

Chemical Analysis Report

NW-DIST-2017-05-02-01

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

Event Description: **WALTON COUNTY RUN WBID 246 269 160 167 167A**
Request ID: **RQ-2017-04-24-17**
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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-MAY-2017 14:53

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: SHAOL RIVER ABV LAIRD ROAD

Collection Date/Time: 05/01/2017 11:20

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895259	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P324454	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P324790	
		Sulfate	0.98		mg SO4/L	P324793	
	SM 2120 B	Color (true)	46		PCU	P324415	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P325152	
	SM 2540 C-97	TDS	40		mg/L	P324879	
	SM 2540 D-97	TSS	9	I	mg/L	P324928	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325154	
1895264	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P324525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P324535	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.52		mg N/L	P324608	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P324540	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P324518	
1895269	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P324409	

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: GUM CREEK ABV HWY 331

Collection Date/Time: 05/01/2017 11:50

Field ID: G4NW0407

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895260	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P324454	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P324790	
		Sulfate	0.44	I	mg SO4/L	P324793	
	SM 2120 B	Color (true)	90		PCU	P324415	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P325152	
	SM 2540 C-97	TDS	35		mg/L	P324879	
	SM 2540 D-97	TSS	5	I	mg/L	P324928	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325154	
1895265	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P324525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P324535	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.50		mg N/L	P324608	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P324541	
	SM 5310 B-00	Organic Carbon	5.8		mg C/L	P324518	
1895270	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P324409	

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: HUCKLEBERRY CREEK ABV 1883

Collection Date/Time: 05/01/2017 12:15

Field ID: G3NW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895261	EPA 180.1 Rev. 2.0	Turbidity	3.3	A	NTU	P324455	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P324790	
		Sulfate	0.49	I	mg SO4/L	P324793	

Field ID: G3NW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895261	SM 2120 B	Color (true)	89		PCU	P324415	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P325152	
	SM 2540 C-97	TDS	34		mg/L	P324879	
	SM 2540 D-97	TSS	4	I	mg/L	P324928	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325154	
1895266	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P324525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P324535	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P324608	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P324541	
	SM 5310 B-00	Organic Carbon	5.7		mg C/L	P324518	
1895271	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324409	

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: WEST SANDY CREEK @ CR 183

Collection Date/Time: 05/01/2017 12:35

Field ID: G3NW0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895262	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P324455	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P324790	
		Sulfate	3.1		mg SO4/L	P324793	
	SM 2120 B	Color (true)	71	A	PCU	P324415	
	SM 2320 B-97	Total Alkalinity	6.7		mg CaCO3/L	P325152	
	SM 2540 C-97	TDS	39		mg/L	P324879	
	SM 2540 D-97	TSS	5	I	mg/L	P324928	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325154	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P324525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P324536	
1895267	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P324608	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P324541	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P324518	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324410	

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: GUM CREEK BONITA DRIVE ACCESS

Collection Date/Time: 05/01/2017 13:30

Field ID: G4NW0382

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895263	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P324455	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P324790	
		Sulfate	0.73		mg SO4/L	P324793	
	SM 2120 B	Color (true)	61		PCU	P324415	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P325152	
	SM 2540 C-97	TDS	24	I	mg/L	P324879	
	SM 2540 D-97	TSS	4	I	mg/L	P324928	

Field ID: G4NW0382

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895263	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325154	
1895268	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P324525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P324536	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.55		mg N/L	P324608	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P324541	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P324518	
1895273	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324410	

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: P324454

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P324455

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P324790

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P324793

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P324525

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P324535

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P324536

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324608

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324540

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324541

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324409

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324410

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

Reference Method: SM 2120 B
Batch ID: P324415

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325152

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

Reference Method: SM 2540 C-97
Batch ID: P324879

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324928

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P325154

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P324518

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: P324790

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324525

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324536

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: P324608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324540

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P324540

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: P324541

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P324409

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: P324410

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

Reference Method: SM 2320 B-97
 Batch ID: P325152

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

Reference Method: SM 4500 F-C-97
 Batch ID: P325154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.4		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P324518

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P324790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895455	Chloride	101		P	90 - 110
1895456	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895455	Sulfate	102		P	90 - 110
1895456	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895264	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895237	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895495	Kjeldahl Nitrogen	96.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895266	NO2NO3-N	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895185	Total-P	98.0	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895415	Total-P	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895234	O-Phosphate-P	96.4	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895272	O-Phosphate-P	99.8	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896336	Fluoride	95.1	96.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P324518

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895164	Organic Carbon	95.6	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895182	Turbidity	2.49	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895261	Turbidity	2.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895455	Chloride	0.0934	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895455	Sulfate	8.56	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895264	Ammonia-N	0.645	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895237	Kjeldahl Nitrogen	0.366	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895495	Kjeldahl Nitrogen	4.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895266	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895185	Total-P	5.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895415	Total-P	2.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895234	O-Phosphate-P	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895272	O-Phosphate-P	1.51	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P324415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895262	Color (true)	2.47	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P325152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896336	Total Alkalinity	0.472	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P324879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895231	TDS	3.36	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896336	Fluoride	0.960	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P324518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895164	Organic Carbon	0.431	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: A76127
Included Lab Sample IDs: 1895269, 1895270, 1895271, 1895272, 1895273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.1	P/P	90 - 110
O-Phosphate-P	99.1	98.5	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A76130
Included Lab Sample IDs: 1895259, 1895260, 1895261, 1895262, 1895263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	105	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76139
Included Lab Sample IDs: 1895259, 1895260, 1895261, 1895262, 1895263

