

Chemical Analysis Report

SO-DIST-2023-01-13-02

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Caloosa Creeks**
Request ID: **RQ-2023-01-09-31**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 07-FEB-2023 15:08



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: 01/12/2023 08:05

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2380845	DEP SOP: NU-094-1	Color (true)	77		PCU	P424555	
	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P424568	
	EPA 300.0 Rev. 2.1	Chloride	73		mg Cl/L	P424848	
		Sulfate	20		mg SO4/L	P424851	
	SM 2320 B-2011	Total Alkalinity	161		mg CaCO3/L	P425020	
	SM 2540 C-2015	TDS	325		mg/L	P424888	
	SM 2540 D-2015	TSS	5	I	mg/L	P424827	
	SM 4500-F- C-2011	Fluoride	0.16		mg F/L	P425318	
2380850	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P424635	
2380855	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P425158	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P424672	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P424803	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P424649	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P424635	
2380860	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P424557	

Ref. Method and Comment:

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

Sample Location: Roberts Canal @ SR 80

Collection Date/Time: 01/12/2023 08:55

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2380846	DEP SOP: NU-094-1	Color (true)	57	A	PCU	P424556	
	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P424568	
	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P424848	
		Sulfate	47		mg SO4/L	P424851	
	SM 2320 B-2011	Total Alkalinity	222		mg CaCO3/L	P425020	
	SM 2540 C-2015	TDS	342		mg/L	P424888	
	SM 2540 D-2015	TSS	14		mg/L	P424827	
	SM 4500-F- C-2011	Fluoride	0.29		mg F/L	P425318	
2380851	SM 5310 B-2011 dissolved	Organic Carbon	15		mg C/L	P424635	
2380856	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P425074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P424672	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P424803	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P424787	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P424635	
2380861	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P424557	

Ref. Method and Comment:

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

Sample Location: Nine Mile Canal @ SR 80

Collection Date/Time: 01/12/2023 09:45

Field ID: G3SD0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2380847	DEP SOP: NU-094-1	Color (true)	130		PCU	P424555	
	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P424568	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P424848	
		Sulfate	20		mg SO4/L	P424851	
	SM 2320 B-2011	Total Alkalinity	104		mg CaCO3/L	P425020	
	SM 2540 C-2015	TDS	250		mg/L	P424888	
	SM 2540 D-2015	TSS	5	I	mg/L	P424827	
	SM 4500-F- C-2011	Fluoride	0.15		mg F/L	P425318	
2380852	SM 5310 B-2011 dissolved	Organic Carbon	20		mg C/L	P424635	
2380857	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P425074	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P424681	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P424803	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P424787	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P424635	
2380862	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P424557	

Ref. Method and Comment:

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

Sample Location: Bee Branch @ Loblolly Bay Rd.

Collection Date/Time: 01/12/2023 12:05

Field ID: G3SD0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2380848	DEP SOP: NU-094-1	Color (true)	230		PCU	P424555	
	EPA 180.1 Rev. 2.0	Turbidity	0.80	I	NTU	P424568	
	EPA 300.0 Rev. 2.1	Chloride	28	A	mg Cl/L	P424848	
		Sulfate	8.9	A	mg SO4/L	P424851	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P425020	
	SM 2540 C-2015	TDS	127		mg/L	P424888	
	SM 2540 D-2015	TSS	2	I	mg/L	P424827	
	SM 4500-F- C-2011	Fluoride	0.076	I	mg F/L	P425318	
2380853	SM 5310 B-2011 dissolved	Organic Carbon	26		mg C/L	P424635	
2380858	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P425158	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P424681	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P424803	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P424787	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P424635	
2380863	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P424557	

Ref. Method and Comment:

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

Sample Location: Telegraph Creek Sonde @ USGS Sonde Station Collection Date/Time: 01/12/2023 12:55

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2380849	DEP SOP: NU-094-1	Color (true)	250		PCU	P424555	
	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P424568	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P424848	
		Sulfate	1.3		mg SO4/L	P424851	
	SM 2320 B-2011	Total Alkalinity	75		mg CaCO3/L	P425020	
	SM 2540 C-2015	TDS	224	A	mg/L	P424888	
	SM 2540 D-2015	TSS	5	IA	mg/L	P424827	
	SM 4500-F- C-2011	Fluoride	0.083	I	mg F/L	P425319	
2380854	SM 5310 B-2011 dissolved	Organic Carbon	32		mg C/L	P424635	
2380859	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P425160	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P424939	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P424803	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P424787	
	SM 5310 B-2011	Organic Carbon	31		mg C/L	P424872	
2380864	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P424557	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P424555

