

Chemical Analysis Report

NW-DIST-2022-07-26-01

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

Event Description: **Hogtown Car Run**
Request ID: **RQ-2022-05-23-26**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 15-AUG-2022 11:39

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: Hogtown Drain above Chat Holly Rd

Collection Date/Time: 07/25/2022 11:25

Field ID: G3NW0241

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2343762	DEP SOP: NU-094-1	Color (true)	190		PCU	P417181	
	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P417193	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P417634	
		Sulfate	2.2		mg SO4/L	P417639	
	SM 2320 B-2011	Total Alkalinity	8.7		mg CaCO3/L	P417437	
	SM 2540 C-2011	TDS	78		mg/L	P417660	
	SM 2540 D-2011	TSS	4	I	mg/L	P417663	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P417442	
2343767	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P417260	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P417278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P417401	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P417342	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P417295	

Ref. Method and Comment:

SM 2540 D-2011: 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: Hogtown Drainage at Churchill Bayou Road

Collection Date/Time: 07/25/2022 12:05

Field ID: G3NW0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2343763	DEP SOP: NU-094-1	Color (true)	72	A	PCU	P417185	
	EPA 180.1 Rev. 2.0	Turbidity	30		NTU	P417193	
	EPA 300.0 Rev. 2.1	Chloride	2.9E+03		mg Cl/L	P417634	
		Sulfate	390		mg SO4/L	P417639	
	SM 2320 B-2011	Total Alkalinity	55		mg CaCO3/L	P417533	
	SM 2540 C-2011	TDS	5.70E+03		mg/L	P417662	
	SM 2540 D-2011	TSS	36	A	mg/L	P417667	
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P417535	
2343768	EPA 350.1 Rev. 2.0	Ammonia-N	0.091		mg N/L	P417321	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P417279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P417332	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P417326	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P417494	

Ref. Method and Comment:

SM 2540 C-2011: The reported result is consistent with the conductivity measured in the laboratory, 10400 umhos/cm.

Sample Location: Drain to Musset Bayou upstream of Don Bishop Rd

Collection Date/Time: 07/25/2022 12:26

Field ID: G3NW0240

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2343764	DEP SOP: NU-094-1	Color (true)	87		PCU	P417182	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P417193	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P417634	
		Sulfate	2.0		mg SO4/L	P417639	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P417437	
	SM 2540 C-2011	TDS	96		mg/L	P417660	
	SM 2540 D-2011	TSS	3	I	mg/L	P417663	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P417442	
2343769	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P417260	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P417278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P417401	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P417342	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P417295	

Ref. Method and Comment:

SM 2540 D-2011: 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: Direct Runoff to Bay off of Roberts Rd

Collection Date/Time: 07/25/2022 12:55

Field ID: G3NW0239

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2343765	DEP SOP: NU-094-1	Color (true)	170		PCU	P417185	
	EPA 180.1 Rev. 2.0	Turbidity	22		NTU	P417193	
	EPA 300.0 Rev. 2.1	Chloride	9.5		mg Cl/L	P417634	
		Sulfate	0.28	I	mg SO4/L	P417639	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P417437	
	SM 2540 C-2011	TDS	60		mg/L	P417660	
	SM 2540 D-2011	TSS	78		mg/L	P417663	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P417442	
2343770	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P417260	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P417278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417401	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P417343	
	SM 5310 B-2011	Organic Carbon	32		mg C/L	P417295	

Ref. Method and Comment:

SM 2540 D-2011: 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: Drain to Hewett Bayou

Collection Date/Time: 07/25/2022 13:25

Field ID: G3NW0238

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2343766	DEP SOP: NU-094-1	Color (true)	170		PCU	P417182	
	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P417193	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P417634	
		Sulfate	1.8		mg SO4/L	P417639	
	SM 2320 B-2011	Total Alkalinity	29		mg CaCO3/L	P417437	
	SM 2540 C-2011	TDS	120		mg/L	P417660	
	SM 2540 D-2011	TSS	32	I	mg/L	P417663	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P417442	
2343771	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P417260	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P417278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417401	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P417343	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P417295	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

