

Chemical Analysis Report

NW-DIST-2017-02-02-01

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

Event Description: **Eglin West WBID 517 583 833**
Request ID: **RQ-2017-01-23-35**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

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: 24-FEB-2017 09:22



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: DEAN CREEK UPSTREAM OF SR 87

Collection Date/Time: 02/01/2017 12:00

Field ID: G4NW0362

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868949	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P319721	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P319464	
		Sulfate	1.2		mg SO4/L	P319467	
	SM 2120 B	Color (true)	27		PCU	P319223	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319319	
	SM 2540 C-97	TDS	22	I	mg/L	P320049	
	SM 2540 D-97	TSS	2	U	mg/L	P319584	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319323	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P319359	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P319213	
1868953	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P319474	
	EPA 365.1 Rev. 2.0	Total-P	0.0027	I	mg P/L	P319251	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P319299	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P319195	
	dissolved						

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: BOILING CREEK ABV EGLIN RD 211

Collection Date/Time: 02/01/2017 12:35

Field ID: G4NW0342

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868950	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P319721	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P319464	
		Sulfate	0.46	I	mg SO4/L	P319467	
	SM 2120 B	Color (true)	8.7		PCU	P319223	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319503	
	SM 2540 C-97	TDS	15	U	mg/L	P320049	
	SM 2540 D-97	TSS	2	U	mg/L	P319584	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319506	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P319359	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P319214	
1868954	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P319474	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P319251	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P319299	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.006	I	mg P/L	P319195	
	dissolved						

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: BOILING CREEK ABV EGLIN RD 211 DUP

Collection Date/Time: 02/01/2017 12:40

Field ID: G4NW0342DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868951	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P319721	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P319464	
		Sulfate	0.58		mg SO4/L	P319467	

Field ID: G4NW0342DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868951	SM 2120 B	Color (true)	9.3		PCU	P319223	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319768	
	SM 2540 C-97	TDS	15	I	mg/L	P320049	
	SM 2540 D-97	TSS	2	U	mg/L	P319584	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319506	
1868955	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P319359	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.092	I	mg N/L	P319214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P319474	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P319251	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P319299	
1868959	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319195	

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

Collection Date/Time: 02/01/2017 12:45

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868952	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P319721	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P319464	
		Sulfate	0.20	U	mg SO4/L	P319467	
	SM 2120 B	Color (true)	2.5	U	PCU	P319223	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P319505	
	SM 2540 C-97	TDS	15	U	mg/L	P320050	
	SM 2540 D-97	TSS	2	U	mg/L	P319585	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P319508	
1868956	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P319359	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P319214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319474	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P319251	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P319299	
1868960	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319196	

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.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P319721

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319464

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319467

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319359

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319251

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319195

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319196

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P319223

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P319319

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

Reference Method: SM 2320 B-97
Batch ID: P319503

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

Reference Method: SM 2320 B-97
Batch ID: P319505

Component	Result	Code	Units
Total Alkalinity	1.9	I	mg CaCO3/L

Reference Method: SM 2320 B-97
Batch ID: P319768

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

Reference Method: SM 2540 C-97
Batch ID: P320049

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P320050

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319584

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319585

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P319323

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P319506

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P319508

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319299

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: P319464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319359

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319214

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: P319214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319251

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319195

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319196

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

Reference Method: SM 2320 B-97
Batch ID: P319319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P319503

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

Reference Method: SM 2320 B-97
Batch ID: P319505

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

Reference Method: SM 2320 B-97
Batch ID: P319768

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P319323

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P319506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P319508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P319299

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868880	Chloride	99.3		P	90 - 110
1868881	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868880	Sulfate	96.1		P	90 - 110
1868881	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868954	Ammonia-N	95.4	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868883	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868954	Kjeldahl Nitrogen	96.0	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868939	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868885	Total-P	99.2	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319195

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868894	O-Phosphate-P	97.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869050	O-Phosphate-P	102	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P319323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868892	Fluoride	100	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P319506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869256	Fluoride	99.5	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868953	Organic Carbon	94.0	94.2	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868979	Turbidity	1.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868881	Chloride	0.133	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868881	Sulfate	0.152	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868954	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868883	Kjeldahl Nitrogen	0.161	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868954	Kjeldahl Nitrogen	0.118	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868939	NO2NO3-N	0.315	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868885	Total-P	2.85	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868894	O-Phosphate-P	2.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869050	O-Phosphate-P	2.39	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P319223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868990	Color (true)	1.95	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868892	Total Alkalinity	0.370	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P319503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869256	Total Alkalinity	0.0961	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P319505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869073	Total Alkalinity	0.321	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P319768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869769	Total Alkalinity	0.0317	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P320049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868808	TDS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P320050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868978	TDS	0.862	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868892	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P319506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869256	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P319508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869073	Fluoride	0.947	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868953	Organic Carbon	0.143	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: A74242
Included Lab Sample IDs: 1868957, 1868958, 1868959, 1868960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74244
Included Lab Sample IDs: 1868949, 1868950, 1868951, 1868952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A74251

Included Lab Sample IDs: 1868949, 1868950, 1868951, 1868952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	99.5	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A74275

Included Lab Sample IDs: 1868953, 1868954, 1868955, 1868956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74281

Included Lab Sample IDs: 1868949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74281

Included Lab Sample IDs: 1868949

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74291

Included Lab Sample IDs: 1868953, 1868954, 1868955, 1868956

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74296

Included Lab Sample IDs: 1868953, 1868954, 1868955, 1868956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74297