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P424556

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P424568

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424848

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424851

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425074

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425158

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425160

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424672

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424681

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424939

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424803

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424649

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P424557

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

Reference Method: SM 2320 B-2011
Batch ID: P425020

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

Reference Method: SM 2540 C-2015
Batch ID: P424888

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P424827

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P425318

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P424635

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

Reference Method: SM 5310 B-2011
Batch ID: P424872

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P424635

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: P424555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P424556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P424568

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424848

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424851

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425074

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: P425158

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: P425160

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424672

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424681

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424939

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424803

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: P424649

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P424557

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

Reference Method: SM 2320 B-2011
Batch ID: P425020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.4		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P424888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	98.4		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P424827

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	97.7		P	85 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P425318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424635

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P424872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P424635

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380848	Chloride	94.3		P	90 - 110
2380899	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380848	Sulfate	95.9		P	90 - 110
2380899	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380835	Ammonia-N	98.6	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380410	Ammonia-N	98.4	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380859	Ammonia-N	96.6	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380410	Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380857	Kjeldahl Nitrogen	97.3	93.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380859	Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380855	NO2NO3-N	100	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380408	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380902	Total-P	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P424557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380860	O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P425318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381058	Fluoride	98.5	99.3	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381223	Fluoride	99.2	99.8	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P424635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380760	Organic Carbon	94.2	96.8	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P424872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2381171	Organic Carbon	104		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P424635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2380760	Organic Carbon	94.2	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P424555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380834	Color (true)	0.826	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P424556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380846	Color (true)	1.77	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P424568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380815	Turbidity	3.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380848	Chloride	0.128	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P424851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380848	Sulfate	0.00899	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380835	Ammonia-N	0.854	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380410	Ammonia-N	0.888	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380859	Ammonia-N	1.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380410	Kjeldahl Nitrogen	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380857	Kjeldahl Nitrogen	2.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P424939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380859	Kjeldahl Nitrogen	0.0987	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P424803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380855	NO2NO3-N	0.290	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380408	Total-P	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380902	Total-P	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P424557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380860	O-Phosphate-P	0.842	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P425020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380899	Total Alkalinity	1.51	Sample	P	0 - 3.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P424888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380849	TDS	0.445	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P425318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381058	Fluoride	0.483	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P425319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381223	Fluoride	0.477	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P424635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380760	Organic Carbon	2.20	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P424872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2381171	Organic Carbon	0.324	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P424635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2380760	Organic Carbon	2.20	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A116900

Included Lab Sample IDs: 2380845, 2380846, 2380847, 2380848, 2380849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.8	P/P	90 - 110
Color (true)	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A116901

Included Lab Sample IDs: 2380860, 2380861, 2380862, 2380863, 2380864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116903

Included Lab Sample IDs: 2380845, 2380846, 2380847, 2380848, 2380849

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

Reference Method: SM 5310 B-2011

Run ID: A116931

Included Lab Sample IDs: 2380855, 2380856, 2380857, 2380858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.4	98.6	P/P	90 - 110
Organic Carbon	98.6	98.2	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A116931

Included Lab Sample IDs: 2380850, 2380851, 2380852, 2380853, 2380854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.4	98.6	P/P	90 - 110
Organic Carbon	98.6	98.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116936

Included Lab Sample IDs: 2380845, 2380846, 2380847, 2380848, 2380849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.6	99.0	P/P	90 - 110
Sulfate	98.2	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116970

Included Lab Sample IDs: 2380855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A117007

Included Lab Sample IDs: 2380855, 2380856, 2380857, 2380858, 2380859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117017

Included Lab Sample IDs: 2380857, 2380858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	103	P/P	90 - 110
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117033

Included Lab Sample IDs: 2380857, 2380858

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117039

Included Lab Sample IDs: 2380855, 2380856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	106	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A117044

Included Lab Sample IDs: 2380859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117063

Included Lab Sample IDs: 2380856, 2380859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	95.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A117107

Included Lab Sample IDs: 2380845, 2380846, 2380847, 2380848, 2380849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.7	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117131

