

Chemical Analysis Report

SO-DIST-2017-03-02-01

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

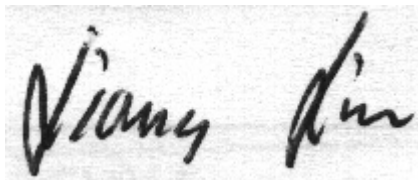
Event Description: **SMP: Fenceline, Bowlegs, Josephine, Grassy, Arb Br**
Request ID: **RQ-2017-02-13-22**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 29-MAR-2017 09:49

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Little Charley Bowlegs Ck, HHSP

Collection Date/Time: 03/01/2017 09:40

Field ID: G3SD030117-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877151	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P320868	
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P321675	
		Sulfate	2.2	AJ	mg SO4/L	P321678	MS
	SM 2120 B	Color (true)	250		PCU	P320876	
	SM 2320 B-97	Total Alkalinity	9.5		mg CaCO3/L	P321321	
	SM 2540 C-97	TDS	84		mg/L	P321685	
	SM 2540 D-97	TSS	5	I	mg/L	P321318	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P321324	
1877156	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P321119	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P321438	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.080		mg N/L	P321079	
	EPA 365.1 Rev. 2.0	Total-P	0.44		mg P/L	P321066	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P320941	
1877161	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.40		mg P/L	P320858	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Refer to the narrative for an explanation of QC Codes.

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

Sample Location: Josephine Creek just East of CR 17

Collection Date/Time: 03/01/2017 11:20

Field ID: G4SD030117-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877152	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P320868	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P321676	
		Sulfate	26		mg SO4/L	P321679	
	SM 2120 B	Color (true)	61		PCU	P320876	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P321321	
	SM 2540 C-97	TDS	107		mg/L	P321685	
	SM 2540 D-97	TSS	5	I	mg/L	P321318	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P321324	
1877157	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P321119	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P321438	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.75		mg N/L	P321079	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P321066	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P320941	
1877162	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P320858	

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: Grassy Creek site 3 on 621 East

Collection Date/Time: 03/01/2017 12:20

Field ID: G4SD030117-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877153	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P320868	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P321676	

Field ID: G4SD030117-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877153	EPA 300.0 Rev. 2.1	Sulfate	25		mg SO4/L	P321679	
	SM 2120 B	Color (true)	62		PCU	P320876	
	SM 2320 B-97	Total Alkalinity	7.0		mg CaCO3/L	P321321	
	SM 2540 C-97	TDS	129		mg/L	P321685	
	SM 2540 D-97	TSS	4	I	mg/L	P321318	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P321324	
1877158	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P321551	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P321438	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P321079	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P321066	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P320941	
1877163	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P320858	

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: Arbuckle Branch @ Arbuckle Creek Rd

Collection Date/Time: 03/01/2017 10:30

Field ID: G4SD030117-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877154	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P320868	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P321676	
		Sulfate	38		mg SO4/L	P321679	
	SM 2120 B	Color (true)	50		PCU	P320876	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P321321	
	SM 2540 C-97	TDS	196		mg/L	P321685	
	SM 2540 D-97	TSS	6	I	mg/L	P321318	
1877159	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P321324	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P321120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P321438	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P321080	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P321066	
1877164	SM 5310 B-00	Organic Carbon	15		mg C/L	P320941	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P320858	

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: Arbuckle Branch - DUP

Collection Date/Time: 03/01/2017 10:35

Field ID: G4SD030117-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877155	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P320868	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P321676	
		Sulfate	38		mg SO4/L	P321679	
	SM 2120 B	Color (true)	47		PCU	P320876	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P321321	
	SM 2540 C-97	TDS	190		mg/L	P321685	

Field ID: G4SD030117-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1877155	SM 2540 D-97	TSS	6	I	mg/L	P321318	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P321324	
1877160	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P321120	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P321438	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P321080	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P321066	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P320941	
1877165	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320858	

