

Chemical Analysis Report

SO-DIST-2024-03-28-02

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

Event Description: **TMDL Gordon River**
Request ID: **RQ-2024-03-11-05**
Customer: **SO-DIST**
Project ID: **TMDL**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: Nicole Reistad

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Certified by: Colin Wright, Program Administrator

Date Certified: 25-APR-2024 12:10

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink rectangular background.

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: GORDON RIVER AT ROCK CREEK

Collection Date/Time: 03/27/2024 10:15

Field ID: G1SD0131

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2478055	DEP SOP: NU-094-1	Color (true)	39		PCU	P443458	
	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P443462	
	EPA 300.0 Rev. 2.1	Chloride	4.7E+03		mg Cl/L	P443666	
		Sulfate	680		mg SO4/L	P443669	
	SM 2320 B-2011	Total Alkalinity	190		mg CaCO3/L	P443659	
	SM 2540 C-2015	TDS	8.20E+03		mg/L	P444031	
	SM 2540 D-2015	TSS	7	I	mg/L	P443907	
	SM 4500-F- C-2011	Fluoride	0.39		mg F/L	P444102	
2478058	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P443573	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75	J	mg N/L	P444336	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P443590	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P443483	MS
	SM 5310 B-2014	Organic Carbon	9.1		mg C/L	P443564	
2478061	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P443452	

Ref. Method and Comment:
 SM 2540 C-2015: The reported result is consistent with the conductivity measured in the laboratory, 14550 umhos/cm.
 EPA 351.2 Rev. 2.0: The sample appears to be heterogeneous with respect to Total Kjeldahl Nitrogen analysis.

Sample Location: GORDON RIVER AT BAKER PARK

Collection Date/Time: 03/27/2024 10:30

Field ID: G1SD0132

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2478056	DEP SOP: NU-094-1	Color (true)	47		PCU	P443458	
	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P443462	
	EPA 300.0 Rev. 2.1	Chloride	2.5E+03		mg Cl/L	P443813	
		Sulfate	360		mg SO4/L	P443669	
	SM 2320 B-2011	Total Alkalinity	200		mg CaCO3/L	P443659	
	SM 2540 C-2015	TDS	4.76E+03		mg/L	P443972	
	SM 2540 D-2015	TSS	2	I	mg/L	P443712	
	SM 4500-F- C-2011	Fluoride	0.29		mg F/L	P443927	
2478059	EPA 350.1 Rev. 2.0	Ammonia-N	0.083		mg N/L	P443577	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P444143	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P443590	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P443483	MS
	SM 5310 B-2014	Organic Carbon	11		mg C/L	P443671	
2478062	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P443452	

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: GORDON RIVER NEAR AVION PL

Collection Date/Time: 03/27/2024 10:45

Field ID: G1SD0133

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2478057	DEP SOP: NU-094-1	Color (true)	51	A	PCU	P443458	
	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P443462	
	EPA 300.0 Rev. 2.1	Chloride	1.2E+03		mg Cl/L	P444155	
		Sulfate	180		mg SO4/L	P444157	
	SM 2320 B-2011	Total Alkalinity	208	A	mg CaCO3/L	P443659	
	SM 2540 C-2015	TDS	2.28E+03		mg/L	P443972	
	SM 2540 D-2015	TSS	2	I	mg/L	P443712	
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P443927	
2478060	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P443577	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95	J	mg N/L	P444143	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P444640	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P443483	MS
	SM 5310 B-2014	Organic Carbon	11		mg C/L	P443671	
2478063	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P443452	

Ref. Method and Comment:
 SM 2540 C-2015: The reported result is consistent with the conductivity measured in the laboratory, 4440 umhos/cm.
 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: The sample appears to be heterogeneous with respect to Total Kjeldahl Nitrogen analysis.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P443458

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443462

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443666

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443669

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443813

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444155

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444157

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443573

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444336

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443590

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443483

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443452

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

Reference Method: SM 2320 B-2011
Batch ID: P443659

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

Reference Method: SM 2540 C-2015
Batch ID: P443972

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2015
Batch ID: P444031

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P443712

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P443907

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P443927

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P443564

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

Reference Method: SM 5310 B-2014
Batch ID: P443671

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: P443458

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: P443462

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443666

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443669

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443813

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444155

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: P444157

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443573

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444336

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443590

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444640

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443483

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443452

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

Reference Method: SM 2320 B-2011
Batch ID: P443659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P443972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	101		P	85 - 115

