

Chemical Analysis Report

SW-DIST-2016-09-16-02

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

Event Description: **Hancock w/D&B**
Request ID: **RQ-2016-09-12-34**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Stephen Clingerman

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-OCT-2016 14:04

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Hancock

Collection Date/Time: 09/15/2016 12:55

Field ID: G5SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832252	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P311352	
	EPA 300.0 Rev. 2.1	Chloride	13	A	mg Cl/L	P311766	
		Sulfate	1.3	A	mg SO4/L	P311769	
	SM 2120 B	Color (true)	47		PCU	P311366	
	SM 2320 B-97	Total Alkalinity	27		mg CaCO3/L	P311736	
	SM 2540 C-97	TDS	77		mg/L	P311821	
	SM 2540 D-97	TSS	6	I	mg/L	P311787	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P311740	MS
1832255	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P311517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P311726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312045	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P312011	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P311980	
1832258	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311354	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Hancock

Collection Date/Time: 09/15/2016 13:00

Field ID: Duplicate

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832253	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P311351	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P311766	
		Sulfate	1.3		mg SO4/L	P311769	
	SM 2120 B	Color (true)	47		PCU	P311366	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P311736	
	SM 2540 C-97	TDS	84		mg/L	P311821	
	SM 2540 D-97	TSS	7	I	mg/L	P311787	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P311740	MS
1832256	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P311517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P311726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312045	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P312011	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P311980	
1832259	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311354	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 09/15/2016 13:20

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832254	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P311351	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1832254	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P311766	
		Sulfate	0.20	U	mg SO4/L	P311769	
	SM 2120 B	Color (true)	2.5	U	PCU	P311366	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P311736	
	SM 2540 C-97	TDS	15	U	mg/L	P311816	
	SM 2540 D-97	TSS	2	U	mg/L	P311782	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P311740	MS
1832257	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P311517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P311726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P312045	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P312011	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P312579	
1832260	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P311354	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: 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: P311351

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P311352

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P311766

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P311769

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P311517

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: P311726

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312045

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312011

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311354

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

Reference Method: SM 2120 B
Batch ID: P311366

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P311736

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

Reference Method: SM 2540 C-97
Batch ID: P311816

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P311821

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P311782

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P311787

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P311740

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P311980

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P312579

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: P311766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311517

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311726

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312045

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312045

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312011

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311354

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

Reference Method: SM 2320 B-97
Batch ID: P311736

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

Reference Method: SM 4500 F-C-97
Batch ID: P311740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P311980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P312579

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832252	Chloride	99.5		P	90 - 110
1832479	Chloride	99.9		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832252	Sulfate	96.4		P	90 - 110
1832479	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832255	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832196	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1831525	Total-P	101	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832139	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P311740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832112	Fluoride	105	107	P/F	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P311980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1832221	Organic Carbon	96.0	96.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P312579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1837669	Organic Carbon	96.2	96.4	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832253	Turbidity	0.791	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P311352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832252	Turbidity	6.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832252	Chloride	0.0392	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832252	Sulfate	0.648	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P311517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832255	Ammonia-N	2.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P311726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832196	Kjeldahl Nitrogen	4.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P312045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832196	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P312011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831525	Total-P	1.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P311354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832139	O-Phosphate-P	0.692	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P311366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832281	Color (true)	8.25	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P311736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832112	Total Alkalinity	0.347	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P311816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1831111	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P311821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832177	TDS	5.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P311740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832112	Fluoride	1.97	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P311980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1832221	Organic Carbon	0.138	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P312579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1837669	Organic Carbon	0.200	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: A171685

Included Lab Sample IDs: 1832252, 1832253, 1832254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A71686

Included Lab Sample IDs: 1832258, 1832259, 1832260

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A71687

Included Lab Sample IDs: 1832252, 1832253, 1832254

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71731

Included Lab Sample IDs: 1832255, 1832256, 1832257

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71789

Included Lab Sample IDs: 1832252, 1832253, 1832254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.5	98.9	P/P	90 - 110
Chloride	98.9	95.9	P/P	90 - 110
Sulfate	99.3	98.1	P/P	90 - 110
Sulfate	99.6	99.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71798

