Chemical Analysis Report

SO-DIST-2018-03-13-01

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

Event Description: **B.F.**
Request ID: **RQ-2018-03-12-30**
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
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 03-APR-2018 14:47

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: Owen CreekFromCranePark **Collection Date/Time: 03/12/2018 11:20**

Field ID: G3SD0106 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974080	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P341486	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P341584	
		Sulfate	320		mg SO4/L	P341896	
	SM 2120 B	Color (true)	36		PCU	P341474	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P341818	
	SM 2540 C-97	TDS	513		mg/L	P341836	
	SM 2540 D-97	TSS	3	I	mg/L	P341788	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P341826	RPD
1974083	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P341888	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P341541	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P341533	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P341515	
	SM 5310 B-00	Organic Carbon	8.5		mg C/L	P342041	
1974086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11	Q	mg P/L	P341572	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties. Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank **Collection Date/Time: 03/12/2018 11:43**

Field ID: Field Blank Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974081	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P341486	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P341892	
		Sulfate	0.20	U	mg SO4/L	P341896	
	SM 2120 B	Color (true)	2.5	U	PCU	P341474	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P341818	
	SM 2540 C-97	TDS	15	U	mg/L	P341835	
	SM 2540 D-97	TSS	2	U	mg/L	P341787	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341826	RPD
1974084	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P341888	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P341541	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341533	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P341515	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P342041	
1974087	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P341572	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties. Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Brandy Branch @ SR 70 **Collection Date/Time: 03/12/2018 12:30**

Field ID: G3SD0083 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1974082	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P341487	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P341584	
		Sulfate	730		mg SO4/L	P341586	
	SM 2120 B	Color (true)	36		PCU	P341474	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P341818	
	SM 2540 C-97	TDS	1.16E+03		mg/L	P341836	
	SM 2540 D-97	TSS	2	I	mg/L	P341788	
	SM 4500 F-C-97	Fluoride	0.60		mg F/L	P341826	RPD
1974085	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P341889	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P341541	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.45		mg N/L	P341533	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P341516	
	SM 5310 B-00	Organic Carbon	8.6		mg C/L	P342041	
1974088	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21	Q	mg P/L	P341572	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time due to analytical difficulties. 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: P341486

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341487

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341584

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341586

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341892

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341896

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341888

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341889

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341541

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341533

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341515

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341516

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341572

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

Reference Method: SM 2120 B
Batch ID: P341474

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P341818

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

Reference Method: SM 2540 C-97
Batch ID: P341835

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P341836

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341787

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341788

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P341826

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342041

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: P341584

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341586

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341892

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341896

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341888

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341889

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341541

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341533

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341515

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341516

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341572

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

Reference Method: SM 2320 B-97
Batch ID: P341818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P341826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973751	Chloride	92.9		P	90 - 110
1974169	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973751	Sulfate	97.9		P	90 - 110
1974169	Sulfate	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974026	Chloride	97.2		P	90 - 110
1974106	Chloride	96.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974026	Sulfate	99.6		P	90 - 110
1974106	Sulfate	97.7		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974044	Ammonia-N	97.1	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974115	Ammonia-N	97.4	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974049	Kjeldahl Nitrogen	99.6	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974044	NO2NO3-N	94.6	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974028	Total-P	103	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974172	Total-P	98.9	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P342041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973619	Organic Carbon	98.2	98.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974026	Turbidity	2.47	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974098	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973751	Chloride	0.166	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973751	Sulfate	0.138	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974026	Chloride	0.909	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974026	Sulfate	1.05	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974044	Ammonia-N	1.75	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341889

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974115	Ammonia-N	0.356	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974049	Kjeldahl Nitrogen	0.243	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974044	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974028	Total-P	3.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974172	Total-P	3.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974086	O-Phosphate-P	2.92	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P341474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974047	Color (true)	0.832	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P341818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974126	Total Alkalinity	0.166	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P341835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973594	TDS	5.85	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P341836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973618	TDS	5.32	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P341826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974126	Fluoride	14.3	Spike	F	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973619	Organic Carbon	0.288	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: A82577
Included Lab Sample IDs: 1974080, 1974081, 1974082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.8	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82581
Included Lab Sample IDs: 1974080, 1974081, 1974082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82605
Included Lab Sample IDs: 1974083, 1974084, 1974085