Reference Method: SM 2540 C-2015
Batch ID: P444031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	108		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P443712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	101		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P443907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	108		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P443927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P443564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P443671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478221	Chloride	104		P	90 - 110
2478222	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478221	Sulfate	105		P	90 - 110
2478222	Sulfate	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478367	Chloride	106		P	90 - 110
2478385	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478229	Chloride	95.2		P	90 - 110
2478248	Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478229	Sulfate	91.6		P	90 - 110
2478248	Sulfate	93.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476854	Ammonia-N	98.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2477683	Ammonia-N	96.4	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478060	Kjeldahl Nitrogen	96.0	90.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2481996	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478005	NO2NO3-N	94.4	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444640

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480843	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478180	Total-P	93.4	88.2	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478061	O-Phosphate-P	97.0	99.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P443927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479215	Fluoride	105	104	P/P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478055	Fluoride	101	103	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P443564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2477263	Organic Carbon	95.4	94.0	P/P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P443671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478002	Organic Carbon	97.6	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P443458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478057	Color (true)	6.39	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477969	Turbidity	7.48	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478221	Chloride	1.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478221	Sulfate	1.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P443813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478367	Chloride	6.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478229	Chloride	2.54	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478229	Sulfate	1.33	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476854	Ammonia-N	1.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477683	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478060	Kjeldahl Nitrogen	4.43	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2481996	Kjeldahl Nitrogen	2.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478005	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480843	NO2NO3-N	0.889	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478180	Total-P	5.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478061	O-Phosphate-P	2.29	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P443659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478057	Total Alkalinity	1.40	Sample	P	0 - 3.9

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P443972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477966	TDS	2.65	Sample	P	0 - 10

Reference Method: SM 2540 C-2015
Batch ID: P444031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478244	TDS	4.03	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P443907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478130	TSS	8.70	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P443927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479215	Fluoride	1.10	Spike	P	0 - 1.9

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478055	Fluoride	0.967	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P443564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477263	Organic Carbon	1.10	Spike	P	0 - 15

Reference Method: SM 5310 B-2014
Batch ID: P443671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478002	Organic Carbon	1.62	Spike	P	0 - 15

* 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: A125044
Included Lab Sample IDs: 2478061, 2478062, 2478063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.1	96.9	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A125048
Included Lab Sample IDs: 2478055, 2478056, 2478057

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A125050
Included Lab Sample IDs: 2478055, 2478056, 2478057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: SM 5310 B-2014
Run ID: A125084
Included Lab Sample IDs: 2478058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	124	100	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A125090
Included Lab Sample IDs: 2478058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A125091
Included Lab Sample IDs: 2478059, 2478060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A125096
Included Lab Sample IDs: 2478058, 2478059

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A125102
Included Lab Sample IDs: 2478058, 2478059, 2478060

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A125126

Included Lab Sample IDs: 2478055, 2478056, 2478057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	96.0	P/P	90 - 110
Total Alkalinity	96.0	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A125129

Included Lab Sample IDs: 2478055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.7	98.8	P/P	90 - 110
Sulfate	99.2	100	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A125130

Included Lab Sample IDs: 2478059, 2478060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.9	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A125179

Included Lab Sample IDs: 2478056

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

Reference Method: SM 4500-F- C-2011

Run ID: A125214

Included Lab Sample IDs: 2478056, 2478057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	105	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A125278

Included Lab Sample IDs: 2478055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	97.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A125295

Included Lab Sample IDs: 2478057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	96.6	P/P	90 - 110
Sulfate	99.3	96.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A125325
Included Lab Sample IDs: 2478059, 2478060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.5	97.0	P/P	90 - 110
Kjeldahl Nitrogen	97.0	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A125404
Included Lab Sample IDs: 2478058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A125457
Included Lab Sample IDs: 2478060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	101				6.39	
EPA 180.1 Rev. 2.0	Turbidity	102				7.48	
EPA 300.0 Rev. 2.1	Chloride	103	104	104		1.17	
	Chloride	106	106	101		6.50	
	Chloride	98.0	95.2	95.3		2.54	
	Sulfate	105	105	106		1.08	
	Sulfate	97.3	91.6	93.6		1.33	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	98.6	101			1.39
	Ammonia-N	97.4	96.4	98.6			1.91
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	96.0	90.7			4.43
	Kjeldahl Nitrogen	102	101	105			2.61
EPA 353.2 Rev. 2.0	NO2NO3-N	100	94.4	95.8			1.53
	NO2NO3-N	100	98.5				0.889
EPA 365.1 Rev. 2.0	Total-P	102	93.4	88.2			5.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	97.0	99.5			2.29
SM 2320 B-2011	Total Alkalinity	99.8				1.40	
SM 2540 C-2015	TDS	101				2.65	
	TDS	108				4.03	
SM 2540 D-2015	TSS	101					
	TSS	108				8.70	
SM 4500-F- C-2011	Fluoride	101	105	104			1.10
	Fluoride	97.3	101	103			0.967
SM 5310 B-2014	Organic Carbon	96.6	95.4	94.0			1.10
	Organic Carbon	98.1	97.6	99.6			1.62

