

Chemical Analysis Report

SO-DIST-2017-03-23-02

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

Event Description: **SMP: 10,000 Isles**
Request ID: **RQ-2017-03-20-19**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 17-APR-2017 13:49



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 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: 3278P @ #4 South of Goodland

Collection Date/Time: 03/21/2017 12:30

Field ID: G1SD032117-1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882781	EPA 180.1 Rev. 2.0	Turbidity	6.4	Q	NTU	P322106	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P322686	
	SM 2540 D-97	TSS	6	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P322692	
1882787	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P322184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P322203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322648	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P322225	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P322167	
1882793	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	IQ	mg P/L	P322092	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample upon receipt.

Sample Location: Channel to Everglades City

Collection Date/Time: 03/21/2017 11:30

Field ID: G1SD032117-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882782	EPA 180.1 Rev. 2.0	Turbidity	5.9	Q	NTU	P322106	
	SM 2320 B-97	Total Alkalinity	153		mg CaCO3/L	P322686	
	SM 2540 D-97	TSS	7	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P322692	
1882788	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P322184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P322203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322648	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P322276	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P322167	
1882794	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	IQ	mg P/L	P322092	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample upon receipt.

Sample Location: 3259M-ENRE-10 Off 1/10000 Islands

Collection Date/Time: 03/21/2017 11:11

Field ID: G1SD032117-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882783	EPA 180.1 Rev. 2.0	Turbidity	5.1	Q	NTU	P322106	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P322686	
	SM 2540 D-97	TSS	6	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P322692	
1882789	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P322184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P322203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322648	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P322225	

Field ID: G1SD032117-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882789	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P322212	
1882795	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	IQ	mg P/L	P322092	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample upon receipt.

Sample Location: 3259M-ENRE-8 Off Tripod Key

Collection Date/Time: 03/21/2017 12:12

Field ID: G1SD032117-4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882784	EPA 180.1 Rev. 2.0	Turbidity	5.4	Q	NTU	P322106	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P322686	
	SM 2540 D-97	TSS	6	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P322692	
1882790	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P322184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P322203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P322384	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P322276	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P322212	
1882796	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	IQ	mg P/L	P322092	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample upon receipt.

Sample Location: 8065-ENRE6

Collection Date/Time: 03/21/2017 10:37

Field ID: G1SD032117-5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882785	EPA 180.1 Rev. 2.0	Turbidity	6.4	AQ	NTU	P322107	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P322686	
	SM 2540 D-97	TSS	6	I	mg/L	P322741	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P322692	
1882791	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P322184	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P322203	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322384	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P322276	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P322212	
1882797	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P322092	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample upon receipt.

Sample Location: Blank

Collection Date/Time: 03/21/2017 12:51

Field ID: G1SD032117-6

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882786	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P322107	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P322480	
	SM 2540 D-97	TSS	2	U	mg/L	P322712	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322483	
1882792	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322186	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P322202	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322285	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P322226	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P322210	
1882798	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P322092	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample upon receipt.

Non-Conformance Report

NCR ID: 6324

Event(s)

SO-DIST-2017-03-23-02

Job(s)

TLH-2017-03-23-83

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples shipped on 03/21/17, did not arrive until 03/23/17 @ 9:53 am due to shipping error.

UPS code:

1)J460 424 8491

2)J460 424 8562

Resolution: Customer (Ben Paswater) notified by email. Correspondence added to scanned event file.

Authorised by/Date: Colin Wright 4/16/2017

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: EPA 180.1 Rev. 2.0

Batch ID: P322106

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P322107

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322184

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322186

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322202

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322203

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

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 353.2 Rev. 2.0
Batch ID: P322384

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322648

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322225

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322226

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322276

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322092

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

Reference Method: SM 2320 B-97
Batch ID: P322480

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

Reference Method: SM 2320 B-97
Batch ID: P322686

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

Reference Method: SM 2540 D-97
Batch ID: P322712

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322741

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322167

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P322210

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

Reference Method: SM 5310 B-00
Batch ID: P322212

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322184

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322186

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322202

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322203

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	103		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 353.2 Rev. 2.0
Batch ID: P322384

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322648

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322648

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: P322225

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322226

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322276

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P322480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P322686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P322167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P322210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P322212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882756	Ammonia-N	105	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882689	Ammonia-N	98.7	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882767	Kjeldahl Nitrogen	97.9	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882758	Kjeldahl Nitrogen	98.9	104	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 353.2 Rev. 2.0
Batch ID: P322384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882790	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882603	NO2NO3-N	97.1	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882756	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882703	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881619	Total-P	99.1	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882793	O-Phosphate-P	96.8	95.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882334	Fluoride	102	105	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883858	Fluoride	94.3	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882428	Organic Carbon	95.5	97.2	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P322210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882602	Organic Carbon	98.0	99.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P322212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882789	Organic Carbon	100	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882761	Turbidity	2.75	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882785	Turbidity	1.56	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882756	Ammonia-N	2.85	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882689	Ammonia-N	0.868	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882767	Kjeldahl Nitrogen	7.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322203

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882758	Kjeldahl Nitrogen	4.78	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
1882910	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882790	NO2NO3-N	1.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882603	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882756	Total-P	1.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882703	Total-P	0.676	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881619	Total-P	2.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882793	O-Phosphate-P	1.45	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P322480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Total Alkalinity	0.0435	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P322686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883858	Total Alkalinity	0.199	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Fluoride	2.39	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P322692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883858	Fluoride	1.47	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882428	Organic Carbon	1.60	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P322210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882602	Organic Carbon	0.910	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P322212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882789	Organic Carbon	3.60	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75315

