

Chemical Analysis Report

CEN-DIST-2018-06-28-02

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

Event Description: **Lake Jessup_Haynes Creek BMAP**
Request ID: **RQ-2018-06-25-19**
Customer: **CEN-DIST**
Project ID: **LKJES-BMAP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-JUL-2018 14:34

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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 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: SWEETWATER CREEK @ FLORIDA AVENUE Collection Date/Time: 06/27/2018 13:27

Field ID: G2CE0123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003814	EPA 350.1 Rev. 2.0	Ammonia-N	0.078		mg N/L	P348265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P348132	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P347769	
	EPA 365.1 Rev. 2.0	Total-P	0.46		mg P/L	P347885	
2003816	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.36		mg P/L	P347708	
2003818	SM 2540 D-97	TSS	8	I	mg/L	P347875	

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: SALT CREEK @ PACKARD AVENUE

Collection Date/Time: 06/27/2018 13:45

Field ID: G2CE0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003815	EPA 350.1 Rev. 2.0	Ammonia-N	0.096		mg N/L	P348266	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P348132	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P347769	
	EPA 365.1 Rev. 2.0	Total-P	0.31		mg P/L	P347885	
2003817	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P347708	
2003819	SM 2540 D-97	TSS	19		mg/L	P347875	

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 350.1 Rev. 2.0
Batch ID: P348265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348266

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348132

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347769

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: P347885

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347708

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

Reference Method: SM 2540 D-97
Batch ID: P347875

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348266

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	95.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347708

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003713	Ammonia-N	98.9	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003771	Ammonia-N	98.3	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003830	Kjeldahl Nitrogen	96.0	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003770	NO2NO3-N	96.0	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003869	Total-P	91.7	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003772	O-Phosphate-P	91.0	91.4	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P348265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003713	Ammonia-N	1.53	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P348266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003771	Ammonia-N	0.506	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P348132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003830	Kjeldahl Nitrogen	0.206	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P347769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003770	NO2NO3-N	0.519	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P347885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003869	Total-P	0.827	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P347708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003772	O-Phosphate-P	0.439	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 365.1 Rev. 2.0 dissolved

Run ID: A84918

Included Lab Sample IDs: 2003816, 2003817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	92.8	93.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84938

Included Lab Sample IDs: 2003814, 2003815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85029

Included Lab Sample IDs: 2003814, 2003815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.4	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85134

Included Lab Sample IDs: 2003814, 2003815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85152

Included Lab Sample IDs: 2003814, 2003815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	99.4	P/P	90 - 110
Ammonia-N	99.9	99.7	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 350.1 Rev. 2.0	Ammonia-N	102	98.9 101			1.53
	Ammonia-N	97.4	98.3 98.9			0.506
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.5	96.0 95.8			0.206
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	95.5	96.0 96.5			0.519
EPA 365.1 Rev. 2.0	Total-P	99.2	91.7 92.6			0.827
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	91.0 91.4			0.439

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2003814, 2003815
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2003814, 2003815
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2003814, 2003815
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2003814, 2003815
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2003816, 2003817
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2003818, 2003819

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	06/28/2018			07/11/2018 15:11	Ping Hua	2003814
	06/28/2018			07/11/2018 15:32	Ping Hua	2003815
EPA 351.2 Rev. 2.0	06/28/2018	07/10/2018 10:45	Adrian Shelby	07/11/2018 09:57	Joseph Suarez	2003814
	06/28/2018	07/10/2018 10:45	Adrian Shelby	07/11/2018 09:59	Joseph Suarez	2003815
EPA 353.2 Rev. 2.0	06/28/2018			06/29/2018 11:40	Lauren Bottorf	2003814
	06/28/2018			06/29/2018 11:41	Lauren Bottorf	2003815
EPA 365.1 Rev. 2.0	06/28/2018	07/03/2018 10:50	Sima Feizi	07/05/2018 12:30	Beverly Y. Sanders	2003814
	06/28/2018	07/03/2018 10:50	Sima Feizi	07/05/2018 12:31	Beverly Y. Sanders	2003815
EPA 365.1 Rev. 2.0 dissolved	06/28/2018			06/28/2018 14:55	Megan Treadwell	2003816
	06/28/2018			06/28/2018 14:56	Megan Treadwell	2003817
SM 2540 D-97	06/28/2018			06/29/2018 16:30	William L. Brown IV	2003818, 2003819