Chemical Analysis Report

NW-DIST-2016-09-30-02

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

Event Description: **WBID 275 21**
Request ID: **RQ-2016-10-03-52**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 28-OCT-2016 13:18

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: Baggett Creek upstream of Keyser Mill Road **Collection Date/Time: 09/29/2016 11:37**

Field ID: G4NW0335 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836929	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P312240	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P312674	
		Sulfate	0.72		mg SO4/L	P312671	
	SM 2120 B	Color (true)	15		PCU	P312329	
	SM 2320 B-97	Total Alkalinity	4.0		mg CaCO3/L	P312576	
	SM 2540 C-97	TDS	28		mg/L	P312773	
	SM 2540 D-97	TSS	2	I	mg/L	P312756	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P312582	
1836932	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P312903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P312811	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.88		mg N/L	P312623	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P313110	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P312546	
1836935	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P312244	

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: Trammel Creek Above Yellow River **Collection Date/Time: 09/29/2016 13:25**

Field ID: G4NW0052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836930	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P312240	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P312674	
		Sulfate	4.1		mg SO4/L	P312671	
	SM 2120 B	Color (true)	38		PCU	P312329	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P312576	
	SM 2540 C-97	TDS	47		mg/L	P312773	
	SM 2540 D-97	TSS	2	I	mg/L	P312756	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P312582	
1836933	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P312903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P312811	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P312624	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P313110	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P312546	
1836936	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P312244	

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: Trammel Creek Above CRX train tracks **Collection Date/Time: 09/29/2016 13:50**

Field ID: G4NW0383 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836931	EPA 180.1 Rev. 2.0	Turbidity	1.9	A	NTU	P312241	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P312674	
		Sulfate	4.3		mg SO4/L	P312671	

Field ID: G4NW0383 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1836931	SM 2120 B	Color (true)	37		PCU	P312329	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P312576	
	SM 2540 C-97	TDS	45		mg/L	P312773	
	SM 2540 D-97	TSS	2	I	mg/L	P312756	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P312582	
1836934	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P312907	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P312980	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P312624	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P313111	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P312546	
1836937	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P312244	

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: P312240

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312241

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312671

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312674

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312903

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312907

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: P312811

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312980

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312623

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312624

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313110

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313111

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312244

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

Reference Method: SM 2120 B
Batch ID: P312329

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P312576

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P312773

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P312756

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P312582

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P312546

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: P312671

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312674

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312903

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312907

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312811

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312811

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312980

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: P312623

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312624

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313110

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313111

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312244

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

Reference Method: SM 2320 B-97
Batch ID: P312576

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

Reference Method: SM 4500 F-C-97
Batch ID: P312582

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P312546

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836882	Sulfate	94.8		P	90 - 110
1836944	Sulfate	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836882	Chloride	101		P	90 - 110
1836944	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836824	Ammonia-N	98.3	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836934	Ammonia-N	96.3	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836923	Kjeldahl Nitrogen	94.8	94.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836951	Kjeldahl Nitrogen	104	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312623

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836921	NO2NO3-N	106		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836933	NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836254	Total-P	94.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836934	Total-P	98.0	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836829	O-Phosphate-P	97.3	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P312582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836821	Fluoride	98.5	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P312546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1836883	Organic Carbon	97.6	109	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836881	Turbidity	7.41	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P312241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836931	Turbidity	5.84	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836944	Sulfate	4.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P312674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836944	Chloride	0.263	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836824	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P312907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836934	Ammonia-N	1.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836923	Kjeldahl Nitrogen	0.280	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P312980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836951	Kjeldahl Nitrogen	3.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836921	NO2NO3-N	1.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836933	NO2NO3-N	1.10	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836254	Total-P	3.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P313111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836934	Total-P	0.596	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P312244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836829	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P312329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836907	Color (true)	2.18	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P312576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836821	Total Alkalinity	0.385	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P312773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836945	TDS	4.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P312582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836821	Fluoride	1.46	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P312546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1836883	Organic Carbon	7.45	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A71953
Included Lab Sample IDs: 1836929, 1836930, 1836931

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71954
Included Lab Sample IDs: 1836935, 1836936, 1836937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	97.1	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A71981
Included Lab Sample IDs: 1836929, 1836930, 1836931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A71988
Included Lab Sample IDs: 1836929, 1836930, 1836931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	98.4	P/P	90 - 110
Chloride	99.1	103	P/P	90 - 110
Sulfate	100	98.2	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A72041
Included Lab Sample IDs: 1836932, 1836933, 1836934

