

Chemical Analysis Report

SO-DIST-2016-02-04-01

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

Event Description: **SMP: Highlands Lakes**

Request ID: **RQ-2016-02-08-62**

Customer: **SO-DIST**

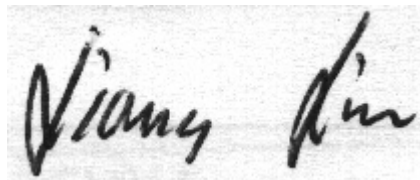
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 19-FEB-2016 15:28

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: HOWARD CREEK AT MYAKKA VALLEY TRAIL **Collection Date/Time: 02/03/2016 11:10**

Field ID: G3SD020316-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1768949	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P298090	
	EPA 300.0 Rev. 2.1	Chloride	37		mg Cl/L	P298293	
		Sulfate	110		mg SO4/L	P298296	
	SM 2120 B	Color (true)	260		PCU	P298073	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P298483	
	SM 2540 C-97	TDS	319		mg/L	P298688	
	SM 2540 D-97	TSS	8	I	mg/L	P298505	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P298366	
1768952	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P298444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P298270	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.065		mg N/L	P298453	
	EPA 365.1 Rev. 2.0	Total-P	0.65		mg P/L	P298300	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P298359	
1768955	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.51		mg P/L	P298077	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: HOWARD CREEK NE BRANCH LOT 185

Collection Date/Time: 02/03/2016 11:30

Field ID: G3SD020316-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1768950	EPA 180.1 Rev. 2.0	Turbidity	6.4	A	NTU	P298091	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P298293	
		Sulfate	12		mg SO4/L	P298296	
	SM 2120 B	Color (true)	310		PCU	P298073	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P298483	
	SM 2540 C-97	TDS	208		mg/L	P298688	
	SM 2540 D-97	TSS	6	I	mg/L	P298505	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P298366	
1768953	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P298444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P298270	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P298453	
	EPA 365.1 Rev. 2.0	Total-P	0.71		mg P/L	P298300	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P298359	
1768956	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.50		mg P/L	P298077	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

SM 5310 B-00: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: INDIAN CREEK @ FRUITVILLE RD.

Collection Date/Time: 02/03/2016 13:10

Field ID: G3SD020316-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G3SD020316-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1768951	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P298091	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P298293	
		Sulfate	42		mg SO4/L	P298296	
	SM 2120 B	Color (true)	300		PCU	P298073	
	SM 2320 B-97	Total Alkalinity	44		mg CaCO3/L	P298483	
	SM 2540 C-97	TDS	199		mg/L	P298688	
	SM 2540 D-97	TSS	3	I	mg/L	P298505	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P298366	
1768954	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P298444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P298270	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.092		mg N/L	P298453	
	EPA 365.1 Rev. 2.0	Total-P	0.84		mg P/L	P298301	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P298360	
1768957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.67		mg P/L	P298077	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P298090

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P298091

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P298293

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P298296

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P298444

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298270

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298301

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298077

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

Reference Method: SM 2120 B
Batch ID: P298073

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P298483

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P298688

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P298505

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P298366

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P298359

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

Reference Method: SM 5310 B-00
Batch ID: P298360

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: P298293

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298296

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298444

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: P298270

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298300

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298301

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298077

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

Reference Method: SM 2320 B-97
Batch ID: P298483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P298366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P298359

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

Reference Method: SM 5310 B-00
Batch ID: P298360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1768573	Chloride	105		P	90 - 110
1768898	Chloride	106		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1768573	Sulfate	102		P	90 - 110
1768898	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1768970	Ammonia-N	98.0	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1768952	NO2NO3-N	95.8	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1768903	Total-P	99.0	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769077	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P298366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1769006	Fluoride	97.3	98.0	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P298360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1768954	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768813	Turbidity	0.458	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768950	Turbidity	1.72	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768573	Chloride	0.123	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768573	Sulfate	0.0663	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P298444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768970	Ammonia-N	1.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768952	Kjeldahl Nitrogen	0.525	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768952	NO2NO3-N	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768903	Total-P	3.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768954	Total-P	1.15	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769077	O-Phosphate-P	0.196	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P298073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768968	Color (true)	1.03	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P298483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769006	Total Alkalinity	0.768	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P298688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768899	TDS	1.12	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P298366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1769006	Fluoride	0.467	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P298359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768580	Organic Carbon	1.27	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P298360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1768954	Organic Carbon	1.05	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: SM 2120 B

