

Chemical Analysis Report

NW-DIST-2016-11-18-01

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

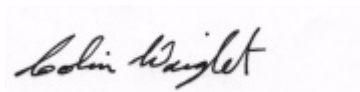
Event Description: **Pens/Cant Run WBID 872A 531 624 291 494 542 478A**
Request ID: **RQ-2016-11-07-29**
Customer: **NW-DIST**
Project ID: **SMP**

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

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 15-DEC-2016 14:34

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: SEVENMILE CREEK UPSTREAM OF
 ALDERBROOK BLVD.**

Collection Date/Time: 11/17/2016 10:40

Field ID: G4NW0345

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851506	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P315470	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P316065	
		Sulfate	0.83		mg SO4/L	P316134	
	SM 2120 B	Color (true)	5.1	I	PCU	P315464	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P315809	
	SM 2540 C-97	TDS	49		mg/L	P315924	
	SM 2540 D-97	TSS	2	I	mg/L	P315927	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316309	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315790	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P316207	
1851511	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P316013	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P315973	
	SM 5310 B-00	Organic Carbon	0.80	I	mg C/L	P315485	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P315473	
	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: SEVENMILE CREEK UPSTREAM OF
 ALDERBROOK BLVD.**

Collection Date/Time: 11/17/2016 10:50

Field ID: field blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851507	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P315470	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P316065	
		Sulfate	0.20	U	mg SO4/L	P316134	
	SM 2120 B	Color (true)	2.5	U	PCU	P315464	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P315809	
	SM 2540 C-97	TDS	15	U	mg/L	P315924	
	SM 2540 D-97	TSS	2	U	mg/L	P315927	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316309	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315790	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P316207	
1851512	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316013	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P315975	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P315485	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	I	mg P/L	P315473	
	dissolved						

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 12/18/2016.

**Sample Location: SEVENMILE CREEK UPSTREAM OF
 QUINTETTE ROAD**

Collection Date/Time: 11/17/2016 11:00

Field ID: G4NW0344

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4NW0344

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851508	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P315471	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P316065	
		Sulfate	0.85		mg SO4/L	P316134	
	SM 2120 B	Color (true)	5.0	I	PCU	P315466	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P315809	
	SM 2540 C-97	TDS	39		mg/L	P315924	
	SM 2540 D-97	TSS	5	I	mg/L	P315927	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316309	
1851513	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315790	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	I	mg N/L	P316210	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.8		mg N/L	P316013	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P315975	
	SM 5310 B-00	Organic Carbon	0.80	I	mg C/L	P315485	
1851518	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315473	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 11/29/2016.

SM 2120 B: The result was confirmed on 11/23/2016.

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

**Sample Location: SEVENMILE CREEK UPSTREAM OF
 QUINTETTE ROAD**

Collection Date/Time: 11/17/2016 11:10

Field ID: G4NW0344DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851509	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P315471	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P316065	
		Sulfate	0.90		mg SO4/L	P316134	
	SM 2120 B	Color (true)	7.5		PCU	P315466	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P315809	
	SM 2540 C-97	TDS	41		mg/L	P315924	
	SM 2540 D-97	TSS	4	I	mg/L	P315927	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316309	
1851514	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P315790	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	IJ	mg N/L	P316210	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.8		mg N/L	P316013	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P315975	
	SM 5310 B-00	Organic Carbon	0.85	I	mg C/L	P315485	
1851519	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P315473	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 11/29/2016.

SM 2120 B: The sample was reanalyzed on 11/29/2016. The result was 3.9 I Q PCU.

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: Refer to the narrative for an explanation of QC Codes.

Sample Location: WHITE OAK BAYOU END OF AEGEAN DR.

Collection Date/Time: 11/17/2016 12:05

Field ID: G4NW0386

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G4NW0386

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851510	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P315471	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+04		mg Cl/L	P316065	
		Sulfate	1.6E+03		mg SO4/L	P316134	
	SM 2120 B	Color (true)	11		PCU	P315466	
	SM 2320 B-97	Total Alkalinity	74		mg CaCO3/L	P315588	
	SM 2540 C-97	TDS	2.35E+04		mg/L	P315925	
	SM 2540 D-97	TSS	4	I	mg/L	P315929	
	SM 4500 F-C-97	Fluoride	0.58		mg F/L	P315593	
1851515	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P315785	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P316243	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P315917	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P315974	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P315739	
1851520	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P315474	

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: P315470

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P315471

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P316065

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P316134

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P315785

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315790

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316207

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316210

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316243

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316013

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315973

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315974

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315975

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315473

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315474

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

Reference Method: SM 2120 B
Batch ID: P315464

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P315466

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P315588

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

Reference Method: SM 2320 B-97
Batch ID: P315809

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

Reference Method: SM 2540 C-97
Batch ID: P315924

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P315925

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P315927

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P315929

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P315593

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P316309

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P315485

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

Reference Method: SM 5310 B-00
 Batch ID: P315739

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: P316065

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P316134

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P315785

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P315790

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315790

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316210

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: P316243

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: P315917

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315973

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315974

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: P315975

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315473

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: P315474

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

Reference Method: SM 2320 B-97
Batch ID: P315588

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P315809

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

Reference Method: SM 4500 F-C-97
Batch ID: P315593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.4		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P316309

