

Chemical Analysis Report

NW-DIST-2019-08-13-02

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

Event Description: **Dune Lakes**
Request ID: **RQ-2019-08-12-24**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Chery Bunch

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

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 23-AUG-2019 11:17

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: OYSTER LAKE CENTER

Collection Date/Time: 08/12/2019 10:30

Field ID: G3NW0165

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110958	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P368959	
	EPA 300.0	Bromide	35		mg Br/L	P369434	
	SM 2320 B-97	Total Alkalinity	80		mg CaCO3/L	P369172	
	SM 2540 D-97	TSS	14		mg/L	P369354	
	SM 4500 F-C-97	Fluoride	0.62		mg F/L	P369175	
2110961	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P369249	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369113	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P369009	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P369229	
2110964	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P368971	

Ref. Method and Comment:

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

Sample Location: LITTLE REDFISH LAKE

Collection Date/Time: 08/12/2019 11:00

Field ID: G3NW0125

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110959	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P368959	
	EPA 300.0	Bromide	31		mg Br/L	P369434	
	SM 2320 B-97	Total Alkalinity	67	A	mg CaCO3/L	P369172	
	SM 2540 D-97	TSS	7	I	mg/L	P369354	
	SM 4500 F-C-97	Fluoride	0.53		mg F/L	P369175	
2110962	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P369249	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P369193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369113	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P369026	
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P369229	
2110965	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368971	

Ref. Method and Comment:

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

Sample Location: EASTERN LAKE OFF OF CENTER AVENUE

Collection Date/Time: 08/12/2019 11:35

Field ID: G3NW0124

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110960	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P368959	
	EPA 300.0	Bromide	34		mg Br/L	P369434	
	SM 2320 B-97	Total Alkalinity	82	A	mg CaCO3/L	P369173	
	SM 2540 D-97	TSS	8	I	mg/L	P369354	
	SM 4500 F-C-97	Fluoride	0.62		mg F/L	P369176	
2110963	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P369249	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P369220	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369114	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P369026	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P369229	
2110966	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368971	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368959

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P369434

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369249

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369193

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369220

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369113

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369114

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369009

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369026

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368971

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

Reference Method: SM 2320 B-97
Batch ID: P369172

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P369173

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P369354

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369175

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P369176

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369229

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P369434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369249

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369220

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: P369113

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369114

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: P369009

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369026

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: P368971

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P369172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P369173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P369175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P369176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369229

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P369434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111690	Bromide	98.0	96.8	P/P	90 - 110
2111695	Bromide	95.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111036	Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109173	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111138	Kjeldahl Nitrogen	97.2	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110355	NO2NO3-N	99.8	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110963	NO2NO3-N	97.4	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110823	Total-P	94.6	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111036	Total-P	98.4	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110965	O-Phosphate-P	97.9	98.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P369175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108577	Fluoride	94.4	95.2	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P369176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110960	Fluoride	98.8	98.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P369229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111170	Organic Carbon	98.2	98.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110952	Turbidity	6.07	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P369434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111690	Bromide	1.08	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111036	Ammonia-N	0.541	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109173	Kjeldahl Nitrogen	0.303	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111138	Kjeldahl Nitrogen	1.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110355	NO2NO3-N	0.467	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110963	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110823	Total-P	1.91	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P369026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111036	Total-P	3.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P368971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110965	O-Phosphate-P	0.814	Spike	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P369172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110959	Total Alkalinity	1.05	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
 Batch ID: P369173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110960	Total Alkalinity	0.477	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
 Batch ID: P369175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108577	Fluoride	0.516	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P369176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110960	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P369229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111170	Organic Carbon	0.309	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93474

Included Lab Sample IDs: 2110958, 2110959, 2110960

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93480

Included Lab Sample IDs: 2110964, 2110965, 2110966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	100	P/P	90 - 110
O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93536

Included Lab Sample IDs: 2110961, 2110962, 2110963

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93538

Included Lab Sample IDs: 2110961, 2110962, 2110963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110
Total-P	99.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93564

Included Lab Sample IDs: 2110958, 2110959, 2110960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	103	104	P/P	90 - 110
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93564

Included Lab Sample IDs: 2110958, 2110959, 2110960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	100	P/P	90 - 110
Fluoride	103	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93585

Included Lab Sample IDs: 2110961, 2110962, 2110963

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93593

Included Lab Sample IDs: 2110961, 2110962, 2110963

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93600

Included Lab Sample IDs: 2110961, 2110962, 2110963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	109	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A93690