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

Sample Location: Drain to Mack Bayou at Mack Bayou Rd

Collection Date/Time: 07/25/2022 13:50

Field ID: G3NW0237

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2343760	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P417193	
	SM 2320 B-2011	Total Alkalinity	48	A	mg CaCO3/L	P417533	
	SM 2540 D-2011	TSS	8	I	mg/L	P417667	
	SM 4500-F- C-2011	Fluoride	0.24		mg F/L	P417535	
2343761	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P417321	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P417279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P417332	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P417326	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P417494	

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P417181

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P417182

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P417185

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417193

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417634

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417639

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417260

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417278

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: P417279

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417332

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417401

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417326

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417342

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417343

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

Reference Method: SM 2320 B-2011
Batch ID: P417437

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

Reference Method: SM 2320 B-2011
Batch ID: P417533

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

Reference Method: SM 2540 C-2011
Batch ID: P417660

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P417662

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417663

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417667

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417442

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417535

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P417295

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

Reference Method: SM 5310 B-2011
Batch ID: P417494

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: P417181

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

Reference Method: DEP SOP: NU-094-1
Batch ID: P417182

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

Reference Method: DEP SOP: NU-094-1
Batch ID: P417185

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417193

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417634

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417639

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417260

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417278

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417279

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: P417332

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417401

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417326

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417342

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417343

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P417437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P417533

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

Reference Method: SM 4500-F- C-2011
Batch ID: P417442

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P417535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343731	Chloride	99.9		P	90 - 110
2343766	Chloride	95.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417639

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343731	Sulfate	99.8		P	90 - 110
2343766	Sulfate	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343742	Ammonia-N	97.6	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341572	Ammonia-N	96.6	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343452	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343534	NO2NO3-N	100	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343855	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342397	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343742	Total-P	104	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343895	Total-P	103	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344107	Fluoride	104	103	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343760	Fluoride	101	98.8	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343697	Organic Carbon	97.8	98.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344316	Organic Carbon	89.8	91.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P417181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343705	Color (true)	1.24	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P417182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343731	Color (true)	1.87	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P417185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343763	Color (true)	0.606	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343729	Turbidity	6.57	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343731	Chloride	2.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417639

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343731	Sulfate	0.898	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343742	Ammonia-N	1.90	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341572	Ammonia-N	2.53	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343753	Kjeldahl Nitrogen	6.44	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343452	Kjeldahl Nitrogen	1.66	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343534	NO2NO3-N	1.93	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343855	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342397	Total-P	1.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343742	Total-P	0.379	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343895	Total-P	0.611	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P417437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344107	Total Alkalinity	0.908	Sample	P	0 - 3.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P417533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343760	Total Alkalinity	0.223	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P417660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343695	TDS	5.25	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P417662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343854	TDS	2.88	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P417667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343763	TSS	5.59	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344107	Fluoride	1.01	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P417535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343760	Fluoride	1.43	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343697	Organic Carbon	0.544	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P417494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344316	Organic Carbon	1.20	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A113712

Included Lab Sample IDs: 2343762, 2343763, 2343764, 2343765, 2343766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 110
Color (true)	103	102	P/P	90 - 110
Color (true)	104	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113715

Included Lab Sample IDs: 2343760, 2343762, 2343763, 2343764, 2343765, 2343766

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113739

Included Lab Sample IDs: 2343767, 2343769, 2343770, 2343771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	97.8	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113757

Included Lab Sample IDs: 2343767, 2343769, 2343770, 2343771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.0	P/P	90 - 110
Organic Carbon	98.9	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113765

Included Lab Sample IDs: 2343761, 2343768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113767

Included Lab Sample IDs: 2343761, 2343768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113794

Included Lab Sample IDs: 2343771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.3	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113795

Included Lab Sample IDs: 2343769, 2343770, 2343771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113797

Included Lab Sample IDs: 2343767

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113799

Included Lab Sample IDs: 2343761, 2343767, 2343768, 2343769, 2343770, 2343771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	P/P	90 - 110
Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113800

Included Lab Sample IDs: 2343761, 2343767, 2343768, 2343769, 2343770

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

Reference Method: SM 2320 B-2011

Run ID: A113811

Included Lab Sample IDs: 2343762, 2343764, 2343765, 2343766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.6	99.4	P/P	90 - 110
Total Alkalinity	99.9	97.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113811