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2478055, 2478056, 2478057
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2478055, 2478056, 2478057
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2478055, 2478056, 2478057
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2478055, 2478056, 2478057
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2478058, 2478059, 2478060
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2478058, 2478059, 2478060
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2478058, 2478059, 2478060
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2478058, 2478059, 2478060
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2478061, 2478062, 2478063
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2478055, 2478056, 2478057
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2478055, 2478056, 2478057
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2478055, 2478056, 2478057
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2478055, 2478056, 2478057
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2478058, 2478059, 2478060

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	03/28/2024			03/28/2024 14:59	Jessica K Wilks	2478055
	03/28/2024			03/28/2024 15:00	Jessica K Wilks	2478056
	03/28/2024			03/28/2024 15:01	Jessica K Wilks	2478057
EPA 180.1 Rev. 2.0	03/28/2024			03/28/2024 13:34	Samantha L Bates	2478055
	03/28/2024			03/28/2024 13:35	Samantha L Bates	2478056
	03/28/2024			03/28/2024 13:36	Samantha L Bates	2478057
EPA 300.0 Rev. 2.1	03/28/2024			04/02/2024 09:52	Samantha L Bates	2478055
	03/28/2024			04/02/2024 10:07	Samantha L Bates	2478056
	03/28/2024			04/04/2024 04:23	James L Waggeberby	2478056
EPA 350.1 Rev. 2.0	03/28/2024			04/09/2024 17:58	James L Waggeberby	2478057
	03/28/2024			04/01/2024 11:39	Khloe J Berg	2478058
	03/28/2024			04/01/2024 12:06	Kenneth H Lee	2478059
EPA 351.2 Rev. 2.0	03/28/2024			04/01/2024 12:10	Kenneth H Lee	2478060
	03/28/2024	04/12/2024 07:57	Simonne.V. Calhoun	04/15/2024 12:13	Robyn Blevins	2478059
	03/28/2024	04/12/2024 07:57	Simonne.V. Calhoun	04/15/2024 12:18	Robyn Blevins	2478060
EPA 353.2 Rev. 2.0	03/28/2024	04/17/2024 11:47	Simonne.V. Calhoun	04/18/2024 13:25	Robyn Blevins	2478058
	03/28/2024			04/01/2024 14:45	Fadila Guebre	2478058
	03/28/2024			04/01/2024 14:46	Fadila Guebre	2478059
EPA 365.1 Rev. 2.0	03/28/2024			04/22/2024 15:26	Fadila Guebre	2478060
	03/28/2024	03/29/2024 13:35	Josephine W Gitau	04/02/2024 11:31	James L Waggeberby	2478058
	03/28/2024	03/29/2024 13:35	Josephine W Gitau	04/02/2024 11:32	James L Waggeberby	2478059
EPA 365.1 Rev. 2.0 dissolved	03/28/2024	03/29/2024 13:35	Josephine W Gitau	04/02/2024 11:33	James L Waggeberby	2478060
	03/28/2024			03/28/2024 14:35	Chandler E Cox	2478061
	03/28/2024			03/28/2024 14:38	Chandler E Cox	2478062, 2478063
SM 2320 B-2011	03/28/2024			04/02/2024 11:55	Dale L. Simmons	2478057
	03/28/2024			04/02/2024 13:12	Dale L. Simmons	2478056
	03/28/2024			04/02/2024 14:15	Dale L. Simmons	2478055
SM 2540 C-2015	03/28/2024			04/01/2024 14:16	Ping Hua	2478056, 2478057
	03/28/2024			04/02/2024 15:07	Yijie Li	2478055
SM 2540 D-2015	03/28/2024			04/01/2024 14:16	Ping Hua	2478056, 2478057
	03/28/2024			04/02/2024 15:07	Yijie Li	2478055
SM 4500-F- C-2011	03/28/2024			04/05/2024 12:09	Dale L. Simmons	2478057
	03/28/2024			04/05/2024 12:31	Dale L. Simmons	2478056
	03/28/2024			04/10/2024 22:27	Dale L. Simmons	2478055
SM 5310 B-2014	03/28/2024			03/30/2024 10:11	Jessica K Wilks	2478058
	03/28/2024			04/02/2024 03:34	Jessica K Wilks	2478059
	03/28/2024			04/02/2024 03:50	Jessica K Wilks	2478060