

Chemical Analysis Report

SO-DIST-2017-01-26-01

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

Event Description: **SMP: Group 4 Streams**
Request ID: **RQ-2017-01-23-67**
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 33901-3381
Attn: Corey Anderson

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 20-FEB-2017 10:10



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: FENCE LINE DRAIN AT BLUE HEAD RANCH SE Collection Date/Time: 01/25/2017 14:00

Field ID: G3SD012517-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866723	EPA 180.1 Rev. 2.0	Turbidity	50	A	NTU	P318847	
	EPA 300.0 Rev. 2.1	Chloride	69		mg Cl/L	P319054	
		Sulfate	11		mg SO4/L	P319057	
	SM 2120 B	Color (true)	110		PCU	P318816	
	SM 2320 B-97	Total Alkalinity	91		mg CaCO3/L	P318979	
	SM 2540 C-97	TDS	263		mg/L	P319522	
	SM 2540 D-97	TSS	61		mg/L	P319303	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P318983	
1866728	EPA 350.1 Rev. 2.0	Ammonia-N	0.31		mg N/L	P318947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P318821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P318897	
1866733	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P318804	

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: LITTLE CHARLEY BOWLEGS CK, HHSP

Collection Date/Time: 01/25/2017 10:05

Field ID: G4SD012517-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866724	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P318843	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P319055	
		Sulfate	2.3	A	mg SO4/L	P319058	
	SM 2120 B	Color (true)	270		PCU	P318811	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P318979	
	SM 2540 C-97	TDS	90		mg/L	P319522	
	SM 2540 D-97	TSS	2	U	mg/L	P319303	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P318983	
1866729	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P318947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P318821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.45		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	31		mg C/L	P318897	
1866734	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.41		mg P/L	P318804	

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: JOSEPHONE CREEK JUST EAST OF CR 17

Collection Date/Time: 01/25/2017 12:00

Field ID: G4SD012517-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866725	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P318843	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P319054	
		Sulfate	23		mg SO4/L	P319057	

Field ID: G4SD012517-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866725	SM 2120 B	Color (true)	80		PCU	P318811	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P318979	
	SM 2540 C-97	TDS	109		mg/L	P319522	
	SM 2540 D-97	TSS	7	I	mg/L	P319303	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P318983	
1866730	EPA 350.1 Rev. 2.0	Ammonia-N	0.071		mg N/L	P318947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.81		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P318897	
1866735	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P318804	

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: 01/25/2017 13:20

Field ID: G4SD012517-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866726	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P318843	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P319055	
		Sulfate	24		mg SO4/L	P319058	
	SM 2120 B	Color (true)	48		PCU	P318811	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P318979	
	SM 2540 C-97	TDS	81		mg/L	P319522	
	SM 2540 D-97	TSS	3	I	mg/L	P319303	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P318983	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P318947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P318822	
1866731	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P318897	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P318804	

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: 01/25/2017 11:10

Field ID: G4SD012517-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866727	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P318843	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P319055	
		Sulfate	42		mg SO4/L	P319058	
	SM 2120 B	Color (true)	41		PCU	P318812	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P318979	
	SM 2540 C-97	TDS	182		mg/L	P319522	

Field ID: G4SD012517-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866727	SM 2540 D-97	TSS	21		mg/L	P319303	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P318983	
1866732	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P318947	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P318822	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P319078	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P318877	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P318897	
1866737	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P318804	

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: P318843

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318847

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319054

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319055

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319057

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319058

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318947

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318821

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

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: P318877

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318804

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

Reference Method: SM 2120 B
Batch ID: P318811

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P318812

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P318816

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P318979

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

Reference Method: SM 2540 C-97
Batch ID: P319522

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319303

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P318983

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P318897

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: P319054

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319055

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319057

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319058

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319058

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318821

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318822

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318804

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

Reference Method: SM 2320 B-97
Batch ID: P318979

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

Reference Method: SM 4500 F-C-97
Batch ID: P318983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P318897

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P319054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866464	Chloride	102		P	90 - 110
1866725	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P319055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866724	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P319057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866464	Sulfate	97.0		P	90 - 110
1866725	Sulfate	97.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P319058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866724	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P318947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866712	Ammonia-N	96.1	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P318821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866684	Kjeldahl Nitrogen	101	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P318822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866773	Kjeldahl Nitrogen	97.8	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866729	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866715	Total-P	92.6	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866685	O-Phosphate-P	95.7	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866714	Fluoride	96.6	96.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866625	Organic Carbon	97.3	99.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866711	Turbidity	4.50	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866723	Turbidity	2.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866464	Chloride	0.592	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866724	Chloride	1.10	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866464	Sulfate	0.420	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866724	Sulfate	1.59	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866712	Ammonia-N	3.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866684	Kjeldahl Nitrogen	4.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866773	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866729	NO2NO3-N	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866715	Total-P	3.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866685	O-Phosphate-P	3.03	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866717	Color (true)	1.83	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866772	Color (true)	1.19	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866825	Color (true)	11.7	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866714	Total Alkalinity	0.122	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866711	TDS	0.588	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P318983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866714	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866625	Organic Carbon	1.91	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A74133

Included Lab Sample IDs: 1866733, 1866734, 1866735, 1866736, 1866737

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	99.4	P/P	90 - 110
O-Phosphate-P	98.8	98.6	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A74134

Included Lab Sample IDs: 1866723, 1866724, 1866725, 1866726, 1866727

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	85 - 115
Color (true)	98.3	98.7	P/P	85 - 115
Color (true)	98.7	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74142

