

Chemical Analysis Report

SO-DIST-2023-04-26-01

Florida DEP Laboratory
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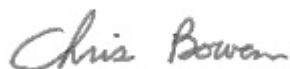
Event Description: **Caloosa Creeks**
Request ID: **RQ-2023-04-10-03**
Customer: **SO-DIST**
Project ID: **BMAP**

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: Chris Bowen, Environmental Administrator

Date Certified: 15-MAY-2023 09:58



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: Orange River at Boat Ramp

Collection Date/Time: 04/25/2023 09:30

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2403016	DEP SOP: NU-094-1	Color (true)	49		PCU	P428994	
	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P429017	
	EPA 300.0 Rev. 2.1	Chloride	73		mg Cl/L	P429145	
		Sulfate	22		mg SO4/L	P429148	
	SM 2320 B-2011	Total Alkalinity	134		mg CaCO3/L	P429391	
	SM 2540 C-2015	TDS	309		mg/L	P429528	
	SM 2540 D-2015	TSS	6	I	mg/L	P429530	
	SM 4500-F- C-2011	Fluoride	0.19		mg F/L	P429283	
2403020	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P429191	
2403024	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P429252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P429297	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429328	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P429042	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P429191	
2403028	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P429022	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: FB

Collection Date/Time: 04/25/2023 09:35

Field ID: FB_04252023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2403032	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P429019	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P429017	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P429145	
		Sulfate	0.20	U	mg SO4/L	P429148	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P429391	
	SM 2540 C-2015	TDS	15	U	mg/L	P429528	
	SM 2540 D-2015	TSS	2	U	mg/L	P429530	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P429283	
2403033	SM 5310 B-2011 dissolved	Organic Carbon	0.50	U	mg C/L	P429191	
2403034	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P429252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P429297	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429329	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P429043	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P429191	
2403035	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P429023	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Roberts Canal at SR 80

Collection Date/Time: 04/25/2023 10:25

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2403017	DEP SOP: NU-094-1	Color (true)	16		PCU	P429021	
	EPA 180.1 Rev. 2.0	Turbidity	23		NTU	P429017	
	EPA 300.0 Rev. 2.1	Chloride	33		mg Cl/L	P429145	
		Sulfate	45		mg SO4/L	P429148	
	SM 2320 B-2011	Total Alkalinity	214		mg CaCO3/L	P429391	
	SM 2540 C-2015	TDS	356		mg/L	P429528	
	SM 2540 D-2015	TSS	33		mg/L	P429530	
	SM 4500-F- C-2011	Fluoride	0.39		mg F/L	P429283	
2403021	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P429191	
2403025	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P429252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P429297	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P429328	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P429042	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P429191	
2403029	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P429022	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Nine Mile Canal at SR 80

Collection Date/Time: 04/25/2023 11:05

Field ID: G3SD0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2403018	DEP SOP: NU-094-1	Color (true)	82		PCU	P428994	
	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P429017	
	EPA 300.0 Rev. 2.1	Chloride	42		mg Cl/L	P429145	
		Sulfate	53		mg SO4/L	P429148	
	SM 2320 B-2011	Total Alkalinity	193		mg CaCO3/L	P429391	
	SM 2540 C-2015	TDS	384		mg/L	P429528	
	SM 2540 D-2015	TSS	4	I	mg/L	P429530	
	SM 4500-F- C-2011	Fluoride	0.29		mg F/L	P429283	
2403022	SM 5310 B-2011 dissolved	Organic Carbon	18		mg C/L	P429191	
2403026	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P429252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P429297	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P429329	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P429042	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P429191	
2403030	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P429022	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Telegraph Creek Sonde at USGS Sonde Station Collection Date/Time: 04/25/2023 12:33

