Chemical Analysis Report

SE-DIST-2024-05-01-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **SMP - 2024 Deployments**
Request ID: **RQ-2024-03-18-41**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

For additional information please contact
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 04-JUN-2024 09:59

NON-CONFORMANCE REPORT INCLUDED

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: ARCH CREEK AT ENCHANTED FOREST **Collection Date/Time: 04/30/2024 11:15**

Field ID: G4SE0120 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2485811	DEP SOP: NU-094-1	Color (true)	5.0	I	PCU	P445071	
	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P445075	
	EPA 300.0 Rev. 2.1	Chloride	1.4E+04		mg Cl/L	P445296	
		Sulfate	1.9E+03		mg SO4/L	P445300	
	SM 2540 C-2015	TDS	2.12E+04		mg/L	P445591	
	SM 2540 D-2015	TSS	5	I A	mg/L	P445514	
	SM 4500-F- C-2011	Fluoride	0.88		mg F/L	P445604	
2485812	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P445222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P445186	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P445261	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P445133	
	SM 5310 B-2014	Organic Carbon	3.9	I	mg C/L	P445384	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 10476

Event(s)	Job(s)	Sample(s)	Test(s)
SE-DIST-2024-05-01-01	TLH-2024-05-01-35		

NCR Type: CUSTODY **NCR Category: General**

Observation: After 05/09/2024, sample(s) were stored above room temperature for multiple days because of a power outage.

Resolution: Customer elected not to receive Y and/or Q qualfied data resulting from power outage, so any affected tests were removed or the sample was cancelled.

Authorized by/Date: Sarah A Nixon 5/29/2024

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P445071

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P445075

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445296

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445300

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445222

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445186

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445261

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445133

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

Reference Method: SM 2540 C-2015
Batch ID: P445591

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P445514

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P445604

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P445384

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: P445071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.6		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P445075

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	109		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445300

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445186

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445261

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: P445133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: SM 2540 C-2015
Batch ID: P445591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	95.6		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P445514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	114		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P445604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	95 - 106

Reference Method: SM 5310 B-2014
Batch ID: P445384

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: P445296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2483974	Chloride	105		P	90 - 110
2485759	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2483974	Sulfate	105		P	90 - 110
2485759	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2485794	Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2485995	Kjeldahl Nitrogen	101	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2485303	NO2NO3-N	97.6	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2485812	Total-P	98.0	97.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P445604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2485225	Fluoride	101	101	P/P	95 - 107

Reference Method: SM 5310 B-2014
Batch ID: P445384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2485067	Organic Carbon	96.3	95.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P445071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485768	Color (true)	1.67	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P445075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485745	Turbidity	7.15	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2483974	Chloride	0.717	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2483974	Sulfate	1.95	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485794	Ammonia-N	0.454	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485995	Kjeldahl Nitrogen	3.55	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485303	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485812	Total-P	0.709	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2540 C-2015
Batch ID: P445591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485839	TDS	5.48	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P445604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485225	Fluoride	0.0	Spike	P	0 - 1.7

Reference Method: SM 5310 B-2014
Batch ID: P445384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2485067	Organic Carbon	0.621	Spike	P	0 - 15

* 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: A125623
Included Lab Sample IDs: 2485811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.8	97.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A125626
Included Lab Sample IDs: 2485811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A125640
Included Lab Sample IDs: 2485811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A125668
Included Lab Sample IDs: 2485812

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A125671
Included Lab Sample IDs: 2485812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A125687
Included Lab Sample IDs: 2485812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A125705
Included Lab Sample IDs: 2485812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	97.0	P/P	90 - 110

Reference Method: SM 5310 B-2014
Run ID: A125736
Included Lab Sample IDs: 2485812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	112	97.0	P/P	70 - 130

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A125829
Included Lab Sample IDs: 2485811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.4	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	SMP	MS
DEP SOP: NU-094-1	Color (true)	95.6				1.67	
EPA 180.1 Rev. 2.0	Turbidity	103				7.15	
EPA 300.0 Rev. 2.1	Chloride	109	105	104		0.717	
	Sulfate	110	105	106		1.95	
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	99.8	100			0.454
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.4	101	97.1			3.55
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.6	98.1			0.475
EPA 365.1 Rev. 2.0	Total-P	99.6	98.0	97.3			0.709
SM 2540 C-2015	TDS	95.6				5.48	
SM 2540 D-2015	TSS	114					
SM 4500-F- C-2011	Fluoride	96.0	101	101			0.0
SM 5310 B-2014	Organic Carbon	99.2	96.3	95.5			0.621

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2485811
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2485811
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2485811
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2485811
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2485812
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2485812
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2485812
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2485812
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2485811
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2485811
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2485811
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2485812

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	05/01/2024			05/01/2024 15:35	Samantha L Bates	2485811
EPA 180.1 Rev. 2.0	05/01/2024			05/01/2024 15:11	Jessica K Wilks	2485811
EPA 300.0 Rev. 2.1	05/01/2024			05/04/2024 08:17	James L Waggerby	2485811
EPA 350.1 Rev. 2.0	05/01/2024			05/03/2024 12:54	Kenneth H Lee	2485812
EPA 351.2 Rev. 2.0	05/01/2024	05/03/2024 11:57	Ping Hua	05/06/2024 15:03	Samantha L Bates	2485812
EPA 353.2 Rev. 2.0	05/01/2024			05/03/2024 15:04	Fadila Guebre	2485812
EPA 365.1 Rev. 2.0	05/01/2024	05/02/2024 13:57	Josephine W Gitau	05/03/2024 12:23	Simonne.V. Calhoun	2485812
SM 2540 C-2015	05/01/2024			05/03/2024 15:46	Yijie Li	2485811
SM 2540 D-2015	05/01/2024			05/03/2024 15:46	Yijie Li	2485811
SM 4500-F- C-2011	05/01/2024			05/21/2024 19:46	Dale L. Simmons	2485811
SM 5310 B-2014	05/01/2024			05/07/2024 08:17	Jessica K Wilks	2485812