Included Lab Sample IDs: 1866723, 1866724, 1866725, 1866726, 1866727

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

Reference Method: SM 5310 B-00

Run ID: A74153

Included Lab Sample IDs: 1866728, 1866729, 1866730, 1866731, 1866732

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74164

Included Lab Sample IDs: 1866728, 1866729, 1866730, 1866731, 1866732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	99.8	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74168

Included Lab Sample IDs: 1866731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74169

Included Lab Sample IDs: 1866728, 1866729, 1866730, 1866732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.3	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74173

Included Lab Sample IDs: 1866728, 1866729, 1866730, 1866731, 1866732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.5	94.6	P/P	90 - 110
Kjeldahl Nitrogen	94.6	96.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74180

Included Lab Sample IDs: 1866723, 1866724, 1866725, 1866726, 1866727

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

Reference Method: SM 4500 F-C-97

Run ID: A74180

Included Lab Sample IDs: 1866723, 1866724, 1866725, 1866726, 1866727

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74206

Included Lab Sample IDs: 1866723, 1866724, 1866725, 1866726, 1866727

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	93.3	98.4	P/P	90 - 110
Sulfate	94.3	98.4	P/P	90 - 110
Sulfate	98.4	94.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74209

Included Lab Sample IDs: 1866728, 1866729, 1866730, 1866731, 1866732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	98.0	98.0	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				4.50	
	Turbidity				2.79	
EPA 300.0 Rev. 2.1	Chloride	102	102	102	0.592	
	Chloride	103		103	1.10	
	Sulfate	101	97.0	97.4	0.420	
	Sulfate	101	98.1		1.59	
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	96.1	100		3.36
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.7	101	96.1		4.49
	Kjeldahl Nitrogen	102	97.8	100		2.09
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	101		0.409
EPA 365.1 Rev. 2.0	Total-P	94.6	92.6	96.5		3.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	95.7	98.9		3.03
SM 2120 B	Color (true)				1.83	
	Color (true)				1.19	
	Color (true)				11.7	
SM 2320 B-97	Total Alkalinity	103			0.122	
SM 2540 C-97	TDS				0.588	
SM 4500 F-C-97	Fluoride	96.1	96.6	96.6		0.0
SM 5310 B-00	Organic Carbon	102	97.3	99.7		1.91

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1866723, 1866724, 1866725, 1866726, 1866727
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1866723, 1866724, 1866725, 1866726, 1866727
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1866723, 1866724, 1866725, 1866726, 1866727
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1866728, 1866729, 1866730, 1866731, 1866732
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1866728, 1866729, 1866730, 1866731, 1866732
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1866728, 1866729, 1866730, 1866731, 1866732
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1866728, 1866729, 1866730, 1866731, 1866732
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1866733, 1866734, 1866735, 1866736, 1866737
SM 2120 B / E31780	True Color measured at 450 nm	1866723, 1866724, 1866725, 1866726, 1866727
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1866723, 1866724, 1866725, 1866726, 1866727
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1866723, 1866724, 1866725, 1866726, 1866727
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1866723, 1866724, 1866725, 1866726, 1866727
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1866723, 1866724, 1866725, 1866726, 1866727
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1866728, 1866729, 1866730, 1866731, 1866732

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	01/26/2017			01/26/2017 15:52	Sima Feizi	1866723, 1866724, 1866725, 1866726, 1866727
EPA 300.0 Rev. 2.1	01/26/2017			02/01/2017	Ping Hua	1866723, 1866724, 1866725, 1866726, 1866727
EPA 350.1 Rev. 2.0	01/26/2017			01/27/2017	Sofia Elnemr	1866728, 1866729, 1866730, 1866731, 1866732
EPA 351.2 Rev. 2.0	01/26/2017	01/27/2017	Adrian Shelby	01/30/2017	Joseph Suarez	1866728, 1866729, 1866730, 1866731, 1866732
EPA 353.2 Rev. 2.0	01/26/2017			02/01/2017	Beverly Y. Sanders	1866728, 1866729, 1866730, 1866731, 1866732
EPA 365.1 Rev. 2.0	01/26/2017	01/27/2017	Vijayalakshmi Reddy	01/30/2017	Lipi Saha	1866728, 1866729, 1866730, 1866731, 1866732
EPA 365.1 Rev. 2.0 dissolved	01/26/2017			01/26/2017 15:58	Julie Michelle Frank	1866735, 1866736
	01/26/2017			01/26/2017 15:59	Julie Michelle Frank	1866737
	01/26/2017			01/26/2017 16:27	Julie Michelle Frank	1866734
	01/26/2017			01/26/2017 16:30	Julie Michelle Frank	1866733
SM 2120 B	01/26/2017			01/26/2017 17:21	Jared I. Manley	1866725
	01/26/2017			01/26/2017 17:22	Jared I. Manley	1866726
	01/26/2017			01/26/2017 17:26	Jared I. Manley	1866727
	01/26/2017			01/26/2017 18:10	Jared I. Manley	1866723
	01/26/2017			01/26/2017 18:14	Jared I. Manley	1866724
SM 2320 B-97	01/26/2017			01/30/2017	Dale L. Simmons	1866723, 1866724, 1866725, 1866726, 1866727
SM 2540 C-97	01/26/2017			01/30/2017	Sima Feizi	1866723, 1866724, 1866725, 1866726, 1866727
SM 2540 D-97	01/26/2017			01/30/2017	Sima Feizi	1866723, 1866724, 1866725, 1866726, 1866727
SM 4500 F-C-97	01/26/2017			01/30/2017	Dale L. Simmons	1866723, 1866724, 1866725, 1866726, 1866727
SM 5310 B-00	01/26/2017			01/26/2017	Jared I. Manley	1866728, 1866729, 1866730, 1866731, 1866732