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2403019	DEP SOP: NU-094-1	Color (true)	56		PCU	P428994	
	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P429017	
	EPA 300.0 Rev. 2.1	Chloride	51		mg Cl/L	P429145	
		Sulfate	16		mg SO4/L	P429148	
	SM 2320 B-2011	Total Alkalinity	174		mg CaCO3/L	P429391	
	SM 2540 C-2015	TDS	328		mg/L	P429528	
	SM 2540 D-2015	TSS	7	I	mg/L	P429530	
	SM 4500-F- C-2011	Fluoride	0.18		mg F/L	P429283	
2403023	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P429191	
2403027	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P429252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P429297	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429329	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P429042	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P429191	
2403031	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P429022	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P428994

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P429019

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P429021

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429017

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429145

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429148

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429252

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429297

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429328

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429329

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429042

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429043

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429022

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429023

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

Reference Method: SM 2320 B-2011
Batch ID: P429391

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

Reference Method: SM 2540 C-2015
Batch ID: P429528

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P429530

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P429283

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P429191

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P429191

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P428994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P429019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P429021

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.8		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429017

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429145

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429148

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429297

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429328

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429329

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: P429042

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429043

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429022

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429023

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

Reference Method: SM 2320 B-2011
Batch ID: P429391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P429528

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	98.3		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P429530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	97.9		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P429283

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	96 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011

Batch ID: P429191

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved

Batch ID: P429191

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402952	Chloride	101		P	90 - 110
2403100	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402952	Sulfate	102		P	90 - 110
2403100	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402981	Ammonia-N	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402697	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2403027	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402954	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2403065	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402974	O-Phosphate-P	96.6	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2403070	O-Phosphate-P	98.4	96.5	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P429283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402648	Fluoride	100	102	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P429191

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402950	Organic Carbon	93.9	95.5	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P429191

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2402950	Organic Carbon	93.9	95.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P428994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402980	Color (true)	0.740	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P429019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2403071	Color (true)	2.07	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P429021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402952	Color (true)	4.08	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P429017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402951	Turbidity	5.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402952	Chloride	0.696	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P429148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402952	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402981	Ammonia-N	0.355	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2403067	Kjeldahl Nitrogen	6.44	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P429328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402697	NO2NO3-N	0.791	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P429329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2403027	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P429042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402954	Total-P	0.670	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P429043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2403065	Total-P	0.666	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P429022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402974	O-Phosphate-P	0.348	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P429023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2403070	O-Phosphate-P	1.95	Spike	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P429391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402972	Total Alkalinity	0.122	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015

Batch ID: P429528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402949	TDS	5.90	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P429283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402648	Fluoride	1.01	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P429191

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402950	Organic Carbon	1.42	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P429191

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2402950	Organic Carbon	1.42	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A118755

Included Lab Sample IDs: 2403016, 2403017, 2403018, 2403019, 2403032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.0	98.7	P/P	90 - 110
Sulfate	99.1	99.4	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A118786

Included Lab Sample IDs: 2403016, 2403018, 2403019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	97.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A118794

Included Lab Sample IDs: 2403016, 2403017, 2403018, 2403019, 2403032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A118795

Included Lab Sample IDs: 2403017, 2403032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	97.7	P/P	90 - 110
Color (true)	99.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A118796

Included Lab Sample IDs: 2403028, 2403029, 2403030, 2403031, 2403035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.2	P/P	90 - 110
O-Phosphate-P	98.8	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118853

Included Lab Sample IDs: 2403024, 2403025, 2403026, 2403027

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118857

Included Lab Sample IDs: 2403034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A118872

Included Lab Sample IDs: 2403024, 2403025, 2403026, 2403027, 2403034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.9	97.5	P/P	90 - 110
Organic Carbon	98.5	97.9	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A118872

Included Lab Sample IDs: 2403020, 2403021, 2403022, 2403023, 2403033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.9	97.5	P/P	90 - 110
Organic Carbon	98.5	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118900

Included Lab Sample IDs: 2403024, 2403025, 2403026, 2403027, 2403034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A118916

Included Lab Sample IDs: 2403016, 2403017, 2403018, 2403019, 2403032

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118933

Included Lab Sample IDs: 2403024, 2403025, 2403026, 2403027, 2403034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110
NO2NO3-N	104	105	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A118951

Included Lab Sample IDs: 2403016, 2403017, 2403018, 2403019, 2403032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A119017