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

Reference Method: SM 5310 B-00
Batch ID: P315485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P315739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316065

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849598	Chloride	100		P	90 - 110
1851137	Chloride	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316134

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1854429	Sulfate	107		P	90 - 110
1854432	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1850538	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851139	Ammonia-N	99.2	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851511	Kjeldahl Nitrogen	101	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851514	Kjeldahl Nitrogen	109	111	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851483	Kjeldahl Nitrogen	100	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851481	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851458	NO2NO3-N	98.8	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851394	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851928	Total-P	94.2	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851553	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851516	O-Phosphate-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851520	O-Phosphate-P	97.7	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P315593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849998	Fluoride	97.2	97.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P316309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852055	Fluoride	96.1	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P315485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851394	Organic Carbon	92.4	93.9	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P315739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1849999	Organic Carbon	96.1	95.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851427	Turbidity	0.441	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851508	Turbidity	9.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849598	Chloride	0.0783	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316134

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1854432	Sulfate	0.466	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1850538	Ammonia-N	1.43	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851139	Ammonia-N	1.94	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851511	Kjeldahl Nitrogen	3.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851514	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851483	Kjeldahl Nitrogen	0.698	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851481	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851458	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851394	Total-P	0.258	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851928	Total-P	0.757	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851553	Total-P	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851516	O-Phosphate-P	0.583	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P315474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851520	O-Phosphate-P	2.04	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P315464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851457	Color (true)	2.56	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P315466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851549	Color (true)	3.31	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P315588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851165	Total Alkalinity	0.00218	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P315809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852055	Total Alkalinity	0.568	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P315924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851427	TDS	6.38	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P315925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851552	TDS	5.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P315593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849998	Fluoride	0.494	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P316309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852055	Fluoride	1.55	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P315485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851394	Organic Carbon	1.57	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P315739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1849999	Organic Carbon	0.309	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A72897
Included Lab Sample IDs: 1851506, 1851507, 1851508, 1851509, 1851510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	85 - 115
Color (true)	100	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A72900
Included Lab Sample IDs: 1851506, 1851507, 1851508, 1851509, 1851510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A72902
Included Lab Sample IDs: 1851516, 1851517, 1851518, 1851519, 1851520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	98.0	P/P	90 - 110
O-Phosphate-P	98.0	96.7	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A72907
Included Lab Sample IDs: 1851511, 1851512, 1851513, 1851514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	97.0	P/P	90 - 110
Organic Carbon	97.6	96.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A72956
Included Lab Sample IDs: 1851510

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

Reference Method: SM 4500 F-C-97
Run ID: A72956
Included Lab Sample IDs: 1851510

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

Reference Method: SM 5310 B-00
Run ID: A73009
Included Lab Sample IDs: 1851515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73030
Included Lab Sample IDs: 1851511, 1851512, 1851513, 1851514, 1851515

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

Reference Method: SM 2320 B-97
Run ID: A73035
Included Lab Sample IDs: 1851506, 1851507, 1851508, 1851509

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73081
Included Lab Sample IDs: 1851515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73111
Included Lab Sample IDs: 1851511, 1851512, 1851513, 1851514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	93.0	92.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73131
Included Lab Sample IDs: 1851506, 1851507, 1851508, 1851509, 1851510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73131

Included Lab Sample IDs: 1851506, 1851507, 1851508, 1851509, 1851510

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	98.9	P/P	90 - 110
Chloride	98.9	103	P/P	90 - 110
Sulfate	105	108	P/P	90 - 110
Sulfate	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73171

Included Lab Sample IDs: 1851511, 1851512, 1851513, 1851514, 1851515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	99.5	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73217

Included Lab Sample IDs: 1851506, 1851507, 1851508, 1851509

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: A73229

Included Lab Sample IDs: 1851511, 1851512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.3	94.6	P/P	90 - 110
Kjeldahl Nitrogen	95.5	92.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73234