Included Lab Sample IDs: 1832252, 1832253, 1832254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A71798

Included Lab Sample IDs: 1832252, 1832253, 1832254

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71850

Included Lab Sample IDs: 1832255, 1832256, 1832257

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71861

Included Lab Sample IDs: 1832255, 1832256, 1832257

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71877

Included Lab Sample IDs: 1832255, 1832256

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71947

Included Lab Sample IDs: 1832257

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71968

Included Lab Sample IDs: 1832255, 1832256

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

Reference Method: SM 5310 B-00

Run ID: A72048

Included Lab Sample IDs: 1832257

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.791	
	Turbidity					6.01	
EPA 300.0 Rev. 2.1	Chloride	98.6	99.5	99.9		0.0392	
	Sulfate	97.0	96.4	96.3		0.648	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	105	102			2.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5					4.86
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	102	102			0.471
EPA 365.1 Rev. 2.0	Total-P	104	101	99.0			1.25
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101	102			0.692
SM 2120 B	Color (true)					8.25	
SM 2320 B-97	Total Alkalinity	103				0.347	
SM 2540 C-97	TDS					6.74	
	TDS					5.00	
SM 4500 F-C-97	Fluoride	98.8	105	107			1.97
SM 5310 B-00	Organic Carbon	104	96.0	96.2			0.138
	Organic Carbon	98.2	96.2	96.4			0.200

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1832252, 1832253, 1832254
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1832252, 1832253, 1832254
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1832252, 1832253, 1832254
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1832255, 1832256, 1832257
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1832255, 1832256, 1832257
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1832255, 1832256, 1832257
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1832255, 1832256, 1832257
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1832258, 1832259, 1832260
SM 2120 B / E31780	True Color measured at 450 nm	1832252, 1832253, 1832254
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1832252, 1832253, 1832254
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1832252, 1832253, 1832254
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1832252, 1832253, 1832254
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1832252, 1832253, 1832254
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1832255, 1832256, 1832257

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	09/16/2016			09/16/2016 16:25	Sima Feizi	1832252, 1832253, 1832254
EPA 300.0 Rev. 2.1	09/16/2016			09/23/2016	Ping Hua	1832252, 1832253, 1832254
EPA 350.1 Rev. 2.0	09/16/2016			09/19/2016	Joseph Suarez	1832255, 1832256, 1832257
EPA 351.2 Rev. 2.0	09/16/2016	09/23/2016	Adrian Shelby	09/27/2016	Christopher Armour	1832255, 1832256, 1832257
EPA 353.2 Rev. 2.0	09/16/2016			09/27/2016	Beverly Y. Sanders	1832255, 1832256, 1832257
EPA 365.1 Rev. 2.0	09/16/2016	09/28/2016	Lipi Saha	09/29/2016	Lipi Saha	1832255, 1832256
	09/16/2016	09/28/2016	Lipi Saha	09/30/2016	Lipi Saha	1832257
EPA 365.1 Rev. 2.0 dissolved	09/16/2016			09/16/2016 15:28	Julia Storbeck	1832258
	09/16/2016			09/16/2016 15:29	Julia Storbeck	1832259
	09/16/2016			09/16/2016 15:39	Julia Storbeck	1832260
SM 2120 B	09/16/2016			09/16/2016 18:37	Julie Michelle Frank	1832252
	09/16/2016			09/16/2016 18:38	Julie Michelle Frank	1832253
	09/16/2016			09/16/2016 18:39	Julie Michelle Frank	1832254
SM 2320 B-97	09/16/2016			09/23/2016	Dale L. Simmons	1832252, 1832253, 1832254
SM 2540 C-97	09/16/2016			09/19/2016	Yijie Li	1832252, 1832253, 1832254
SM 2540 D-97	09/16/2016			09/19/2016	Yijie Li	1832252, 1832253, 1832254
SM 4500 F-C-97	09/16/2016			09/23/2016	Dale L. Simmons	1832252, 1832253, 1832254
SM 5310 B-00	09/16/2016			09/26/2016	Sofia Elnemr	1832255, 1832256
	09/16/2016			10/05/2016	Julie Michelle Frank	1832257