Included Lab Sample IDs: 2403024, 2403025, 2403026, 2403027, 2403034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.3	96.8	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
DEP SOP: NU-094-1	Color (true)	99.9			0.740	
	Color (true)	99.8			2.07	
	Color (true)	96.8			4.08	
EPA 180.1 Rev. 2.0	Turbidity	97.4			5.13	
EPA 300.0 Rev. 2.1	Chloride	102	101	103	0.696	
	Sulfate	103	102	103	1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	99.6	100		0.355
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.4				6.44
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101	102		0.791
	NO2NO3-N	104	104	104		0.482
EPA 365.1 Rev. 2.0	Total-P	102	104	103		0.670
	Total-P	105	107	107		0.666
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	96.6	97.1		0.348
	O-Phosphate-P	98.1	98.4	96.5		1.95
SM 2320 B-2011	Total Alkalinity	100			0.122	
SM 2540 C-2015	TDS	98.3			5.90	
SM 2540 D-2015	TSS	97.9				
SM 4500-F- C-2011	Fluoride	97.8	100	102		1.01
SM 5310 B-2011	Organic Carbon	97.2	93.9	95.5		1.42
SM 5310 B-2011 dissolved	Organic Carbon	97.2	93.9	95.5		1.42

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2403016, 2403017, 2403018, 2403019, 2403032
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2403016, 2403017, 2403018, 2403019, 2403032
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2403016, 2403017, 2403018, 2403019, 2403032
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2403016, 2403017, 2403018, 2403019, 2403032
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2403024, 2403025, 2403026, 2403027, 2403034
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2403024, 2403025, 2403026, 2403027, 2403034
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2403024, 2403025, 2403026, 2403027, 2403034
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2403024, 2403025, 2403026, 2403027, 2403034
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2403028, 2403029, 2403030, 2403031, 2403035
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2403016, 2403017, 2403018, 2403019, 2403032
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2403016, 2403017, 2403018, 2403019, 2403032
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2403016, 2403017, 2403018, 2403019, 2403032
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2403016, 2403017, 2403018, 2403019, 2403032
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2403024, 2403025, 2403026, 2403027, 2403034
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2403020, 2403021, 2403022, 2403023, 2403033

