

Chemical Analysis Report

SW-DIST-2019-10-11-01

Florida Department of Environmental Protection
Central Laboratory
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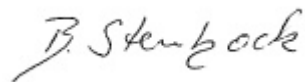
Event Description: **Hurrah Creek HA 2 of 2**
Request ID: **RQ-2019-10-14-02**
Customer: **SW-DIST**
Project ID: **SMP**

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Date Certified: 31-OCT-2019 18:20



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: Sundance Creek

Collection Date/Time: 10/10/2019 13:10

Field ID: G2SW0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2127253	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P372374	
	EPA 300.0 Rev. 2.1	Chloride	160		mg Cl/L	P372761	
		Sulfate	500		mg SO4/L	P372765	
	SM 2120 B	Color (true)	52	A	PCU	P372532	
	SM 2320 B-97	Total Alkalinity	95		mg CaCO3/L	P372647	
	SM 2540 C-97	TDS	1.07E+03		mg/L	P372899	
	SM 2540 D-97	TSS	4	I	mg/L	P372870	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P372649	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P372693	
2127254	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P372396	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P372444	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P372472	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P372777	
2127255	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.24		mg P/L	P372366	

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: P372374

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372693

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372396

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372444

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372472

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372366

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

Reference Method: SM 2120 B
Batch ID: P372532

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P372647

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

Reference Method: SM 2540 C-97
Batch ID: P372899

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P372870

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P372649

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P372777

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: P372761

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372693

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372396

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: P372444

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: P372472

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372366

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

Reference Method: SM 2120 B
Batch ID: P372532

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P372647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P372649

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P372777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P372761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127138	Chloride	101	102	P/P	90 - 110
2127259	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P372765

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127138	Sulfate	102	102	P/P	90 - 110
2127259	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P372693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127188	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P372396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127188	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P372444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127254	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P372472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127247	Total-P	99.8	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P372366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127140	O-Phosphate-P	95.5	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P372649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127226	Fluoride	95.1	94.6	P/P	89 - 106

Reference Method: SM 5310 B-00
 Batch ID: P372777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127328	Organic Carbon	101	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127225	Turbidity	2.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127138	Chloride	0.361	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P372765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127138	Sulfate	0.0117	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127188	Ammonia-N	1.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127188	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127254	NO2NO3-N	0.298	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127247	Total-P	2.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127140	O-Phosphate-P	0.693	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P372532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127253	Color (true)	1.26	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P372647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127226	Total Alkalinity	0.0444	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P372899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127324	TDS	5.79	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P372649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127226	Fluoride	0.477	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P372777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127328	Organic Carbon	3.23	Spike	P	0 - 20

* 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: A94905

Included Lab Sample IDs: 2127255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94918

Included Lab Sample IDs: 2127254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A94921

Included Lab Sample IDs: 2127253

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.5	98.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A94980

Included Lab Sample IDs: 2127253

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	100	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94982

Included Lab Sample IDs: 2127254

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95003

Included Lab Sample IDs: 2127253

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95005

Included Lab Sample IDs: 2127254

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

Reference Method: SM 2320 B-97

Run ID: A95027

Included Lab Sample IDs: 2127253

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A95027

Included Lab Sample IDs: 2127253

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95045

Included Lab Sample IDs: 2127254

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

Reference Method: SM 5310 B-00

Run ID: A95081

Included Lab Sample IDs: 2127254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	95.8	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	MS
							SMP	
EPA 180.1 Rev. 2.0	Turbidity						2.50	
EPA 300.0 Rev. 2.1	Chloride	99.8	101	102	100			0.361
	Sulfate	99.9	102	102	101			0.0117
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	102				1.35
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	101	103				1.94
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	102				0.298
EPA 365.1 Rev. 2.0	Total-P	98.0	99.8	97.6				2.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	95.5	96.2				0.693
SM 2120 B	Color (true)	100					1.26	
SM 2320 B-97	Total Alkalinity	104					0.0444	
SM 2540 C-97	TDS						5.79	
SM 4500 F-C-97	Fluoride	96.2	95.1	94.6				0.477
SM 5310 B-00	Organic Carbon	102	101	96.0				3.23

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2127253
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2127253
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2127253
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2127254
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2127254
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2127254
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2127254
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2127255
SM 2120 B / E31780	True Color measured at 450 nm	2127253
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2127253
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2127253
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2127253
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2127253
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2127254

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	10/11/2019			10/11/2019 15:36	Blanca Fach	2127253
EPA 300.0 Rev. 2.1	10/11/2019			10/17/2019 11:55	Jhamieka S. Greenwood	2127253
EPA 350.1 Rev. 2.0	10/11/2019			10/17/2019 13:03	Ping Hua	2127254
EPA 351.2 Rev. 2.0	10/11/2019	10/14/2019 11:32	Sima Feizi	10/15/2019 17:40	Jhamieka S. Greenwood	2127254
EPA 353.2 Rev. 2.0	10/11/2019			10/14/2019 10:52	Beverly Y. Sanders	2127254
EPA 365.1 Rev. 2.0	10/11/2019	10/15/2019 13:09	Lipi Saha	10/16/2019 10:38	Rosalyn Ballman	2127254
EPA 365.1 Rev. 2.0 dissolved	10/11/2019			10/11/2019 15:46	Jhamieka S. Greenwood	2127255
SM 2120 B	10/11/2019			10/11/2019 17:00	Madeline Funaro	2127253
SM 2320 B-97	10/11/2019			10/16/2019 00:01	Dale L. Simmons	2127253
SM 2540 C-97	10/11/2019			10/16/2019 13:25	Yijie Li	2127253
SM 2540 D-97	10/11/2019			10/16/2019 13:25	Yijie Li	2127253
SM 4500 F-C-97	10/11/2019			10/16/2019 00:01	Dale L. Simmons	2127253
SM 5310 B-00	10/11/2019			10/17/2019 22:08	Madeline Funaro	2127254