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: P320868

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321675

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321676

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321678

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P321679

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P321119

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: P321120

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321551

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321438

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321079

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: P321080

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: P321066

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320858

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

Reference Method: SM 2120 B
Batch ID: P320876

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P321321

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P321685

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321318

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P321324

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320941

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: P321675

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321676

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321678

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321679

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321119

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: P321119

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321120

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321551

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321438

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321079

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321080

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320858

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

Reference Method: SM 2320 B-97
Batch ID: P321321

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: P321324

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

Reference Method: SM 5310 B-00
Batch ID: P320941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876992	Chloride	98.0		P	90 - 110
1877151	Chloride	93.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877152	Chloride	101		P	90 - 110
1877205	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876992	Sulfate	96.2		P	90 - 110
1877151	Sulfate	89.6		F	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877152	Sulfate	98.7		P	90 - 110
1877205	Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877086	Ammonia-N	98.9	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877160	Ammonia-N	99.1	99.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876861	Ammonia-N	99.7	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877159	Kjeldahl Nitrogen	104	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877086	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877170	NO2NO3-N	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877130	Total-P	102	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877060	O-Phosphate-P	94.8	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P321324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1876994	Fluoride	101	99.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1877085	Organic Carbon	98.3	96.6	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877123	Turbidity	2.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877151	Chloride	0.0208	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877205	Chloride	0.171	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877151	Sulfate	1.89	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P321679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877205	Sulfate	0.430	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877086	Ammonia-N	0.442	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877160	Ammonia-N	0.457	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876861	Ammonia-N	0.118	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877159	Kjeldahl Nitrogen	1.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877086	NO2NO3-N	0.939	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877170	NO2NO3-N	2.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877130	Total-P	1.60	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877060	O-Phosphate-P	1.36	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P320876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877167	Color (true)	1.13	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P321321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876994	Total Alkalinity	0.195	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P321685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877129	TDS	0.871	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P321324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1876994	Fluoride	0.953	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1877085	Organic Carbon	1.01	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: A74855
Included Lab Sample IDs: 1877161, 1877162, 1877163, 1877164, 1877165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.4	P/P	90 - 110
O-Phosphate-P	99.3	98.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74856
Included Lab Sample IDs: 1877151, 1877152, 1877153, 1877154, 1877155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A74857
Included Lab Sample IDs: 1877151, 1877152, 1877153, 1877154, 1877155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.6	95.3	P/P	85 - 115
Color (true)	95.2	97.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A74885
Included Lab Sample IDs: 1877156, 1877157, 1877158, 1877159, 1877160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	98.1	P/P	90 - 110
Organic Carbon	98.7	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74934

Included Lab Sample IDs: 1877156, 1877157, 1877158, 1877159, 1877160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.0	P/P	90 - 110
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74946

Included Lab Sample IDs: 1877156, 1877157, 1877159, 1877160

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74987

Included Lab Sample IDs: 1877157, 1877158, 1877159, 1877160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.8	P/P	90 - 110
Total-P	98.8	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74996

Included Lab Sample IDs: 1877156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.9	97.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75009

Included Lab Sample IDs: 1877151, 1877152, 1877153, 1877154, 1877155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	109	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75009

Included Lab Sample IDs: 1877151, 1877152, 1877153, 1877154, 1877155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	98.5	P/P	90 - 110
Fluoride	98.5	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75088

Included Lab Sample IDs: 1877156, 1877157, 1877158, 1877159, 1877160

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	107	P/P	90 - 110
Kjeldahl Nitrogen	107	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75099

Included Lab Sample IDs: 1877158

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75123

Included Lab Sample IDs: 1877151, 1877152, 1877153, 1877154, 1877155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				2.34	
EPA 300.0 Rev. 2.1	Chloride	102	93.0 98.0		0.0208	
	Chloride	103	101 101		0.171	
	Sulfate	95.3	89.6 96.2		1.89	
	Sulfate	100	99.9 98.7		0.430	
EPA 350.1 Rev. 2.0	Ammonia-N	105	98.9 98.3			0.442
	Ammonia-N	103	99.1 99.9			0.457
	Ammonia-N	102	99.7 99.6			0.118
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	104 107			1.61
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101 102			0.939
	NO2NO3-N	103	101 104			2.01
EPA 365.1 Rev. 2.0	Total-P	96.8	102 99.9			1.60
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	94.8 96.1			1.36
SM 2120 B	Color (true)				1.13	
SM 2320 B-97	Total Alkalinity	103			0.195	
SM 2540 C-97	TDS				0.871	
SM 4500 F-C-97	Fluoride	97.4	101 99.4			0.953
SM 5310 B-00	Organic Carbon	98.7	98.3 96.6			1.01

