

Chemical Analysis Report

SE-DIST-2020-03-13-01

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

Event Description: **SMP- Glades**
Request ID: **RQ-2020-03-02-61**
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: Jordan Skaggs

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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 01-APR-2020 15:04



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: C-16N @ Bellaggio

Collection Date/Time: 03/12/2020 10:30

Field ID: G3SE0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165009	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P380936	
		Sulfate	35		mg SO4/L	P380938	
	SM 2120 B-2011	Color (true)	52		PCU	P380650	
	SM 2320 B-2011	Total Alkalinity	197		mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	356		mg/L	P381189	
	SM 2540 D-2011	TSS	7	I	mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.19		mg F/L	P381264	
2165010	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P380958	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P381326	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P381143	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P380753	
2165011	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P380646	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: C-16N @ Bellaggio

Collection Date/Time: 03/12/2020 10:35

Field ID: FB_03122020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165012	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P380936	
		Sulfate	0.20	U	mg SO4/L	P380938	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P380650	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	15	U	mg/L	P381189	
	SM 2540 D-2011	TSS	2	U	mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381264	
2165013	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P380958	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381386	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P381166	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P380753	
2165014	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380646	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ACME South

Collection Date/Time: 03/12/2020 11:05

Field ID: G3SE0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165006	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	69		mg Cl/L	P380936	
		Sulfate	19		mg SO4/L	P380938	
		Color (true)	80		PCU	P380650	
	SM 2320 B-2011	Total Alkalinity	248		mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	418		mg/L	P381189	
	SM 2540 D-2011	TSS	2	I	mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P381264	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P380958	
2165007	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P381326	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P381143	
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P380753	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.007	I	mg P/L	P380646	
	dissolved						

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: South Shore Blvd 2

Collection Date/Time: 03/12/2020 11:30

Field ID: G3SE0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165000	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	81		mg Cl/L	P380936	
		Sulfate	29		mg SO4/L	P380938	
		Color (true)	58		PCU	P380650	
	SM 2320 B-2011	Total Alkalinity	222		mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	426		mg/L	P381189	
	SM 2540 D-2011	TSS	4	I	mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P381264	
2165002	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P380956	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P381325	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P381143	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P380753	
2165004	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P380646	

Sample Location: Lake Wellington

Collection Date/Time: 03/12/2020 11:45

Field ID: G3SE0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2165001	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	85		mg Cl/L	P380936	
		Sulfate	33		mg SO4/L	P380938	
	SM 2120 B-2011	Color (true)	30	A	PCU	P380650	
	SM 2320 B-2011	Total Alkalinity	200		mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	404		mg/L	P381189	
	SM 2540 D-2011	TSS	3	I	mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P381264	
2165003	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P380956	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381326	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P381143	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P380753	
2165005	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380646	

Sample Location: Culvert 12 Canal @ Harris Rd.

Collection Date/Time: 03/12/2020 13:15

Field ID: G4SE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164997	EPA 180.1 Rev. 2.0	Turbidity	17	A	NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P380936	
		Sulfate	26		mg SO4/L	P380938	
		Color (true)	35	A	PCU	P380652	
	SM 2320 B-2011	Total Alkalinity	116	A	mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	263		mg/L	P381189	
	SM 2540 D-2011	TSS	11		mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P381264	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P380956	
2164998	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P381325	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P381143	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P380753	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P380646	

Sample Location: Pelican River @ McClure

Collection Date/Time: 03/12/2020 13:50

Field ID: G5SE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164994	EPA 180.1 Rev. 2.0	Turbidity	33		NTU	P380719	
	EPA 300.0 Rev. 2.1	Chloride	47	A	mg Cl/L	P380936	
		Sulfate	26	A	mg SO4/L	P380938	
		Color (true)	30		PCU	P380652	
	SM 2320 B-2011	Total Alkalinity	109		mg CaCO3/L	P381068	
	SM 2540 C-2011	TDS	272	A	mg/L	P381189	
	SM 2540 D-2011	TSS	13	A	mg/L	P381221	
	SM 4500 F-C-2011	Fluoride	0.15		mg F/L	P381264	
2164995	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P381043	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P380956	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P381325	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P381143	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P380753	
2164996	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.081		mg P/L	P380646	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380719

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380936

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380938

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381043

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380956

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380958

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381326

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381386

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381143

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381166

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380646

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

Reference Method: SM 2120 B-2011
Batch ID: P380650

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P380652

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P381068

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

Reference Method: SM 2540 C-2011
Batch ID: P381189

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381221

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381264

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P380753

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: P380936

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380938

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381043

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	90.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381326

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381386

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381143

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380646

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

Reference Method: SM 2120 B-2011
Batch ID: P380650

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

Reference Method: SM 2120 B-2011
Batch ID: P380652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P381068

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

Reference Method: SM 4500 F-C-2011
Batch ID: P381264

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.8		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P380753

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164994	Chloride	98.1		P	90 - 110
2165028	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164994	Sulfate	97.7		P	90 - 110
2165028	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165003	Ammonia-N	97.5	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165003	Kjeldahl Nitrogen	97.6	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164340	NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165003	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166033	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164857	Total-P	106	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165029	Total-P	106	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380646