Included Lab Sample IDs: 1882793, 1882794, 1882795, 1882796, 1882797, 1882798

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	97.7	P/P	90 - 110
O-Phosphate-P	98.3	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75322

Included Lab Sample IDs: 1882781, 1882782, 1882783, 1882784, 1882785, 1882786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A75347

Included Lab Sample IDs: 1882787, 1882788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	93.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75351

Included Lab Sample IDs: 1882787, 1882788, 1882789, 1882790, 1882791, 1882792

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

Reference Method: SM 5310 B-00

Run ID: A75367

Included Lab Sample IDs: 1882789, 1882790, 1882791, 1882792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	97.9	P/P	90 - 110
Organic Carbon	99.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75389

Included Lab Sample IDs: 1882787

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: 1882792

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: 1882787, 1882788, 1882789, 1882790, 1882791, 1882792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	105	P/P	90 - 110
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75430

Included Lab Sample IDs: 1882790, 1882791

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

Reference Method: SM 2320 B-97

Run ID: A75466

Included Lab Sample IDs: 1882786

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

Reference Method: SM 4500 F-C-97

Run ID: A75466

Included Lab Sample IDs: 1882786

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75468

Included Lab Sample IDs: 1882789, 1882792

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75483

Included Lab Sample IDs: 1882788, 1882790, 1882791

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75520

Included Lab Sample IDs: 1882787, 1882788, 1882789

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

Reference Method: SM 2320 B-97

Run ID: A75542

Included Lab Sample IDs: 1882781, 1882782, 1882783, 1882784, 1882785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A75542

Included Lab Sample IDs: 1882781, 1882782, 1882783, 1882784, 1882785

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

Reference Method: SM 4500 F-C-97

Run ID: A75542

Included Lab Sample IDs: 1882781, 1882782, 1882783, 1882784, 1882785

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	97.5	P/P	90 - 110
Fluoride	97.5	102	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				2.75	
	Turbidity				1.56	
EPA 350.1 Rev. 2.0	Ammonia-N	96.5	105 102			2.85
	Ammonia-N	101	98.7 99.7			0.868
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	97.9 107			7.81
	Kjeldahl Nitrogen	103	98.9 104			4.78
EPA 353.2 Rev. 2.0	NO2NO3-N	100	104 104			0.482
	NO2NO3-N	102	102 103			1.42
	NO2NO3-N	102	97.1 98.6			1.53
EPA 365.1 Rev. 2.0	Total-P	101	102 103			1.27
	Total-P	103	106 105			0.676
	Total-P	103	99.1 102			2.66
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.8	96.8 95.3			1.45
SM 2320 B-97	Total Alkalinity	104			0.0435	
	Total Alkalinity	103			0.199	
SM 4500 F-C-97	Fluoride	98.2	102 105			2.39
	Fluoride	96.4	94.3 96.7			1.47
SM 5310 B-00	Organic Carbon	99.3	95.5 97.2			1.60
	Organic Carbon	99.8	98.0 99.4			0.910
	Organic Carbon	98.8	100 96.4			3.60

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1882787, 1882788, 1882789, 1882790, 1882791, 1882792
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1882787, 1882788, 1882789, 1882790, 1882791, 1882792

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1882787, 1882788, 1882789, 1882790, 1882791, 1882792
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1882787, 1882788, 1882789, 1882790, 1882791, 1882792
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1882793, 1882794, 1882795, 1882796, 1882797, 1882798
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1882787, 1882788, 1882789, 1882790, 1882791, 1882792

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	03/23/2017			03/23/2017 17:09	Sima Feizi	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
EPA 350.1 Rev. 2.0	03/23/2017			03/24/2017	Julie Michelle Frank	1882787, 1882788, 1882789, 1882790, 1882791, 1882792
EPA 351.2 Rev. 2.0	03/23/2017	03/27/2017	Adrian Shelby	03/28/2017	Joseph Suarez	1882787, 1882788, 1882789, 1882790, 1882791, 1882792
EPA 353.2 Rev. 2.0	03/23/2017			03/28/2017	Beverly Y. Sanders	1882792
	03/23/2017			03/29/2017	Beverly Y. Sanders	1882790, 1882791
	03/23/2017			04/03/2017	Beverly Y. Sanders	1882787, 1882788, 1882789
EPA 365.1 Rev. 2.0	03/23/2017	03/27/2017	Vijayalakshmi Reddy	03/28/2017	Christopher Armour	1882787
	03/23/2017	03/27/2017	Vijayalakshmi Reddy	03/30/2017	Virginia P. Brown	1882789, 1882792
	03/23/2017	03/28/2017	Adrian Shelby	03/30/2017	Virginia P. Brown	1882788, 1882790, 1882791
EPA 365.1 Rev. 2.0 dissolved	03/23/2017			03/23/2017 17:13	Anthony C. Onicha	1882793
	03/23/2017			03/23/2017 17:28	Anthony C. Onicha	1882794, 1882795
	03/23/2017			03/23/2017 17:29	Anthony C. Onicha	1882796
	03/23/2017			03/23/2017 17:30	Anthony C. Onicha	1882797
	03/23/2017			03/23/2017 17:31	Anthony C. Onicha	1882798
SM 2320 B-97	03/23/2017			03/30/2017	Dale L. Simmons	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
SM 2540 D-97	03/23/2017			03/28/2017	Yijie Li	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
SM 4500 F-C-97	03/23/2017			03/30/2017	Dale L. Simmons	1882781, 1882782, 1882783, 1882784, 1882785, 1882786
SM 5310 B-00	03/23/2017			03/24/2017	Julie Michelle Frank	1882787, 1882788, 1882792
	03/23/2017			03/25/2017	Julie Michelle Frank	1882789, 1882790, 1882791