

Chemical Analysis Report

CEN-DIST-2017-03-24-01

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

Event Description: **Mizner's Branch**
Request ID: **RQ-2017-03-20-73**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 18-APR-2017 14:03



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 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: Mizner's Branch 50m Upstream of Main Trail Rd

Collection Date/Time: 03/23/2017 10:45

Field ID: G5CE0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882937	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P322150	
	EPA 300.0 Rev. 2.1	Chloride	65		mg Cl/L	P322560	
		Sulfate	8.9		mg SO4/L	P322562	
	SM 2120 B	Color (true)	55	A	PCU	P322161	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P322801	
	SM 2540 C-97	TDS	313		mg/L	P322726	
	SM 2540 D-97	TSS	4	I	mg/L	P322710	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P322804	
1882938	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P322253	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P322204	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P322285	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P322229	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P322211	
1882939	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P322172	

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: P322150

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P322560

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P322562

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P322253

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P322204

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322285

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322229

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322172

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

Reference Method: SM 2120 B
Batch ID: P322161

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322801

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

Reference Method: SM 2540 C-97
Batch ID: P322726

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322710

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322804

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322211

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322560

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322562

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322253

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322285

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: P322229

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: P322172

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

Reference Method: SM 2320 B-97
Batch ID: P322801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P322804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	104		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P322211

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 Rev. 2.1
 Batch ID: P322560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882909	Chloride	99.0		P	90 - 110
1882957	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P322562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882909	Sulfate	100		P	90 - 110
1882957	Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P322253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883150	Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P322204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882961	Kjeldahl Nitrogen	99.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882910	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P322229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882962	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P322172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882893	O-Phosphate-P	95.6	97.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P322804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882920	Fluoride	98.8	99.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882938	Organic Carbon	101	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882920	Turbidity	2.61	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882909	Chloride	0.185	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882909	Sulfate	0.322	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883150	Ammonia-N	1.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882961	Kjeldahl Nitrogen	0.607	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882910	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882962	Total-P	0.847	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882893	O-Phosphate-P	1.26	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882937	Color (true)	1.25	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882920	Total Alkalinity	0.0256	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882688	TDS	6.47	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P322804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882920	Fluoride	0.500	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882938	Organic Carbon	1.00	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A75338

Included Lab Sample IDs: 1882937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A75344

Included Lab Sample IDs: 1882937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75348

Included Lab Sample IDs: 1882939

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A75367

Included Lab Sample IDs: 1882938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75380

Included Lab Sample IDs: 1882938

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75389

Included Lab Sample IDs: 1882938

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75400

Included Lab Sample IDs: 1882938

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75404

Included Lab Sample IDs: 1882938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	107	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75488

Included Lab Sample IDs: 1882937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	100	96.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75578

Included Lab Sample IDs: 1882937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75578

Included Lab Sample IDs: 1882937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	104	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				2.61	
EPA 300.0 Rev. 2.1	Chloride	104	99.0	100	0.185	
	Sulfate	102	100	98.8	0.322	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	101		1.52
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	99.3	100		0.607
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	104	104		0.482
EPA 365.1 Rev. 2.0	Total-P	104	104	105		0.847
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	95.6	97.3		1.26
SM 2120 B	Color (true)				1.25	
SM 2320 B-97	Total Alkalinity	105			0.0256	
SM 2540 C-97	TDS				6.47	
SM 4500 F-C-97	Fluoride	104	98.8	99.4		0.500
SM 5310 B-00	Organic Carbon	99.2	101	99.6		1.00

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1882937
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1882937
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1882937
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1882938
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1882938
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1882938
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1882938
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1882939
SM 2120 B / E31780	True Color measured at 450 nm	1882937
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1882937
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1882937
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1882937
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1882937
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1882938

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	03/24/2017			03/24/2017 15:35	Sima Feizi	1882937
EPA 300.0 Rev. 2.1	03/24/2017			03/31/2017	Ping Hua	1882937
EPA 350.1 Rev. 2.0	03/24/2017			03/27/2017	Julie Michelle Frank	1882938
EPA 351.2 Rev. 2.0	03/24/2017	03/27/2017	Adrian Shelby	03/28/2017	Joseph Suarez	1882938
EPA 353.2 Rev. 2.0	03/24/2017			03/28/2017	Beverly Y. Sanders	1882938
EPA 365.1 Rev. 2.0	03/24/2017	03/27/2017	Vijayalakshmi Reddy	03/28/2017	Christopher Armour	1882938
EPA 365.1 Rev. 2.0 dissolved	03/24/2017			03/24/2017 16:47	Anthony C. Onicha	1882939
SM 2120 B	03/24/2017			03/24/2017 16:05	Julia Storbeck	1882937
SM 2320 B-97	03/24/2017			04/04/2017	Dale L. Simmons	1882937
SM 2540 C-97	03/24/2017			03/28/2017	Yijie Li	1882937
SM 2540 D-97	03/24/2017			03/28/2017	Yijie Li	1882937
SM 4500 F-C-97	03/24/2017			04/04/2017	Dale L. Simmons	1882937
SM 5310 B-00	03/24/2017			03/25/2017	Julie Michelle Frank	1882938