Included Lab Sample IDs: 2343762, 2343764, 2343765, 2343766

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

Reference Method: SM 5310 B-2011

Run ID: A113849

Included Lab Sample IDs: 2343761, 2343768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	90.8	95.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A113862

Included Lab Sample IDs: 2343760, 2343763

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	97.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113862

Included Lab Sample IDs: 2343760, 2343763

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A113902

Included Lab Sample IDs: 2343762, 2343763, 2343764, 2343765, 2343766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.4	96.9	P/P	90 - 110
Chloride	96.9	94.7	P/P	90 - 110
Sulfate	95.9	96.1	P/P	90 - 110
Sulfate	96.1	93.6	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)	102			1.24	
	Color (true)	102			1.87	
	Color (true)	102			0.606	
EPA 180.1 Rev. 2.0	Turbidity	97.3			6.57	
EPA 300.0 Rev. 2.1	Chloride	94.8	99.9	95.5	2.06	
	Sulfate	95.0	99.8	95.7	0.898	
EPA 350.1 Rev. 2.0	Ammonia-N	97.2	97.6	99.6		1.90
	Ammonia-N	97.0	96.6	99.4		2.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101				6.44
	Kjeldahl Nitrogen	101	99.0	101		1.66
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100	96.5		1.93
	NO2NO3-N	99.5	100	99.5		1.00
EPA 365.1 Rev. 2.0	Total-P	103	103	105		1.41
	Total-P	100	104	104		0.379
	Total-P	99.4	103	102		0.611
SM 2320 B-2011	Total Alkalinity	99.7			0.908	
	Total Alkalinity	100			0.223	
SM 2540 C-2011	TDS				5.25	
	TDS				2.88	
SM 2540 D-2011	TSS				5.59	
SM 4500-F- C-2011	Fluoride	104	104	103		1.01
	Fluoride	101	101	98.8		1.43
SM 5310 B-2011	Organic Carbon	95.8	97.8	98.5		0.544
	Organic Carbon	99.0	89.8	91.3		1.20

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2343762, 2343763, 2343764, 2343765, 2343766
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2343760, 2343762, 2343763, 2343764, 2343765, 2343766
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2343762, 2343763, 2343764, 2343765, 2343766
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2343762, 2343763, 2343764, 2343765, 2343766
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2343761, 2343767, 2343768, 2343769, 2343770, 2343771
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2343761, 2343767, 2343768, 2343769, 2343770, 2343771
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2343761, 2343767, 2343768, 2343769, 2343770, 2343771
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2343761, 2343767, 2343768, 2343769, 2343770, 2343771
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2343760, 2343762, 2343763, 2343764, 2343765, 2343766
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2343762, 2343763, 2343764, 2343765, 2343766
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2343760, 2343762, 2343763, 2343764, 2343765, 2343766
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2343760, 2343762, 2343763, 2343764, 2343765, 2343766
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2343761, 2343767, 2343768, 2343769, 2343770, 2343771