Included Lab Sample IDs: 2380856, 2380857

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117139

Included Lab Sample IDs: 2380859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117164

Included Lab Sample IDs: 2380855, 2380858, 2380859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	97.7	P/P	90 - 110
Ammonia-N	99.8	99.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A117235

Included Lab Sample IDs: 2380845, 2380846, 2380847, 2380848, 2380849

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
DEP SOP: NU-094-1	Color (true)	101			0.826	
	Color (true)	101			1.77	
EPA 180.1 Rev. 2.0	Turbidity	101			3.76	
EPA 300.0 Rev. 2.1	Chloride	97.6	94.3	101	0.128	
	Sulfate	98.2	95.9	108	0.0089	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	98.6	99.6		0.854
	Ammonia-N	100	98.4	99.6		0.888
	Ammonia-N	99.8	96.6	98.2		1.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	107	106		1.11
	Kjeldahl Nitrogen	103	97.3	93.5		2.39
	Kjeldahl Nitrogen	101	106	106		0.0987
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100		0.290
EPA 365.1 Rev. 2.0	Total-P	105	106	105		1.11
	Total-P	104	108	106		1.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	99.1	100		0.842
SM 2320 B-2011	Total Alkalinity	95.4			1.51	
SM 2540 C-2015	TDS	98.4			0.445	
SM 2540 D-2015	TSS	97.7				
SM 4500-F- C-2011	Fluoride	98.6	98.5	99.3		0.483
	Fluoride	97.1	99.2	99.8		0.477
SM 5310 B-2011	Organic Carbon	96.1	94.2	96.8		2.20
	Organic Carbon	99.3	104			0.324
SM 5310 B-2011 dissolved	Organic Carbon	96.1	94.2	96.8		2.20

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2380845, 2380846, 2380847, 2380848, 2380849
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2380845, 2380846, 2380847, 2380848, 2380849
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2380845, 2380846, 2380847, 2380848, 2380849
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2380845, 2380846, 2380847, 2380848, 2380849
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2380855, 2380856, 2380857, 2380858, 2380859
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2380855, 2380856, 2380857, 2380858, 2380859
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2380855, 2380856, 2380857, 2380858, 2380859
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2380855, 2380856, 2380857, 2380858, 2380859
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2380860, 2380861, 2380862, 2380863, 2380864
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2380845, 2380846, 2380847, 2380848, 2380849
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2380845, 2380846, 2380847, 2380848, 2380849
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2380845, 2380846, 2380847, 2380848, 2380849
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2380845, 2380846, 2380847, 2380848, 2380849
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2380855, 2380856, 2380857, 2380858, 2380859

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2380850, 2380851, 2380852, 2380853, 2380854