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	108	P/P	90 - 110
Organic Carbon	98.5	106	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A72046
Included Lab Sample IDs: 1836929, 1836930, 1836931

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A72046
Included Lab Sample IDs: 1836929, 1836930, 1836931

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A72060
Included Lab Sample IDs: 1836932, 1836933, 1836934

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A72156
Included Lab Sample IDs: 1836932, 1836933, 1836934

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	P/P	90 - 110
Ammonia-N	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72204
Included Lab Sample IDs: 1836934

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A72230
Included Lab Sample IDs: 1836932, 1836933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A72233
Included Lab Sample IDs: 1836932, 1836933, 1836934

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

* 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				7.41	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.84	
EPA 300.0 Rev. 2.1	Chloride	99.0	100	101		0.263	
	Sulfate	98.3	97.3	94.8		4.04	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.3	102			1.69
	Ammonia-N	102	96.3	98.4			1.75
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	94.8	94.4			0.280
	Kjeldahl Nitrogen	101	104	99.4			3.46
EPA 353.2 Rev. 2.0	NO2NO3-N	106	106				1.10
	NO2NO3-N	105	104				1.10
EPA 365.1 Rev. 2.0	Total-P	97.3	94.4	97.8			3.30
	Total-P	96.4	98.0	98.7			0.596
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.3	99.0			1.12
SM 2120 B	Color (true)					2.18	
SM 2320 B-97	Total Alkalinity	103				0.385	
SM 2540 C-97	TDS					4.10	
SM 4500 F-C-97	Fluoride	98.2	98.5	100			1.46
SM 5310 B-00	Organic Carbon	103	97.6	109			7.45

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1836929, 1836930, 1836931
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1836929, 1836930, 1836931
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1836929, 1836930, 1836931
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1836932, 1836933, 1836934
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1836932, 1836933, 1836934
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1836932, 1836933, 1836934
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1836932, 1836933, 1836934
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1836935, 1836936, 1836937
SM 2120 B / E31780	True Color measured at 450 nm	1836929, 1836930, 1836931
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1836929, 1836930, 1836931
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1836929, 1836930, 1836931
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1836929, 1836930, 1836931
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1836929, 1836930, 1836931
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1836932, 1836933, 1836934

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	09/30/2016			09/30/2016 15:11	Sima Feizi	1836929, 1836930, 1836931
EPA 300.0 Rev. 2.1	09/30/2016			10/06/2016	Ping Hua	1836929, 1836930, 1836931
EPA 350.1 Rev. 2.0	09/30/2016			10/07/2016	Sofia Elnemr	1836932, 1836933, 1836934
EPA 351.2 Rev. 2.0	09/30/2016	10/11/2016	Adrian Shelby	10/14/2016	Joseph Suarez	1836932, 1836933
	09/30/2016	10/12/2016	Adrian Shelby	10/13/2016	Joseph Suarez	1836934
EPA 353.2 Rev. 2.0	09/30/2016			10/06/2016	Peter D. Kaus	1836932, 1836933, 1836934
EPA 365.1 Rev. 2.0	09/30/2016	10/13/2016	Vijayalakshmi Reddy	10/14/2016	Lipi Saha	1836932, 1836933, 1836934
EPA 365.1 Rev. 2.0 dissolved	09/30/2016			09/30/2016 16:25	Julia Storbeck	1836935
	09/30/2016			09/30/2016 16:26	Julia Storbeck	1836936
	09/30/2016			09/30/2016 16:27	Julia Storbeck	1836937
SM 2120 B	09/30/2016			09/30/2016 15:13	Blanca Fach	1836929, 1836930
	09/30/2016			09/30/2016 15:14	Blanca Fach	1836931
SM 2320 B-97	09/30/2016			10/05/2016	Dale L. Simmons	1836929, 1836930, 1836931
SM 2540 C-97	09/30/2016			10/03/2016	Yijie Li	1836929, 1836930, 1836931
SM 2540 D-97	09/30/2016			10/03/2016	Yijie Li	1836929, 1836930, 1836931
SM 4500 F-C-97	09/30/2016			10/05/2016	Dale L. Simmons	1836929, 1836930, 1836931
SM 5310 B-00	09/30/2016			10/04/2016	Julie Michelle Frank	1836932, 1836933, 1836934