

Chemical Analysis Report

SO-DIST-2017-10-10-01

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

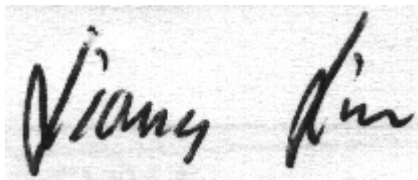
Event Description: **SMP: L-28 Tieback, C-139s, Drain of Corkscrew**
Request ID: **RQ-2017-08-14-03**
Customer: **SO-DIST**
Project ID: **SMP**

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

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-OCT-2017 11:55

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: L-28 Tieback @ 1-75

Collection Date/Time: 10/09/2017 11:50

Field ID: G1SD100917-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935135	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P333094	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P333239	
		Sulfate	3.6		mg SO4/L	P333242	
	SM 2120 B	Color (true)	130		PCU	P333100	
	SM 2320 B-97	Total Alkalinity	171		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	249		mg/L	P333823	
	SM 2540 D-97	TSS	3	I	mg/L	P333281	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P333526	
1935140	EPA 350.1 Rev. 2.0	Ammonia-N	0.087		mg N/L	P333392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P333459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P333337	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P333186	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P333653	
1935145	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.074		mg P/L	P333131	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: L-28 Tieback @ 1-75

Collection Date/Time: 10/09/2017 11:55

Field ID: G1SD100917-4 DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935136	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P333094	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P333239	
		Sulfate	3.8		mg SO4/L	P333242	
	SM 2120 B	Color (true)	130		PCU	P333100	
	SM 2320 B-97	Total Alkalinity	170		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	242		mg/L	P333823	
	SM 2540 D-97	TSS	2	I	mg/L	P333281	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P333526	
1935141	EPA 350.1 Rev. 2.0	Ammonia-N	0.087		mg N/L	P333392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P333459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P333337	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P333186	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P333653	
1935146	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P333131	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: C-139 Annex @ Half Bridge Rd.

Collection Date/Time: 10/09/2017 11:10

Field ID: G1SD100917-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935137	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P333094	

Field ID: G1SD100917-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935137	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P333239	
		Sulfate	3.4		mg SO4/L	P333242	
	SM 2120 B	Color (true)	190		PCU	P333100	
	SM 2320 B-97	Total Alkalinity	120		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	199		mg/L	P333823	
	SM 2540 D-97	TSS	2	I	mg/L	P333281	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P333526	
1935142	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P333393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P333413	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333337	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P333186	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P333653	
1935147	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P333131	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: C-139 - SE

Collection Date/Time: 10/09/2017 10:15

Field ID: G1SD100917-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935138	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P333094	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P333239	
		Sulfate	4.9		mg SO4/L	P333242	
	SM 2120 B	Color (true)	240		PCU	P333100	
	SM 2320 B-97	Total Alkalinity	105		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	203		mg/L	P333823	
	SM 2540 D-97	TSS	5	I	mg/L	P333281	
1935143	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P333526	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P333393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P333413	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P333337	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P333186	
1935148	SM 5310 B-00	Organic Carbon	25		mg C/L	P333653	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P333131	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Drainage Ditch @ CR 850

Collection Date/Time: 10/09/2017 08:50

Field ID: g1sd100917-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935139	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P333094	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P333239	
		Sulfate	23		mg SO4/L	P333242	

Field ID: g1sd100917-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935139	SM 2120 B	Color (true)	110		PCU	P333100	
	SM 2320 B-97	Total Alkalinity	149		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	247		mg/L	P333823	
	SM 2540 D-97	TSS	16		mg/L	P333281	
	SM 4500 F-C-97	Fluoride	0.093	I	mg F/L	P333526	
1935144	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P333393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P333413	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P333337	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P333186	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P333653	
1935149	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P333131	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P333094

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333239

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333242

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333392

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333393

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P333413

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333459

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333337

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: P333186

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333131

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

Reference Method: SM 2120 B
Batch ID: P333100

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333523

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

Reference Method: SM 2540 C-97
Batch ID: P333823

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333281

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333526

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
 Batch ID: P333653

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: P333239

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333392

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P333393

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P333413

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P333459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P333337

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P333186

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: P333186

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333131

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P333523

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

Reference Method: SM 4500 F-C-97
Batch ID: P333526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P333653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935026	Chloride	101		P	90 - 110
1935059	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935026	Sulfate	95.9		P	90 - 110
1935059	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934982	Ammonia-N	99.8	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935142	Ammonia-N	100	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935151	Kjeldahl Nitrogen	96.9	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935028	Kjeldahl Nitrogen	107	110	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935127	NO2NO3-N	97.6	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935142	Total-P	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935152	O-Phosphate-P	95.5	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P333526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935177	Fluoride	101	102	P/P	91 - 105

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P333094

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934872	Turbidity	2.43	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935026	Chloride	1.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935026	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934982	Ammonia-N	0.348	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935142	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935151	Kjeldahl Nitrogen	4.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935028	Kjeldahl Nitrogen	2.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935127	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935142	Total-P	2.42	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935152	O-Phosphate-P	1.15	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P333100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935153	Color (true)	2.67	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935177	Total Alkalinity	0.0131	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935150	TDS	3.66	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935177	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P333653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934955	Organic Carbon	1.33	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 180.1 Rev. 2.0
Run ID: A79470
Included Lab Sample IDs: 1935135, 1935136, 1935137, 1935138, 1935139