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	01/13/2023			01/13/2023 14:17	Anna M. Plaviak	2380845
	01/13/2023			01/13/2023 14:18	Anna M. Plaviak	2380847
	01/13/2023			01/13/2023 14:23	Anna M. Plaviak	2380846
	01/13/2023			01/13/2023 14:26	Anna M. Plaviak	2380848, 2380849
EPA 180.1 Rev. 2.0	01/13/2023			01/13/2023 12:45	Chandler E Cox	2380845
	01/13/2023			01/13/2023 12:46	Chandler E Cox	2380846
	01/13/2023			01/13/2023 12:47	Chandler E Cox	2380847
	01/13/2023			01/13/2023 12:50	Chandler E Cox	2380848, 2380849
EPA 300.0 Rev. 2.1	01/13/2023			01/20/2023 11:22	Anna M. Plaviak	2380848
	01/13/2023			01/20/2023 13:07	Anna M. Plaviak	2380845
	01/13/2023			01/20/2023 13:22	Anna M. Plaviak	2380846
	01/13/2023			01/20/2023 13:37	Anna M. Plaviak	2380847
EPA 350.1 Rev. 2.0	01/13/2023			01/20/2023 13:53	Anna M. Plaviak	2380849
	01/13/2023			01/26/2023 12:51	Ping Hua	2380856
	01/13/2023			01/26/2023 12:52	Ping Hua	2380857
	01/13/2023			01/30/2023 14:55	Ping Hua	2380855
	01/13/2023			01/30/2023 14:57	Ping Hua	2380858
EPA 351.2 Rev. 2.0	01/13/2023			01/30/2023 15:38	Ping Hua	2380859
	01/13/2023	01/19/2023 12:53	Judith K. Clark	01/23/2023 13:29	Samantha L Bates	2380855
	01/13/2023	01/19/2023 12:53	Judith K. Clark	01/23/2023 13:30	Samantha L Bates	2380856
	01/13/2023	01/19/2023 14:22	Judith K. Clark	01/20/2023 13:52	Judith K. Clark	2380857
	01/13/2023	01/19/2023 14:22	Judith K. Clark	01/20/2023 14:00	Judith K. Clark	2380858
EPA 353.2 Rev. 2.0	01/13/2023	01/26/2023 08:24	Samantha L Bates	01/27/2023 10:53	Judith K. Clark	2380859
	01/13/2023			01/20/2023 09:40	Beverly Y. Sanders	2380855
	01/13/2023			01/20/2023 09:46	Beverly Y. Sanders	2380856
	01/13/2023			01/20/2023 09:47	Beverly Y. Sanders	2380857
	01/13/2023			01/20/2023 09:48	Beverly Y. Sanders	2380858
EPA 365.1 Rev. 2.0	01/13/2023			01/20/2023 09:49	Beverly Y. Sanders	2380859
	01/13/2023	01/18/2023 15:47	Adam P Silver	01/19/2023 10:03	James L Waggeberby	2380855
	01/13/2023	01/20/2023 17:10	Adam P Silver	01/23/2023 09:47	James L Waggeberby	2380857
	01/13/2023	01/20/2023 17:10	Adam P Silver	01/23/2023 09:48	James L Waggeberby	2380858
	01/13/2023	01/20/2023 17:10	Adam P Silver	01/24/2023 10:43	James L Waggeberby	2380856
EPA 365.1 Rev. 2.0 dissolved	01/13/2023	01/20/2023 17:10	Adam P Silver	01/24/2023 10:44	James L Waggeberby	2380859
	01/13/2023			01/13/2023 15:34	Elise M. Gillis	2380860
	01/13/2023			01/13/2023 15:37	Elise M. Gillis	2380861
	01/13/2023			01/13/2023 15:38	Elise M. Gillis	2380862
	01/13/2023			01/13/2023 15:39	Elise M. Gillis	2380863, 2380864
SM 2320 B-2011	01/13/2023			01/24/2023 21:34	Dale L. Simmons	2380845
	01/13/2023			01/24/2023 21:45	Dale L. Simmons	2380846
	01/13/2023			01/24/2023 21:57	Dale L. Simmons	2380847

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	01/13/2023			01/24/2023 22:07	Dale L. Simmons	2380848
	01/13/2023			01/24/2023 22:19	Dale L. Simmons	2380849
SM 2540 C-2015	01/13/2023			01/17/2023 15:22	Yijie Li	2380845, 2380846, 2380847, 2380848, 2380849
SM 2540 D-2015	01/13/2023			01/17/2023 15:22	Yijie Li	2380845, 2380846, 2380847, 2380848, 2380849
SM 4500-F- C-2011	01/13/2023			02/02/2023 00:18	Dale L. Simmons	2380845
	01/13/2023			02/02/2023 00:40	Dale L. Simmons	2380846
	01/13/2023			02/02/2023 00:45	Dale L. Simmons	2380847
	01/13/2023			02/02/2023 00:51	Dale L. Simmons	2380848
	01/13/2023			02/02/2023 01:42	Dale L. Simmons	2380849
SM 5310 B-2011	01/13/2023			01/17/2023 19:46	Elise M. Gillis	2380855
	01/13/2023			01/17/2023 20:18	Elise M. Gillis	2380856
	01/13/2023			01/17/2023 21:25	Elise M. Gillis	2380857
	01/13/2023			01/17/2023 21:55	Elise M. Gillis	2380858
	01/13/2023			01/19/2023 18:08	Khloe J Berg	2380859
SM 5310 B-2011 dissolved	01/13/2023			01/17/2023 20:01	Elise M. Gillis	2380850
	01/13/2023			01/17/2023 21:10	Elise M. Gillis	2380851
	01/13/2023			01/17/2023 21:40	Elise M. Gillis	2380852
	01/13/2023			01/17/2023 22:10	Elise M. Gillis	2380853
	01/13/2023			01/17/2023 22:24	Elise M. Gillis	2380854