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164996	O-Phosphate-P	98.4	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P381264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164997	Fluoride	98.9	100	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165002	Organic Carbon	98.5	98.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164997	Turbidity	3.61	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164994	Chloride	0.350	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164994	Sulfate	0.573	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165003	Ammonia-N	0.755	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165003	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165084	Kjeldahl Nitrogen	3.95	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164340	NO2NO3-N	0.587	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165003	NO2NO3-N	0.509	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166033	NO2NO3-N	0.460	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164857	Total-P	2.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165029	Total-P	0.0567	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380646

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164996	O-Phosphate-P	0.279	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P380650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165001	Color (true)	0.894	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P380652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164997	Color (true)	0.00285	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164997	Total Alkalinity	0.211	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164994	TDS	1.83	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-2011
Batch ID: P381221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164994	TSS	6.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164997	Fluoride	0.986	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165002	Organic Carbon	0.0816	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: A98188

Included Lab Sample IDs: 2164996, 2164999, 2165004, 2165005, 2165008, 2165011, 2165014

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	96.4	P/P	90 - 110
O-Phosphate-P	99.4	97.2	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A98191

Included Lab Sample IDs: 2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 115
Color (true)	99.3	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98220

Included Lab Sample IDs: 2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: SM 5310 B-2011

Run ID: A98233

Included Lab Sample IDs: 2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.6	P/P	90 - 110
Organic Carbon	98.9	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98259

Included Lab Sample IDs: 2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Chloride	98.9	100	P/P	90 - 110
Sulfate	101	99.8	P/P	90 - 110
Sulfate	99.2	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98337

Included Lab Sample IDs: 2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.2	P/P	90 - 110
Ammonia-N	99.2	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98350

Included Lab Sample IDs: 2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	106	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98369

Included Lab Sample IDs: 2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.5	96.3	P/P	90 - 110
Kjeldahl Nitrogen	95.8	96.5	P/P	90 - 110
Kjeldahl Nitrogen	98.9	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98396

Included Lab Sample IDs: 2164995, 2164998, 2165010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98414

Included Lab Sample IDs: 2165002, 2165003, 2165007

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

Reference Method: SM 4500 F-C-2011

Run ID: A98428

Included Lab Sample IDs: 2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	98.1	P/P	90 - 110
Fluoride	98.1	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98429

Included Lab Sample IDs: 2165013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98453

Included Lab Sample IDs: 2164995, 2164998, 2165002, 2165003, 2165007, 2165010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110
NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98479

Included Lab Sample IDs: 2165013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	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	MS
EPA 180.1 Rev. 2.0	Turbidity				3.61	
EPA 300.0 Rev. 2.1	Chloride	101	98.1	100	0.350	
	Sulfate	100	97.7	101	0.573	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	97.5	96.6		0.755
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.2	97.6	99.6		1.09
	Kjeldahl Nitrogen	90.2				3.95
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.0	96.0		0.587
	NO2NO3-N	98.5	98.5	98.0		0.509
	NO2NO3-N	104	101	100		0.460
EPA 365.1 Rev. 2.0	Total-P	103	106	109		2.39
	Total-P	106	106	106		0.0567
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	98.4	97.9		0.279
SM 2120 B-2011	Color (true)	102			0.894	
	Color (true)	101			0.0028	
SM 2320 B-2011	Total Alkalinity	106			0.211	
SM 2540 C-2011	TDS				1.83	
SM 2540 D-2011	TSS				6.25	
SM 4500 F-C-2011	Fluoride	93.8	98.9	100		0.986
SM 5310 B-2011	Organic Carbon	97.6	98.5	98.4		0.0816

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2164996, 2164999, 2165004, 2165005, 2165008, 2165011, 2165014
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2164995, 2164998, 2165002, 2165003, 2165007, 2165010, 2165013