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76139

Included Lab Sample IDs: 1895259, 1895260, 1895261, 1895262, 1895263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76148

Included Lab Sample IDs: 1895259, 1895260, 1895261, 1895262, 1895263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	106	P/P	90 - 110
Sulfate	98.4	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76159

Included Lab Sample IDs: 1895264, 1895265, 1895266, 1895267, 1895268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76160

Included Lab Sample IDs: 1895264, 1895265, 1895266, 1895267, 1895268

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76178

Included Lab Sample IDs: 1895264, 1895265, 1895266, 1895267, 1895268

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76240

Included Lab Sample IDs: 1895264, 1895265, 1895266, 1895267, 1895268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76364

Included Lab Sample IDs: 1895259, 1895260, 1895261, 1895262, 1895263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76364

Included Lab Sample IDs: 1895259, 1895260, 1895261, 1895262, 1895263

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

Quality Assurance Report Calibration Verification

* 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					2.49	
	Turbidity					2.44	
EPA 300.0 Rev. 2.1	Chloride	104	101	101		0.0934	
	Sulfate	100	102	102		8.56	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	105			0.645
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	100	101			0.366
	Kjeldahl Nitrogen	103	96.8	101			4.08
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	108	104	106			1.53
EPA 365.1 Rev. 2.0	Total-P	103	98.0	105			5.62
	Total-P	99.8	108	106			2.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.4	94.5			1.99
	O-Phosphate-P	99.0	99.8	98.3			1.51
SM 2120 B	Color (true)					2.47	
SM 2320 B-97	Total Alkalinity	103				0.472	
SM 2540 C-97	TDS					3.36	
SM 4500 F-C-97	Fluoride	94.4	95.1	96.4			0.960
SM 5310 B-00	Organic Carbon	98.0	95.6	96.4			0.431

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1895259, 1895260, 1895261, 1895262, 1895263
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1895259, 1895260, 1895261, 1895262, 1895263
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1895259, 1895260, 1895261, 1895262, 1895263
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1895264, 1895265, 1895266, 1895267, 1895268
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1895264, 1895265, 1895266, 1895267, 1895268
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1895264, 1895265, 1895266, 1895267, 1895268
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1895264, 1895265, 1895266, 1895267, 1895268
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1895269, 1895270, 1895271, 1895272, 1895273
SM 2120 B / E31780	True Color measured at 450 nm	1895259, 1895260, 1895261, 1895262, 1895263
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1895259, 1895260, 1895261, 1895262, 1895263
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1895259, 1895260, 1895261, 1895262, 1895263
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1895259, 1895260, 1895261, 1895262, 1895263
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1895259, 1895260, 1895261, 1895262, 1895263

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1895264, 1895265, 1895266, 1895267, 1895268

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	05/02/2017			05/02/2017 17:37	Blanca Fach	1895259, 1895260, 1895261, 1895262, 1895263
EPA 300.0 Rev. 2.1	05/02/2017			05/06/2017	Ping Hua	1895259, 1895260, 1895261, 1895262, 1895263
EPA 350.1 Rev. 2.0	05/02/2017			05/03/2017	Julie Michelle Frank	1895264, 1895265, 1895266, 1895267, 1895268
EPA 351.2 Rev. 2.0	05/02/2017	05/04/2017	Adrian Shelby	05/09/2017	Joseph Suarez	1895264, 1895265, 1895266, 1895267, 1895268
EPA 353.2 Rev. 2.0	05/02/2017			05/04/2017	Beverly Y. Sanders	1895264, 1895265, 1895266, 1895267, 1895268
EPA 365.1 Rev. 2.0	05/02/2017	05/04/2017	Adrian Shelby	05/08/2017	Lipi Saha	1895264, 1895265, 1895266, 1895267, 1895268
EPA 365.1 Rev. 2.0 dissolved	05/02/2017			05/02/2017 14:49	Lipi Saha	1895269
	05/02/2017			05/02/2017 14:50	Lipi Saha	1895270
	05/02/2017			05/02/2017 14:55	Lipi Saha	1895271
	05/02/2017			05/02/2017 14:58	Lipi Saha	1895272
	05/02/2017			05/02/2017 15:00	Lipi Saha	1895273
SM 2120 B	05/02/2017			05/02/2017 16:31	Julia Storbeck	1895262
	05/02/2017			05/02/2017 16:32	Julia Storbeck	1895259
	05/02/2017			05/02/2017 16:33	Julia Storbeck	1895260
	05/02/2017			05/02/2017 16:34	Julia Storbeck	1895261
	05/02/2017			05/02/2017 16:35	Julia Storbeck	1895263
SM 2320 B-97	05/02/2017			05/11/2017	Dale L. Simmons	1895259, 1895260, 1895261, 1895262, 1895263
SM 2540 C-97	05/02/2017			05/03/2017	Yijie Li	1895259, 1895260, 1895261, 1895262, 1895263
SM 2540 D-97	05/02/2017			05/03/2017	Yijie Li	1895259, 1895260, 1895261, 1895262, 1895263
SM 4500 F-C-97	05/02/2017			05/11/2017	Dale L. Simmons	1895259, 1895260, 1895261, 1895262, 1895263
SM 5310 B-00	05/02/2017			05/03/2017	Julie Michelle Frank	1895264, 1895265, 1895266, 1895267, 1895268