841037, 1841038, 1841041
SM 2120 B / E31780	True Color measured at 450 nm	1841033, 1841034
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1841033, 1841034, 1841039
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1841033, 1841034, 1841039
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1841033, 1841034, 1841039
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1841033, 1841034, 1841039
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1841035, 1841036, 1841040

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	10/14/2016			10/14/2016 15:51	Sima Feizi	1841033, 1841034, 1841039
EPA 300.0 Rev. 2.1	10/14/2016			10/26/2016	Ping Hua	1841033, 1841034, 1841039
EPA 350.1 Rev. 2.0	10/14/2016			10/28/2016	Sofia Elnemr	1841035, 1841036, 1841040
EPA 351.2 Rev. 2.0	10/14/2016	11/01/2016	Adrian Shelby	11/02/2016	Joseph Suarez	1841035, 1841036, 1841040
EPA 353.2 Rev. 2.0	10/14/2016			10/19/2016	Beverly Y. Sanders	1841035, 1841036, 1841040
EPA 365.1 Rev. 2.0	10/14/2016	10/27/2016	Vijayalakshmi Reddy	10/28/2016	Lipi Saha	1841036
	10/14/2016	10/27/2016	Vijayalakshmi Reddy	10/31/2016	Lipi Saha	1841035
	10/14/2016	11/04/2016	Vijayalakshmi Reddy	11/07/2016	Lipi Saha	1841040
EPA 365.1 Rev. 2.0 dissolved	10/14/2016			10/14/2016 16:04	Julia Storbeck	1841041
	10/14/2016			10/14/2016 16:10	Julia Storbeck	1841037
	10/14/2016			10/14/2016 16:22	Julia Storbeck	1841038
SM 2120 B	10/14/2016			10/14/2016 14:40	Julie Michelle Frank	1841033
	10/14/2016			10/14/2016 14:41	Julie Michelle Frank	1841034
SM 2320 B-97	10/14/2016			10/17/2016	Dale L. Simmons	1841033, 1841034, 1841039
SM 2540 C-97	10/14/2016			10/19/2016	Yijie Li	1841033, 1841034, 1841039
SM 2540 D-97	10/14/2016			10/19/2016	Yijie Li	1841033, 1841034, 1841039
SM 4500 F-C-97	10/14/2016			10/17/2016	Dale L. Simmons	1841033, 1841034, 1841039
SM 5310 B-00	10/14/2016			10/17/2016	Julie Michelle Frank	1841035, 1841036, 1841040