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82611
Included Lab Sample IDs: 1974086, 1974087, 1974088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.8	P/P	90 - 110
O-Phosphate-P	99.5	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A82622
Included Lab Sample IDs: 1974080, 1974082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A82622
Included Lab Sample IDs: 1974080, 1974082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Sulfate	98.9	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A82647
Included Lab Sample IDs: 1974083, 1974084, 1974085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82658
Included Lab Sample IDs: 1974083, 1974085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	105	P/P	90 - 110
Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82662
Included Lab Sample IDs: 1974084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A82726
Included Lab Sample IDs: 1974080, 1974081, 1974082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A82726
Included Lab Sample IDs: 1974080, 1974081, 1974082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A82746
Included Lab Sample IDs: 1974083, 1974084, 1974085

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A82750
Included Lab Sample IDs: 1974081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	95.4	96.2	P/P	90 - 110
Sulfate	94.5	97.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A82791
Included Lab Sample IDs: 1974083, 1974084, 1974085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	99.1	P/P	90 - 110
Organic Carbon	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.47	
	Turbidity					0.0	
EPA 300.0 Rev. 2.1	Chloride	101	92.9	97.6		0.166	
	Chloride	99.0	97.2	96.2		0.909	
	Sulfate	101	97.9	95.9		0.138	
	Sulfate	101	99.6	97.7		1.05	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	97.1	100			1.75
	Ammonia-N	97.3	97.4	97.9			0.356
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.6	99.3			0.243
EPA 353.2 Rev. 2.0	NO2NO3-N	100	94.6	95.6			0.943
EPA 365.1 Rev. 2.0	Total-P	98.5	103	98.9			3.26
	Total-P	101	98.9	102			3.00
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100					2.92
SM 2120 B	Color (true)					0.832	
SM 2320 B-97	Total Alkalinity	98.7				0.166	
SM 2540 C-97	TDS					5.85	
	TDS					5.32	
SM 4500 F-C-97	Fluoride	98.2					14.3
SM 5310 B-00	Organic Carbon	98.2	98.2	98.5			0.288

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1974080, 1974081, 1974082
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1974080, 1974081, 1974082
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1974080, 1974081, 1974082

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1974083, 1974084, 1974085
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1974083, 1974084, 1974085
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1974083, 1974084, 1974085
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1974083, 1974084, 1974085
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1974086, 1974087, 1974088
SM 2120 B / E31780	True Color measured at 450 nm	1974080, 1974081, 1974082
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1974080, 1974081, 1974082
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1974080, 1974081, 1974082
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1974080, 1974081, 1974082
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1974080, 1974081, 1974082
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1974083, 1974084, 1974085

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	03/13/2018			03/13/2018 16:35	DeAsia Armster	1974080, 1974081, 1974082
EPA 300.0 Rev. 2.1	03/13/2018			03/15/2018	Julia Storbeck	1974082
	03/13/2018			03/20/2018	Julia Storbeck	1974080, 1974081
EPA 350.1 Rev. 2.0	03/13/2018			03/20/2018	Ping Hua	1974083, 1974084, 1974085
EPA 351.2 Rev. 2.0	03/13/2018	03/14/2018	Adrian Shelby	03/15/2018	Joseph Suarez	1974083, 1974084, 1974085
EPA 353.2 Rev. 2.0	03/13/2018			03/14/2018	Lauren Bottorf	1974083, 1974084, 1974085
EPA 365.1 Rev. 2.0	03/13/2018	03/14/2018	Adrian Shelby	03/16/2018	Lipi Saha	1974083, 1974084, 1974085
EPA 365.1 Rev. 2.0 dissolved	03/13/2018			03/14/2018 13:21	Lipi Saha	1974086
	03/13/2018			03/14/2018 13:46	Lipi Saha	1974087
	03/13/2018			03/14/2018 13:47	Lipi Saha	1974088
SM 2120 B	03/13/2018			03/13/2018 14:53	Tanya Welborn	1974080
	03/13/2018			03/13/2018 14:54	Tanya Welborn	1974081
	03/13/2018			03/13/2018 14:55	Tanya Welborn	1974082
SM 2320 B-97	03/13/2018			03/19/2018	Lauren Bottorf	1974080, 1974081, 1974082
SM 2540 C-97	03/13/2018			03/14/2018	Yijie Li	1974080, 1974081, 1974082
SM 2540 D-97	03/13/2018			03/14/2018	Yijie Li	1974080, 1974081, 1974082
SM 4500 F-C-97	03/13/2018			03/19/2018	Lauren Bottorf	1974080, 1974081, 1974082
SM 5310 B-00	03/13/2018			03/22/2018	Megan Treadwell	1974083, 1974084, 1974085