Included Lab Sample IDs: 2110958, 2110959, 2110960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	103	105	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					6.07	
EPA 300.0	Bromide	98.6	98.0	96.8	95.9		1.08
EPA 350.1 Rev. 2.0	Ammonia-N	105	106	105			0.541
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.3	100	101			0.303
	Kjeldahl Nitrogen	101	97.2	99.7			1.79
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.8	99.4			0.467
	NO2NO3-N	102	97.4	97.9			0.512
EPA 365.1 Rev. 2.0	Total-P	102	94.6	96.5			1.91
	Total-P	104	98.4	95.4			3.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.9	98.7			0.814
SM 2320 B-97	Total Alkalinity	103				1.05	
	Total Alkalinity	105				0.477	
SM 4500 F-C-97	Fluoride	97.2	94.4	95.2			0.516
	Fluoride	98.7	98.8	98.8			0.0
SM 5310 B-00	Organic Carbon	99.2	98.2	98.5			0.309

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2110958, 2110959, 2110960
EPA 300.0 / E31780	Bromide in aqueous matrices	2110958, 2110959, 2110960
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2110961, 2110962, 2110963
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2110961, 2110962, 2110963
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2110961, 2110962, 2110963
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2110961, 2110962, 2110963
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2110964, 2110965, 2110966
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2110958, 2110959, 2110960
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2110958, 2110959, 2110960
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2110958, 2110959, 2110960
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2110961, 2110962, 2110963

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/13/2019			08/13/2019 16:20	Samantha Davila	2110958, 2110959, 2110960
EPA 300.0	08/13/2019			08/20/2019 09:24	Jhamieka S. Greenwood	2110958
	08/13/2019			08/20/2019 09:41	Jhamieka S. Greenwood	2110959
	08/13/2019			08/20/2019 09:58	Jhamieka S. Greenwood	2110960
EPA 350.1 Rev. 2.0	08/13/2019			08/16/2019 13:22	Ping Hua	2110961
	08/13/2019			08/16/2019 13:23	Ping Hua	2110962
	08/13/2019			08/16/2019 13:25	Ping Hua	2110963
EPA 351.2 Rev. 2.0	08/13/2019	08/16/2019 15:10	Sima Feizi	08/19/2019 10:51	Joseph Suarez	2110961
	08/13/2019	08/16/2019 15:10	Sima Feizi	08/19/2019 10:53	Joseph Suarez	2110962
	08/13/2019	08/16/2019 15:10	Sima Feizi	08/19/2019 10:57	Joseph Suarez	2110963
EPA 353.2 Rev. 2.0	08/13/2019			08/15/2019 11:46	Beverly Y. Sanders	2110961
	08/13/2019			08/15/2019 11:47	Beverly Y. Sanders	2110962
	08/13/2019			08/15/2019 11:54	Beverly Y. Sanders	2110963
EPA 365.1 Rev. 2.0	08/13/2019	08/14/2019 12:19	Vijayalakshmi Reddy	08/15/2019 14:34	Lipi Saha	2110961
	08/13/2019	08/14/2019 12:19	Vijayalakshmi Reddy	08/15/2019 14:43	Lipi Saha	2110962
	08/13/2019	08/14/2019 12:19	Vijayalakshmi Reddy	08/15/2019 14:44	Lipi Saha	2110963
EPA 365.1 Rev. 2.0 dissolved	08/13/2019			08/13/2019 16:05	Jhamieka S. Greenwood	2110965
	08/13/2019			08/13/2019 16:31	Jhamieka S. Greenwood	2110964
	08/13/2019			08/13/2019 16:32	Jhamieka S. Greenwood	2110966
SM 2320 B-97	08/13/2019			08/16/2019 05:11	Dale L. Simmons	2110959
	08/13/2019			08/16/2019 08:37	Dale L. Simmons	2110958
	08/13/2019			08/16/2019 11:51	Dale L. Simmons	2110960
SM 2540 D-97	08/13/2019			08/14/2019 15:01	Yijie Li	2110958, 2110959, 2110960
SM 4500 F-C-97	08/13/2019			08/16/2019 04:29	Dale L. Simmons	2110958
	08/13/2019			08/16/2019 04:33	Dale L. Simmons	2110959
	08/13/2019			08/16/2019 11:22	Dale L. Simmons	2110960
SM 5310 B-00	08/13/2019			08/15/2019 17:00	Madeline Funaro	2110961
	08/13/2019			08/15/2019 17:12	Madeline Funaro	2110962
	08/13/2019			08/15/2019 17:24	Madeline Funaro	2110963