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	03/13/2020			03/13/2020 16:42	Yen Ta	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
EPA 300.0 Rev. 2.1	03/13/2020			03/18/2020 22:09	Lipi Saha	2164994
	03/13/2020			03/18/2020 23:22	Lipi Saha	2164997
	03/13/2020			03/18/2020 23:34	Lipi Saha	2165000
	03/13/2020			03/18/2020 23:46	Lipi Saha	2165001
	03/13/2020			03/19/2020 00:22	Lipi Saha	2165006
	03/13/2020			03/19/2020 00:34	Lipi Saha	2165009
	03/13/2020			03/19/2020 00:46	Lipi Saha	2165012
EPA 350.1 Rev. 2.0	03/13/2020			03/20/2020 14:56	Ping Hua	2165003
	03/13/2020			03/20/2020 15:00	Ping Hua	2164995
	03/13/2020			03/20/2020 15:02	Ping Hua	2164998
	03/13/2020			03/20/2020 15:11	Ping Hua	2165002
	03/13/2020			03/20/2020 15:12	Ping Hua	2165007
	03/13/2020			03/20/2020 15:14	Ping Hua	2165010
	03/13/2020			03/20/2020 15:18	Ping Hua	2165013
EPA 351.2 Rev. 2.0	03/13/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:26	Jhamieka S. Greenwood	2165003
	03/13/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:44	Jhamieka S. Greenwood	2164995
	03/13/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:46	Jhamieka S. Greenwood	2164998
	03/13/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:47	Jhamieka S. Greenwood	2165002
	03/13/2020	03/19/2020 11:55	Sima Feizi	03/23/2020 09:15	Jhamieka S. Greenwood	2165007
	03/13/2020	03/19/2020 11:55	Sima Feizi	03/23/2020 09:16	Jhamieka S. Greenwood	2165010
	03/13/2020	03/19/2020 11:55	Sima Feizi	03/23/2020 09:18	Jhamieka S. Greenwood	2165013
EPA 353.2 Rev. 2.0	03/13/2020			03/26/2020 10:39	Beverly Y. Sanders	2164995
	03/13/2020			03/26/2020 10:41	Beverly Y. Sanders	2164998
	03/13/2020			03/26/2020 10:42	Beverly Y. Sanders	2165002
	03/13/2020			03/26/2020 10:49	Beverly Y. Sanders	2165003
	03/13/2020			03/26/2020 10:55	Beverly Y. Sanders	2165007
	03/13/2020			03/26/2020 10:56	Beverly Y. Sanders	2165010
	03/13/2020			03/27/2020 09:44	Beverly Y. Sanders	2165013
EPA 365.1 Rev. 2.0	03/13/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 10:39	Benjamin T. Nordmann	2164995
	03/13/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 10:40	Benjamin T. Nordmann	2164998
	03/13/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 10:44	Benjamin T. Nordmann	2165010
	03/13/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 14:16	Benjamin T. Nordmann	2165002
	03/13/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 14:17	Benjamin T. Nordmann	2165003
	03/13/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 14:18	Benjamin T. Nordmann	2165007
	03/13/2020	03/24/2020 14:46	Lipi Saha	03/25/2020 11:12	Benjamin T. Nordmann	2165013
EPA 365.1 Rev. 2.0 dissolved	03/13/2020			03/13/2020 14:18	Carlos Miranda	2164996
	03/13/2020			03/13/2020 14:25	Carlos Miranda	2164999
	03/13/2020			03/13/2020 14:26	Carlos Miranda	2165004

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	03/13/2020			03/13/2020 14:27	Carlos Miranda	2165005
	03/13/2020			03/13/2020 14:28	Carlos Miranda	2165008, 2165011
	03/13/2020			03/13/2020 14:29	Carlos Miranda	2165014
SM 2120 B-2011	03/13/2020			03/13/2020 16:40	Madeline Gruver	2165000
	03/13/2020			03/13/2020 16:41	Madeline Gruver	2165001
	03/13/2020			03/13/2020 16:42	Madeline Gruver	2165006
	03/13/2020			03/13/2020 16:43	Madeline Gruver	2165009, 2165012
	03/13/2020			03/13/2020 16:59	Madeline Gruver	2164997
	03/13/2020			03/13/2020 17:00	Madeline Gruver	2164994
	03/13/2020			03/21/2020 07:06	Dale L. Simmons	2164997
SM 2320 B-2011	03/13/2020			03/21/2020 07:54	Dale L. Simmons	2164994
	03/13/2020			03/21/2020 08:06	Dale L. Simmons	2165000
	03/13/2020			03/21/2020 08:16	Dale L. Simmons	2165001
	03/13/2020			03/21/2020 08:47	Dale L. Simmons	2165006
	03/13/2020			03/21/2020 08:58	Dale L. Simmons	2165009
	03/13/2020			03/21/2020 09:06	Dale L. Simmons	2165012
	03/13/2020			03/18/2020 15:15	Yijie Li	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 2540 C-2011						
SM 2540 D-2011	03/13/2020			03/18/2020 15:32	Yijie Li	2164994, 2164997, 2165000, 2165001, 2165006, 2165009, 2165012
SM 4500 F-C-2011	03/13/2020			03/24/2020 23:01	Dale L. Simmons	2164997
	03/13/2020			03/25/2020 00:04	Dale L. Simmons	2164994
	03/13/2020			03/25/2020 00:10	Dale L. Simmons	2165000
	03/13/2020			03/25/2020 00:15	Dale L. Simmons	2165001
	03/13/2020			03/25/2020 00:20	Dale L. Simmons	2165006
	03/13/2020			03/25/2020 00:25	Dale L. Simmons	2165009
	03/13/2020			03/25/2020 00:30	Dale L. Simmons	2165012
SM 5310 B-2011	03/13/2020			03/16/2020 21:27	Lauren Lees	2165002
	03/13/2020			03/16/2020 23:10	Lauren Lees	2164995
	03/13/2020			03/16/2020 23:22	Lauren Lees	2164998
	03/13/2020			03/16/2020 23:34	Lauren Lees	2165003
	03/13/2020			03/16/2020 23:46	Lauren Lees	2165007
	03/13/2020			03/16/2020 23:59	Lauren Lees	2165010
	03/13/2020			03/17/2020 00:11	Lauren Lees	2165013