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A79471

Included Lab Sample IDs: 1935135, 1935136, 1935137, 1935138, 1935139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	85 - 115
Color (true)	97.5	103	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79473

Included Lab Sample IDs: 1935135, 1935136, 1935137, 1935138, 1935139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	104	P/P	90 - 110
Chloride	104	103	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A79477

Included Lab Sample IDs: 1935145, 1935146, 1935147, 1935148, 1935149

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79509

Included Lab Sample IDs: 1935140, 1935141, 1935142, 1935143, 1935144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79536

Included Lab Sample IDs: 1935140, 1935141, 1935142, 1935143, 1935144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79555

Included Lab Sample IDs: 1935140, 1935141, 1935142, 1935143, 1935144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79605

Included Lab Sample IDs: 1935142, 1935143, 1935144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A79620

Included Lab Sample IDs: 1935135, 1935136, 1935137, 1935138, 1935139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79620

Included Lab Sample IDs: 1935135, 1935136, 1935137, 1935138, 1935139

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79645

Included Lab Sample IDs: 1935140, 1935141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A79655

Included Lab Sample IDs: 1935140, 1935141, 1935142, 1935143, 1935144

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	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				2.43	
EPA 300.0 Rev. 2.1	Chloride	100	101	100	1.25	
	Sulfate	96.7	95.9	96.8	1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	99.8	101		0.348
	Ammonia-N	100	100	97.1		1.91
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	96.9	104		4.54
	Kjeldahl Nitrogen	99.9	107	110		2.34
EPA 353.2 Rev. 2.0	NO2NO3-N	104	97.6	97.6		0.0
EPA 365.1 Rev. 2.0	Total-P	99.0	100	103		2.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	95.5	96.6		1.15
SM 2120 B	Color (true)				2.67	
SM 2320 B-97	Total Alkalinity	102			0.0131	
SM 2540 C-97	TDS				3.66	
SM 4500 F-C-97	Fluoride	99.0	101	102		0.473
SM 5310 B-00	Organic Carbon	101				1.33

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1935135, 1935136, 1935137, 1935138, 1935139
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1935135, 1935136, 1935137, 1935138, 1935139
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1935135, 1935136, 1935137, 1935138, 1935139
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1935140, 1935141, 1935142, 1935143, 1935144
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1935140, 1935141, 1935142, 1935143, 1935144
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1935140, 1935141, 1935142, 1935143, 1935144
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1935140, 1935141, 1935142, 1935143, 1935144
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1935145, 1935146, 1935147, 1935148, 1935149
SM 2120 B / E31780	True Color measured at 450 nm	1935135, 1935136, 1935137, 1935138, 1935139
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1935135, 1935136, 1935137, 1935138, 1935139
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1935135, 1935136, 1935137, 1935138, 1935139
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1935135, 1935136, 1935137, 1935138, 1935139
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1935135, 1935136, 1935137, 1935138, 1935139
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1935140, 1935141, 1935142, 1935143, 1935144

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	10/10/2017			10/10/2017 16:21	DeAsia Armster	1935135, 1935136, 1935137, 1935138, 1935139
EPA 300.0 Rev. 2.1	10/10/2017			10/10/2017	Julia Storbeck	1935135, 1935136, 1935137, 1935138, 1935139
EPA 350.1 Rev. 2.0	10/10/2017			10/13/2017	Sofia Elnemr	1935140, 1935141, 1935142, 1935143, 1935144
EPA 351.2 Rev. 2.0	10/10/2017	10/16/2017	Adrian Shelby	10/17/2017	Virginia P. Brown	1935142, 1935143, 1935144
	10/10/2017	10/16/2017	Sofia Elnemr	10/18/2017	Joseph Suarez	1935140, 1935141
EPA 353.2 Rev. 2.0	10/10/2017			10/13/2017	Beverly Y. Sanders	1935140, 1935141, 1935142, 1935143, 1935144
EPA 365.1 Rev. 2.0	10/10/2017	10/11/2017	Sima Feizi	10/12/2017	Lipi Saha	1935140, 1935141, 1935142, 1935143, 1935144
EPA 365.1 Rev. 2.0 dissolved	10/10/2017			10/10/2017 15:36	Megan Treadwell	1935145
	10/10/2017			10/10/2017 15:37	Megan Treadwell	1935146
	10/10/2017			10/10/2017 15:38	Megan Treadwell	1935148
	10/10/2017			10/10/2017 15:39	Megan Treadwell	1935149
	10/10/2017			10/10/2017 15:53	Megan Treadwell	1935147
SM 2120 B	10/10/2017			10/10/2017 15:58	Julia Storbeck	1935135
	10/10/2017			10/10/2017 15:59	Julia Storbeck	1935136
	10/10/2017			10/10/2017 16:01	Julia Storbeck	1935139
	10/10/2017			10/10/2017 16:51	Julia Storbeck	1935137, 1935138
SM 2320 B-97	10/10/2017			10/17/2017	Dale L. Simmons	1935135, 1935136, 1935137, 1935138, 1935139
SM 2540 C-97	10/10/2017			10/11/2017	Yijie Li	1935135, 1935136, 1935137, 1935138, 1935139
SM 2540 D-97	10/10/2017			10/11/2017	Yijie Li	1935135, 1935136, 1935137, 1935138, 1935139
SM 4500 F-C-97	10/10/2017			10/17/2017	Dale L. Simmons	1935135, 1935136, 1935137, 1935138, 1935139
SM 5310 B-00	10/10/2017			10/19/2017	Ping Hua	1935140, 1935141, 1935142, 1935143, 1935144