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	04/26/2023			04/26/2023 11:49	Alexis Price	2403016
	04/26/2023			04/26/2023 11:50	Alexis Price	2403018, 2403019
	04/26/2023			04/26/2023 15:00	Alexis Price	2403032
	04/26/2023			04/26/2023 15:17	Alexis Price	2403017
EPA 180.1 Rev. 2.0	04/26/2023			04/26/2023 10:45	Khloe J Berg	2403016
	04/26/2023			04/26/2023 10:46	Khloe J Berg	2403017
	04/26/2023			04/26/2023 10:47	Khloe J Berg	2403018
	04/26/2023			04/26/2023 10:48	Khloe J Berg	2403019
EPA 300.0 Rev. 2.1	04/26/2023			04/26/2023 10:49	Khloe J Berg	2403032
	04/26/2023			04/28/2023 06:52	James L Waggeberby	2403016
	04/26/2023			04/28/2023 07:07	James L Waggeberby	2403017
	04/26/2023			04/28/2023 07:22	James L Waggeberby	2403018
EPA 350.1 Rev. 2.0	04/26/2023			04/28/2023 07:37	James L Waggeberby	2403019
	04/26/2023			04/28/2023 07:52	James L Waggeberby	2403032
	04/26/2023			05/02/2023 11:26	Ping Hua	2403024
	04/26/2023			05/02/2023 11:27	Ping Hua	2403025
EPA 351.2 Rev. 2.0	04/26/2023			05/02/2023 11:28	Ping Hua	2403026
	04/26/2023			05/02/2023 11:30	Ping Hua	2403027
	04/26/2023			05/02/2023 11:31	Ping Hua	2403034
	04/26/2023	05/03/2023 16:07	Dana G. Hughes	05/08/2023 14:35	Samantha L Bates	2403024
EPA 353.2 Rev. 2.0	04/26/2023	05/03/2023 16:07	Dana G. Hughes	05/08/2023 14:37	Samantha L Bates	2403025
	04/26/2023	05/03/2023 16:07	Dana G. Hughes	05/08/2023 14:39	Samantha L Bates	2403026
	04/26/2023	05/03/2023 16:07	Dana G. Hughes	05/08/2023 14:40	Samantha L Bates	2403027
	04/26/2023	05/03/2023 16:07	Dana G. Hughes	05/08/2023 14:45	Samantha L Bates	2403034
EPA 365.1 Rev. 2.0	04/26/2023			05/03/2023 10:13	Beverly Y. Sanders	2403024
	04/26/2023			05/03/2023 10:14	Beverly Y. Sanders	2403025
	04/26/2023			05/03/2023 10:21	Beverly Y. Sanders	2403027
	04/26/2023			05/03/2023 10:27	Beverly Y. Sanders	2403026
EPA 365.1 Rev. 2.0 dissolved	04/26/2023			05/03/2023 10:29	Beverly Y. Sanders	2403034
	04/26/2023	04/27/2023 13:00	Alexis Price	04/28/2023 13:54	Chandler E Cox	2403034
	04/26/2023	04/27/2023 13:00	Alexis Price	04/28/2023 13:55	Chandler E Cox	2403024
	04/26/2023	04/27/2023 13:00	Alexis Price	04/28/2023 13:56	Chandler E Cox	2403025
SM 2320 B-2011	04/26/2023			04/28/2023 13:57	Chandler E Cox	2403026
	04/26/2023			04/28/2023 13:58	Chandler E Cox	2403027
	04/26/2023			04/26/2023 14:16	Elise M. Gillis	2403028
	04/26/2023			04/26/2023 14:17	Elise M. Gillis	2403029
	04/26/2023			04/26/2023 14:18	Elise M. Gillis	2403030
	04/26/2023			04/26/2023 14:19	Elise M. Gillis	2403031
	04/26/2023			04/26/2023 14:28	Elise M. Gillis	2403035
	04/26/2023			05/03/2023 22:38	Dale L. Simmons	2403016

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	04/26/2023			05/03/2023 22:50	Dale L. Simmons	2403017
	04/26/2023			05/03/2023 23:02	Dale L. Simmons	2403018
	04/26/2023			05/03/2023 23:14	Dale L. Simmons	2403019
	04/26/2023			05/03/2023 23:20	Dale L. Simmons	2403032
SM 2540 C-2015	04/26/2023			04/28/2023 15:36	Yijie Li	2403016, 2403017, 2403018, 2403019, 2403032
SM 2540 D-2015	04/26/2023			04/28/2023 15:36	Yijie Li	2403016, 2403017, 2403018, 2403019, 2403032
SM 4500-F- C-2011	04/26/2023			05/02/2023 20:15	Dale L. Simmons	2403016
	04/26/2023			05/02/2023 20:20	Dale L. Simmons	2403017
	04/26/2023			05/02/2023 20:25	Dale L. Simmons	2403018
	04/26/2023			05/02/2023 20:31	Dale L. Simmons	2403019
	04/26/2023			05/02/2023 20:36	Dale L. Simmons	2403032
SM 5310 B-2011	04/26/2023			04/29/2023 02:51	Elise M. Gillis	2403024
	04/26/2023			04/29/2023 03:18	Elise M. Gillis	2403025
	04/26/2023			04/29/2023 03:46	Elise M. Gillis	2403026
	04/26/2023			04/29/2023 04:42	Elise M. Gillis	2403027
	04/26/2023			04/29/2023 05:09	Elise M. Gillis	2403034
SM 5310 B-2011 dissolved	04/26/2023			04/29/2023 03:05	Elise M. Gillis	2403020
	04/26/2023			04/29/2023 03:32	Elise M. Gillis	2403021
	04/26/2023			04/29/2023 04:01	Elise M. Gillis	2403022
	04/26/2023			04/29/2023 04:56	Elise M. Gillis	2403023
	04/26/2023			04/29/2023 05:22	Elise M. Gillis	2403033