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	07/26/2022			07/26/2022 15:14	Anna M. Plaviak	2343764
	07/26/2022			07/26/2022 15:34	Anna M. Plaviak	2343763
	07/26/2022			07/26/2022 15:37	Anna M. Plaviak	2343765
	07/26/2022			07/26/2022 15:43	Anna M. Plaviak	2343762, 2343766
EPA 180.1 Rev. 2.0	07/26/2022			07/26/2022 14:14	Khloe J Berg	2343760
	07/26/2022			07/26/2022 14:15	Khloe J Berg	2343762
	07/26/2022			07/26/2022 14:22	Khloe J Berg	2343763
	07/26/2022			07/26/2022 14:25	Khloe J Berg	2343764
	07/26/2022			07/26/2022 14:29	Khloe J Berg	2343765
EPA 300.0 Rev. 2.1	07/26/2022			07/26/2022 14:31	Khloe J Berg	2343766
	07/26/2022			08/03/2022 14:29	Anna M. Plaviak	2343766
	07/26/2022			08/03/2022 17:30	Anna M. Plaviak	2343762
	07/26/2022			08/03/2022 17:42	Anna M. Plaviak	2343763
	07/26/2022			08/03/2022 17:54	Anna M. Plaviak	2343764
EPA 350.1 Rev. 2.0	07/26/2022			08/03/2022 18:06	Anna M. Plaviak	2343765
	07/26/2022			07/27/2022 12:43	Judith K. Clark	2343767
	07/26/2022			07/27/2022 12:44	Judith K. Clark	2343769
	07/26/2022			07/27/2022 12:46	Judith K. Clark	2343770
	07/26/2022			07/27/2022 12:47	Judith K. Clark	2343771
EPA 351.2 Rev. 2.0	07/26/2022			07/28/2022 11:37	Judith K. Clark	2343761
	07/26/2022			07/28/2022 11:39	Judith K. Clark	2343768
	07/26/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 12:06	Samantha L Bates	2343767
	07/26/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 12:07	Samantha L Bates	2343769
	07/26/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 12:09	Samantha L Bates	2343770
EPA 353.2 Rev. 2.0	07/26/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 12:11	Samantha L Bates	2343771
	07/26/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 12:37	Samantha L Bates	2343761
	07/26/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 12:38	Samantha L Bates	2343768
	07/26/2022			07/27/2022 17:19	Touraj Touran	2343761
	07/26/2022			07/27/2022 17:21	Touraj Touran	2343768
EPA 365.1 Rev. 2.0	07/26/2022			07/29/2022 10:02	Beverly Y. Sanders	2343769
	07/26/2022			07/29/2022 10:03	Beverly Y. Sanders	2343770
	07/26/2022			07/29/2022 10:04	Beverly Y. Sanders	2343771
	07/26/2022			07/29/2022 12:22	Beverly Y. Sanders	2343767
	07/26/2022	07/28/2022 17:50	Adam P Silver	07/29/2022 10:32	James L Waggeberby	2343771
SM 2320 B-2011	07/26/2022	07/28/2022 17:50	Adam P Silver	07/29/2022 13:28	James L Waggeberby	2343761
	07/26/2022	07/28/2022 17:50	Adam P Silver	07/29/2022 13:29	James L Waggeberby	2343768
	07/26/2022	07/28/2022 17:50	Adam P Silver	07/29/2022 13:45	James L Waggeberby	2343767
	07/26/2022	07/28/2022 17:50	Adam P Silver	07/29/2022 13:46	James L Waggeberby	2343769
	07/26/2022	07/28/2022 17:50	Adam P Silver	07/29/2022 13:59	James L Waggeberby	2343770
	07/26/2022			07/30/2022 12:07	Adam P Silver	2343762

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	07/26/2022			07/30/2022 12:20	Adam P Silver	2343764
	07/26/2022			07/30/2022 13:01	Adam P Silver	2343765
	07/26/2022			07/30/2022 13:15	Adam P Silver	2343766
	07/26/2022			08/01/2022 18:56	Adam P Silver	2343760
	07/26/2022			08/01/2022 19:10	Adam P Silver	2343763
SM 2540 C-2011	07/26/2022			07/29/2022 15:04	Yijie Li	2343762, 2343763, 2343764, 2343765, 2343766
SM 2540 D-2011	07/26/2022			07/29/2022 15:04	Yijie Li	2343760, 2343762, 2343763, 2343764, 2343765, 2343766
SM 4500-F- C-2011	07/26/2022			07/30/2022 12:07	Adam P Silver	2343762
	07/26/2022			07/30/2022 12:20	Adam P Silver	2343764
	07/26/2022			07/30/2022 13:01	Adam P Silver	2343765
	07/26/2022			07/30/2022 13:15	Adam P Silver	2343766
	07/26/2022			08/01/2022 16:55	Adam P Silver	2343760
SM 5310 B-2011	07/26/2022			08/01/2022 17:09	Adam P Silver	2343763
	07/26/2022			07/28/2022 04:24	Khloe J Berg	2343767
	07/26/2022			07/28/2022 04:38	Khloe J Berg	2343769
	07/26/2022			07/28/2022 05:24	Khloe J Berg	2343770
	07/26/2022			07/28/2022 05:38	Khloe J Berg	2343771
	07/26/2022			08/02/2022 05:10	Khloe J Berg	2343761
	07/26/2022			08/02/2022 05:25	Khloe J Berg	2343768