

Chemical Analysis Report

SO-DIST-2019-12-17-01

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

Event Description: **2019 SMP : Okee Canals**

Request ID: **RQ-2019-12-16-11**

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: Nicole Reistad

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 09-JAN-2020 09:54



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: C-41 A @ SR 70

Collection Date/Time: 12/16/2019 10:35

Field ID: G4SD0175

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2144356	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P376034	
	EPA 300.0 Rev. 2.1	Chloride	62		mg Cl/L	P376563	
		Sulfate	47		mg SO4/L	P376565	
	SM 2120 B	Color (true)	280		PCU	P376092	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P376260	
	SM 2540 C-97	TDS	294	A	mg/L	P376490	
	SM 2540 D-97	TSS	4	IA	mg/L	P376495	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P376263	
2144359	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P376348	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P376558	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.48		mg N/L	P376242	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P376080	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P376167	
2144362	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P375994	

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: C-41 A @ SR 70

Collection Date/Time: 12/16/2019 10:45

Field ID: FB_12162019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2144365	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P376034	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P376407	
		Sulfate	0.20	U	mg SO4/L	P376409	
	SM 2120 B	Color (true)	2.5	U	PCU	P376092	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P376260	
	SM 2540 C-97	TDS	15	U	mg/L	P376490	
	SM 2540 D-97	TSS	2	U	mg/L	P376495	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P376263	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P376350	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P376558	
2144366	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P376242	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P376080	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P376167	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P375994	
	dissolved						

Ref. Method and Comment:

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

Sample Location: Prairie Canal @ SR 70

Collection Date/Time: 12/16/2019 11:30

Field ID: G4SD0174

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2144357	EPA 180.1 Rev. 2.0	Turbidity	6.3		NTU	P376034	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P376563	
		Sulfate	27		mg SO4/L	P376565	
	SM 2120 B	Color (true)	92		PCU	P376092	
	SM 2320 B-97	Total Alkalinity	32	A	mg CaCO3/L	P376260	
	SM 2540 C-97	TDS	140		mg/L	P376490	
	SM 2540 D-97	TSS	11	I	mg/L	P376495	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P376263	
2144360	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P376348	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P376558	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P376242	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P376080	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P376167	
2144363	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P375994	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

Sample Location: Harney Pond Canal@SR 70

Collection Date/Time: 12/16/2019 11:50

Field ID: G4SD0173

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2144358	EPA 180.1 Rev. 2.0	Turbidity	7.7		NTU	P376034	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P376563	
		Sulfate	27		mg SO4/L	P376565	
	SM 2120 B	Color (true)	88		PCU	P376092	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P376260	
	SM 2540 C-97	TDS	139		mg/L	P376490	
	SM 2540 D-97	TSS	11	I	mg/L	P376495	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P376263	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P376350	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P376558	
2144361	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P376242	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P376080	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P376167	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.014		mg P/L	P375994	
	dissolved						

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376034

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376407

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376409

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376563

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376565

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376348

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376350

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376558

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376242

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376080

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375994

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

Reference Method: SM 2120 B
Batch ID: P376092

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P376260

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

Reference Method: SM 2540 C-97
Batch ID: P376490

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P376495

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P376263

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P376167

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: P376407

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376409

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376565

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376348

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376350

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376558

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376080

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.2		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P376092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P376260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P376263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P376167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P376407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144399	Chloride	99.9	99.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P376409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144399	Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P376563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2143451	Chloride	95.8		P	90 - 110
2144973	Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P376565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2143451	Sulfate	93.2		P	90 - 110
2144973	Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P376348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144324	Ammonia-N	98.1	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P376350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144401	Ammonia-N	99.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P376558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144460	Kjeldahl Nitrogen	97.2	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P376242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144360	NO2NO3-N	98.3	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P376080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144324	Total-P	103	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144363	O-Phosphate-P	95.9	96.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P376263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144357	Fluoride	99.1	99.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P376167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144402	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144583	Turbidity	2.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144399	Chloride	0.0379	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144399	Sulfate	0.0274	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2143451	Chloride	1.99	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2143451	Sulfate	0.202	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144324	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144401	Ammonia-N	2.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144460	Kjeldahl Nitrogen	2.75	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144360	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144324	Total-P	1.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144363	O-Phosphate-P	0.592	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P376092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144322	Color (true)	15.0	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P376260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144357	Total Alkalinity	0.381	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P376490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144356	TDS	7.16	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P376263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144357	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P376167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144402	Organic Carbon	0.0328	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96398