Included Lab Sample IDs: 1868953, 1868954, 1868955, 1868956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.1	P/P	90 - 110
Kjeldahl Nitrogen	98.1	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74307

Included Lab Sample IDs: 1868949, 1868950, 1868951, 1868952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	99.5	P/P	90 - 110
Sulfate	96.3	93.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74335

Included Lab Sample IDs: 1868953, 1868954, 1868955, 1868956

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

Reference Method: SM 2320 B-97

Run ID: A74348

Included Lab Sample IDs: 1868950, 1868952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110
Total Alkalinity	103	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74348

Included Lab Sample IDs: 1868950, 1868951, 1868952

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	97.6	P/P	90 - 110
Fluoride	99.5	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74444

Included Lab Sample IDs: 1868951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	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 SMP	MS
			LCS			
EPA 180.1 Rev. 2.0	Turbidity				1.90	
EPA 300.0 Rev. 2.1	Chloride	98.7	99.5	99.3	0.133	
	Sulfate	95.4	96.5	96.1	0.152	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	95.4	97.1		1.69
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	104	103		0.161
	Kjeldahl Nitrogen	103	96.0	95.9		0.118
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	103		0.315
EPA 365.1 Rev. 2.0	Total-P	91.8	99.2	96.3		2.85

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.5	101			2.54
	O-Phosphate-P	103	102	99.2			2.39
SM 2120 B	Color (true)					1.95	
SM 2320 B-97	Total Alkalinity	104				0.370	
	Total Alkalinity	103				0.0961	
	Total Alkalinity	103				0.321	
	Total Alkalinity	103				0.0317	
SM 2540 C-97	TDS					0.0	
	TDS					0.862	
SM 4500 F-C-97	Fluoride	101	100	100			0.0
	Fluoride	97.4	99.5	100			0.473
	Fluoride	97.4					0.947
SM 5310 B-00	Organic Carbon	96.4	94.0	94.2			0.143

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1868949, 1868950, 1868951, 1868952
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1868949, 1868950, 1868951, 1868952
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1868949, 1868950, 1868951, 1868952
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1868953, 1868954, 1868955, 1868956
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1868953, 1868954, 1868955, 1868956
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1868953, 1868954, 1868955, 1868956
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1868953, 1868954, 1868955, 1868956
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1868957, 1868958, 1868959, 1868960
SM 2120 B / E31780	True Color measured at 450 nm	1868949, 1868950, 1868951, 1868952
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1868949, 1868950, 1868951, 1868952
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1868949, 1868950, 1868951, 1868952
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1868949, 1868950, 1868951, 1868952
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1868949, 1868950, 1868951, 1868952
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1868953, 1868954, 1868955, 1868956

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	02/02/2017			02/02/2017 16:43	Julia Storbeck	1868949, 1868950, 1868951, 1868952
EPA 300.0 Rev. 2.1	02/02/2017			02/07/2017	Ping Hua	1868949, 1868950, 1868951, 1868952
EPA 350.1 Rev. 2.0	02/02/2017			02/06/2017	Sofia Elnemr	1868953, 1868954, 1868955, 1868956
EPA 351.2 Rev. 2.0	02/02/2017	02/03/2017	Adrian Shelby	02/06/2017	Joseph Suarez	1868953, 1868954, 1868955, 1868956
EPA 353.2 Rev. 2.0	02/02/2017			02/07/2017	Virginia P. Brown	1868953, 1868954, 1868955, 1868956
EPA 365.1 Rev. 2.0	02/02/2017	02/03/2017	Vijayalakshmi Reddy	02/06/2017	Lipi Saha	1868953, 1868954, 1868955, 1868956
EPA 365.1 Rev. 2.0 dissolved	02/02/2017			02/02/2017 14:38	Julie Michelle Frank	1868957
	02/02/2017			02/02/2017 14:39	Julie Michelle Frank	1868958
	02/02/2017			02/02/2017 14:40	Julie Michelle Frank	1868959
	02/02/2017			02/02/2017 14:41	Julie Michelle Frank	1868960
	02/02/2017			02/02/2017 17:21	Julie Michelle Frank	1868949, 1868950
SM 2120 B	02/02/2017			02/02/2017 17:22	Julie Michelle Frank	1868951
	02/02/2017			02/02/2017 17:23	Julie Michelle Frank	1868952
	02/02/2017			02/04/2017	Dale L. Simmons	1868949
	02/02/2017			02/07/2017	Dale L. Simmons	1868950
SM 2320 B-97	02/02/2017			02/08/2017	Dale L. Simmons	1868952
	02/02/2017			02/13/2017	Dale L. Simmons	1868951
	02/02/2017			02/07/2017	Sima Feizi	1868949, 1868950, 1868951, 1868952
	02/02/2017			02/07/2017	Sima Feizi	1868949, 1868950, 1868951, 1868952
SM 2540 C-97	02/02/2017			02/04/2017	Dale L. Simmons	1868949
SM 2540 D-97	02/02/2017			02/07/2017	Dale L. Simmons	1868950, 1868951
SM 4500 F-C-97	02/02/2017			02/08/2017	Dale L. Simmons	1868952
	02/02/2017					
	02/02/2017					
SM 5310 B-00	02/02/2017			02/04/2017	Julie Michelle Frank	1868953, 1868954, 1868955, 1868956