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1877151, 1877152, 1877153, 1877154, 1877155
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1877151, 1877152, 1877153, 1877154, 1877155
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1877151, 1877152, 1877153, 1877154, 1877155

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1877156, 1877157, 1877158, 1877159, 1877160
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1877156, 1877157, 1877158, 1877159, 1877160
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1877156, 1877157, 1877158, 1877159, 1877160
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1877156, 1877157, 1877158, 1877159, 1877160
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1877161, 1877162, 1877163, 1877164, 1877165
SM 2120 B / E31780	True Color measured at 450 nm	1877151, 1877152, 1877153, 1877154, 1877155
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1877151, 1877152, 1877153, 1877154, 1877155
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1877151, 1877152, 1877153, 1877154, 1877155
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1877151, 1877152, 1877153, 1877154, 1877155
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1877151, 1877152, 1877153, 1877154, 1877155
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1877156, 1877157, 1877158, 1877159, 1877160

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	03/02/2017			03/02/2017 15:50	Sima Feizi	1877151, 1877152, 1877153, 1877154, 1877155
EPA 300.0 Rev. 2.1	03/02/2017			03/15/2017	Elisa J Lutz	1877151
	03/02/2017			03/16/2017	Elisa J Lutz	1877152, 1877153, 1877154, 1877155
EPA 350.1 Rev. 2.0	03/02/2017			03/07/2017	Sofia Elnemr	1877156, 1877157, 1877159, 1877160
	03/02/2017			03/14/2017	Sofia Elnemr	1877158
EPA 351.2 Rev. 2.0	03/02/2017	03/13/2017	Adrian Shelby	03/14/2017	Joseph Suarez	1877156, 1877157, 1877158, 1877159, 1877160
EPA 353.2 Rev. 2.0	03/02/2017			03/07/2017	Beverly Y. Sanders	1877156, 1877157, 1877158, 1877159, 1877160
EPA 365.1 Rev. 2.0	03/02/2017	03/07/2017	Adrian Shelby	03/08/2017	Lipi Saha	1877156
	03/02/2017	03/07/2017	Adrian Shelby	03/09/2017	Lipi Saha	1877157, 1877158, 1877159, 1877160
EPA 365.1 Rev. 2.0 dissolved	03/02/2017			03/02/2017 15:10	Julia Storbeck	1877161
	03/02/2017			03/02/2017 15:14	Julia Storbeck	1877162
	03/02/2017			03/02/2017 15:15	Julia Storbeck	1877163, 1877164
	03/02/2017			03/02/2017 15:21	Julia Storbeck	1877165
SM 2120 B	03/02/2017			03/02/2017 17:22	Julie Michelle Frank	1877152
	03/02/2017			03/02/2017 17:23	Julie Michelle Frank	1877153, 1877154
	03/02/2017			03/02/2017 17:24	Julie Michelle Frank	1877155
	03/02/2017			03/02/2017 17:53	Julie Michelle Frank	1877151
SM 2320 B-97	03/02/2017			03/09/2017	Dale L. Simmons	1877151, 1877152, 1877153, 1877154, 1877155
SM 2540 C-97	03/02/2017			03/06/2017	Sima Feizi	1877151, 1877152, 1877153, 1877154, 1877155
SM 2540 D-97	03/02/2017			03/06/2017	Sima Feizi	1877151, 1877152, 1877153, 1877154, 1877155
SM 4500 F-C-97	03/02/2017			03/09/2017	Dale L. Simmons	1877151, 1877152, 1877153, 1877154, 1877155
SM 5310 B-00	03/02/2017			03/03/2017	Julie Michelle Frank	1877156, 1877157, 1877158, 1877159, 1877160