Included Lab Sample IDs: 2144362, 2144363, 2144364, 2144367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	97.9	P/P	90 - 110
O-Phosphate-P	97.9	96.7	P/P	90 - 110
O-Phosphate-P	97.9	97.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96416

Included Lab Sample IDs: 2144356, 2144357, 2144358, 2144365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A96432

Included Lab Sample IDs: 2144356, 2144357, 2144358, 2144365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.5	99.4	P/P	90 - 115
Color (true)	99.1	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96461

Included Lab Sample IDs: 2144359, 2144360, 2144361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A96470

Included Lab Sample IDs: 2144359, 2144360, 2144361, 2144366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96486

Included Lab Sample IDs: 2144366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96503

Included Lab Sample IDs: 2144359, 2144360, 2144361, 2144366

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A96510

Included Lab Sample IDs: 2144356, 2144357, 2144358, 2144365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A96510

Included Lab Sample IDs: 2144356, 2144357, 2144358, 2144365

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96549

Included Lab Sample IDs: 2144359, 2144360, 2144361, 2144366

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96570

Included Lab Sample IDs: 2144365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.6	97.6	P/P	90 - 110
Sulfate	97.5	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96634

Included Lab Sample IDs: 2144356, 2144357, 2144358

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96656

Included Lab Sample IDs: 2144359, 2144360, 2144361, 2144366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.9	P/P	90 - 110
Kjeldahl Nitrogen	96.5	103	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.76	
EPA 300.0 Rev. 2.1	Chloride	99.6	99.9	99.9			0.0379
	Chloride	98.0	95.8	96.5		1.99	
	Sulfate	101	101	101			0.0274
	Sulfate	97.2	93.2	96.4		0.202	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.1	96.5			1.37
	Ammonia-N	99.9	99.8	102			2.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	97.2	101			2.75
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.3	98.3			0.0
EPA 365.1 Rev. 2.0	Total-P	103	103	105			1.97
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	95.9	96.6			0.592
SM 2120 B	Color (true)	99.6				15.0	
SM 2320 B-97	Total Alkalinity	104				0.381	
SM 2540 C-97	TDS					7.16	
SM 4500 F-C-97	Fluoride	99.8	99.1	99.7			0.482
SM 5310 B-00	Organic Carbon	99.8	102	102			0.0328

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2144356, 2144357, 2144358, 2144365
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2144356, 2144357, 2144358, 2144365
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2144356, 2144357, 2144358, 2144365
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2144359, 2144360, 2144361, 2144366
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2144359, 2144360, 2144361, 2144366
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2144359, 2144360, 2144361, 2144366
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2144359, 2144360, 2144361, 2144366
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2144362, 2144363, 2144364, 2144367
SM 2120 B / E31780	True Color measured at 450 nm	2144356, 2144357, 2144358, 2144365
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2144356, 2144357, 2144358, 2144365
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2144356, 2144357, 2144358, 2144365
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2144356, 2144357, 2144358, 2144365
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2144356, 2144357, 2144358, 2144365
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2144359, 2144360, 2144361, 2144366