Included Lab Sample IDs: 1851515

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73242

Included Lab Sample IDs: 1851513, 1851514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	101	P/P	90 - 110
Kjeldahl Nitrogen	98.6	94.3	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	MS
EPA 180.1 Rev. 2.0	Turbidity				0.441	
	Turbidity				9.33	
EPA 300.0 Rev. 2.1	Chloride	101	100	95.4	0.0783	
	Sulfate	101	104	107	0.466	
EPA 350.1 Rev. 2.0	Ammonia-N	96.3	102	101		1.43
	Ammonia-N	101	99.2	97.2		1.94
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	101	97.3		3.82
	Kjeldahl Nitrogen	103	111	109		1.64
	Kjeldahl Nitrogen	103	100	99.5		0.698
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	102		0.0
	NO2NO3-N	99.0	98.8	98.8		0.0
EPA 365.1 Rev. 2.0	Total-P	105	105	105		0.258
	Total-P	103	94.2	94.9		0.757
	Total-P	105	102	103		1.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	103	103		0.583
	O-Phosphate-P	104	97.7	99.8		2.04
SM 2120 B	Color (true)				2.56	
	Color (true)				3.31	
SM 2320 B-97	Total Alkalinity	102			0.0021	
	Total Alkalinity	103			0.568	
SM 2540 C-97	TDS				6.38	
	TDS				5.08	
SM 4500 F-C-97	Fluoride	94.4	97.2	97.9		0.494
	Fluoride	98.8	96.1	97.8		1.55
SM 5310 B-00	Organic Carbon	97.7	92.4	93.9		1.57
	Organic Carbon	97.8	96.1	95.7		0.309

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1851506, 1851507, 1851508, 1851509, 1851510
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1851506, 1851507, 1851508, 1851509, 1851510
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1851506, 1851507, 1851508, 1851509, 1851510
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1851511, 1851512, 1851513, 1851514, 1851515
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1851511, 1851512, 1851513, 1851514, 1851515
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1851511, 1851512, 1851513, 1851514, 1851515
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1851511, 1851512, 1851513, 1851514, 1851515
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1851516, 1851517, 1851518, 1851519, 1851520
SM 2120 B / E31780	True Color measured at 450 nm	1851506, 1851507, 1851508, 1851509, 1851510
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1851506, 1851507, 1851508, 1851509, 1851510
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1851506, 1851507, 1851508, 1851509, 1851510
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1851506, 1851507, 1851508, 1851509, 1851510
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1851506, 1851507, 1851508, 1851509, 1851510

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1851511, 1851512, 1851513, 1851514, 1851515

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	11/18/2016			11/18/2016 14:00	Sima Feizi	1851506, 1851507, 1851508, 1851509, 1851510
EPA 300.0 Rev. 2.1	11/18/2016			12/02/2016	Ping Hua	1851506, 1851507, 1851508, 1851509, 1851510
	11/18/2016			12/03/2016	Ping Hua	1851506, 1851507, 1851508, 1851509, 1851510
EPA 350.1 Rev. 2.0	11/18/2016			11/28/2016	Sofia Elnemr	1851511, 1851512, 1851513, 1851514, 1851515
EPA 351.2 Rev. 2.0	11/18/2016	12/06/2016	Adrian Shelby	12/07/2016	Joseph Suarez	1851515
	11/18/2016	12/06/2016	Martin Acosta	12/07/2016	Joseph Suarez	1851511, 1851512
	11/18/2016	12/06/2016	Martin Acosta	12/08/2016	Joseph Suarez	1851513, 1851514
EPA 353.2 Rev. 2.0	11/18/2016			11/30/2016	Beverly Y. Sanders	1851515
	11/18/2016			12/01/2016	Beverly Y. Sanders	1851511, 1851512, 1851513, 1851514
EPA 365.1 Rev. 2.0	11/18/2016	12/01/2016	Christopher Armour	12/05/2016	Lipi Saha	1851511, 1851512, 1851513, 1851514, 1851515
EPA 365.1 Rev. 2.0 dissolved	11/18/2016			11/18/2016 16:09	Julia Storbeck	1851516
	11/18/2016			11/18/2016 16:14	Julia Storbeck	1851520
	11/18/2016			11/18/2016 16:20	Julia Storbeck	1851517
	11/18/2016			11/18/2016 16:21	Julia Storbeck	1851518
	11/18/2016			11/18/2016 16:22	Julia Storbeck	1851519
SM 2120 B	11/18/2016			11/18/2016 14:27	Jared I. Manley	1851506
	11/18/2016			11/18/2016 14:28	Jared I. Manley	1851507
	11/18/2016			11/18/2016 14:33	Jared I. Manley	1851508, 1851509
	11/18/2016			11/18/2016 14:34	Jared I. Manley	1851510
SM 2320 B-97	11/18/2016			11/21/2016	Dale L. Simmons	1851510
	11/18/2016			11/29/2016	Dale L. Simmons	1851506, 1851507, 1851508, 1851509
SM 2540 C-97	11/18/2016			11/22/2016	Yijie Li	1851506, 1851507, 1851508, 1851509, 1851510
SM 2540 D-97	11/18/2016			11/22/2016	Yijie Li	1851506, 1851507, 1851508, 1851509, 1851510
SM 4500 F-C-97	11/18/2016			11/21/2016	Dale L. Simmons	1851510
	11/18/2016			12/07/2016	Dale L. Simmons	1851506, 1851507, 1851508, 1851509
SM 5310 B-00	11/18/2016			11/18/2016	Julie Michelle Frank	1851511, 1851512, 1851513, 1851514
	11/18/2016			11/23/2016	Julie Michelle Frank	1851515