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	12/17/2019			12/17/2019 17:24	Blanca Fach	2144356, 2144357, 2144358, 2144365
EPA 300.0 Rev. 2.1	12/17/2019			12/25/2019 08:49	Jhamieka S. Greenwood	2144365
	12/17/2019			12/30/2019 20:25	Irina Carbone	2144356
	12/17/2019			12/30/2019 20:37	Irina Carbone	2144357
	12/17/2019			12/30/2019 20:49	Irina Carbone	2144358
EPA 350.1 Rev. 2.0	12/17/2019			12/23/2019 12:12	Ping Hua	2144359
	12/17/2019			12/23/2019 12:14	Ping Hua	2144360
	12/17/2019			12/23/2019 13:03	Ping Hua	2144361
	12/17/2019			12/23/2019 13:21	Ping Hua	2144366
EPA 351.2 Rev. 2.0	12/17/2019	12/30/2019 11:45	Sima Feizi	01/02/2020 17:03	Virginia P. Brown	2144359
	12/17/2019	12/30/2019 11:45	Sima Feizi	01/02/2020 17:05	Virginia P. Brown	2144360
	12/17/2019	12/30/2019 11:45	Sima Feizi	01/02/2020 17:09	Virginia P. Brown	2144361
	12/17/2019	12/30/2019 11:45	Sima Feizi	01/02/2020 17:11	Virginia P. Brown	2144366
EPA 353.2 Rev. 2.0	12/17/2019			12/20/2019 11:06	Beverly Y. Sanders	2144360
	12/17/2019			12/20/2019 11:14	Beverly Y. Sanders	2144359
	12/17/2019			12/20/2019 11:16	Beverly Y. Sanders	2144361
	12/17/2019			12/20/2019 11:17	Beverly Y. Sanders	2144366
EPA 365.1 Rev. 2.0	12/17/2019	12/18/2019 14:20	Lipi Saha	12/19/2019 11:17	Benjamin T. Nordmann	2144359
	12/17/2019	12/18/2019 14:20	Lipi Saha	12/19/2019 11:18	Benjamin T. Nordmann	2144360
	12/17/2019	12/18/2019 14:20	Lipi Saha	12/19/2019 11:19	Benjamin T. Nordmann	2144361
	12/17/2019	12/18/2019 14:20	Lipi Saha	12/19/2019 15:38	Benjamin T. Nordmann	2144366
EPA 365.1 Rev. 2.0 dissolved	12/17/2019			12/17/2019 15:32	Samantha Davila	2144367
	12/17/2019			12/17/2019 15:40	Samantha Davila	2144362
	12/17/2019			12/17/2019 15:41	Samantha Davila	2144364
	12/17/2019			12/17/2019 15:58	Samantha Davila	2144363
SM 2120 B	12/17/2019			12/17/2019 17:00	Madeline Funaro	2144357
	12/17/2019			12/17/2019 17:01	Madeline Funaro	2144358
	12/17/2019			12/17/2019 17:02	Madeline Funaro	2144365
	12/17/2019			12/17/2019 17:41	Madeline Funaro	2144356
SM 2320 B-97	12/17/2019			12/19/2019 09:06	Dale L. Simmons	2144357
	12/17/2019			12/19/2019 13:04	Dale L. Simmons	2144356
	12/17/2019			12/19/2019 13:16	Dale L. Simmons	2144358
	12/17/2019			12/19/2019 13:31	Dale L. Simmons	2144365
SM 2540 C-97	12/17/2019			12/19/2019 14:11	Yijie Li	2144356, 2144357, 2144358, 2144365
SM 2540 D-97	12/17/2019			12/19/2019 14:11	Yijie Li	2144356, 2144357, 2144358, 2144365
SM 4500 F-C-97	12/17/2019			12/19/2019 08:57	Dale L. Simmons	2144357
	12/17/2019			12/19/2019 13:04	Dale L. Simmons	2144356
	12/17/2019			12/19/2019 13:16	Dale L. Simmons	2144358
	12/17/2019			12/19/2019 13:31	Dale L. Simmons	2144365
SM 5310 B-00	12/17/2019			12/18/2019 18:48	Madeline Funaro	2144359

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	12/17/2019			12/18/2019 19:02	Madeline Funaro	2144360
	12/17/2019			12/18/2019 19:16	Madeline Funaro	2144361
	12/17/2019			12/18/2019 19:29	Madeline Funaro	2144366