Run ID: A67454

Included Lab Sample IDs: 1768949, 1768950, 1768951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	98.3	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67455

Included Lab Sample IDs: 1768955, 1768956, 1768957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	98.1	P/P	90 - 110
O-Phosphate-P	98.9	97.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67458

Included Lab Sample IDs: 1768949, 1768950, 1768951

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67468

Included Lab Sample IDs: 1768949, 1768950, 1768951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	98.6	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67539

Included Lab Sample IDs: 1768952, 1768953, 1768954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.4	P/P	90 - 110
Organic Carbon	95.4	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67541

Included Lab Sample IDs: 1768952, 1768953, 1768954

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

Reference Method: SM 4500 F-C-97

Run ID: A67543

Included Lab Sample IDs: 1768949, 1768950, 1768951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67550

Included Lab Sample IDs: 1768952, 1768953, 1768954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110
Kjeldahl Nitrogen	98.5	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67565

Included Lab Sample IDs: 1768952, 1768953, 1768954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67571

Included Lab Sample IDs: 1768952, 1768953, 1768954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67579

Included Lab Sample IDs: 1768949, 1768950, 1768951

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.5	99.8	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.458	
	Turbidity				1.72	
EPA 300.0 Rev. 2.1	Chloride	105	105	106	0.123	
	Sulfate	100	102	103	0.0663	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	98.0	99.6		1.46
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6				0.525
EPA 353.2 Rev. 2.0	NO2NO3-N	101	95.8	97.3		1.16
EPA 365.1 Rev. 2.0	Total-P	104	99.0	103		3.54
	Total-P	101				1.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	102		0.196
SM 2120 B	Color (true)				1.03	
SM 2320 B-97	Total Alkalinity	103			0.768	
SM 2540 C-97	TDS				1.12	
SM 4500 F-C-97	Fluoride	98.2	97.3	98.0		0.467
SM 5310 B-00	Organic Carbon	95.6				1.27
	Organic Carbon	97.3	101			1.05

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1768949, 1768950, 1768951
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1768949, 1768950, 1768951
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1768949, 1768950, 1768951
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1768952, 1768953, 1768954
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1768952, 1768953, 1768954
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1768952, 1768953, 1768954
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1768952, 1768953, 1768954
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1768955, 1768956, 1768957
SM 2120 B / E31780	True Color measured at 450 nm	1768949, 1768950, 1768951
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1768949, 1768950, 1768951
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1768949, 1768950, 1768951
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1768949, 1768950, 1768951
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1768949, 1768950, 1768951
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1768952, 1768953, 1768954

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	02/04/2016			02/04/2016 16:09	Sima Feizi	1768949, 1768950, 1768951
EPA 300.0 Rev. 2.1	02/04/2016			02/06/2016	Ping Hua	1768949, 1768950, 1768951
EPA 350.1 Rev. 2.0	02/04/2016			02/10/2016	Diana M. Turner	1768952, 1768953, 1768954
EPA 351.2 Rev. 2.0	02/04/2016	02/09/2016	Christopher Armour	02/10/2016	Bryan A. Werth	1768952, 1768953, 1768954
EPA 353.2 Rev. 2.0	02/04/2016			02/11/2016	Peter D. Kaus	1768952, 1768953, 1768954
EPA 365.1 Rev. 2.0	02/04/2016	02/09/2016	Christopher Armour	02/09/2016	Lipi Saha	1768952, 1768953, 1768954
EPA 365.1 Rev. 2.0 dissolved	02/04/2016			02/04/2016 14:38	Bryan A. Werth	1768955
	02/04/2016			02/04/2016 14:39	Bryan A. Werth	1768956
	02/04/2016			02/04/2016 14:57	Bryan A. Werth	1768957
	02/04/2016			02/04/2016 14:48	Rochelle Y Jackson	1768949
SM 2120 B	02/04/2016			02/04/2016 14:49	Rochelle Y Jackson	1768950
	02/04/2016			02/04/2016 14:50	Rochelle Y Jackson	1768951
	02/04/2016			02/11/2016	Dale L. Simmons	1768949, 1768950, 1768951
SM 2320 B-97	02/04/2016			02/08/2016	Sima Feizi	1768949, 1768950, 1768951
SM 2540 C-97	02/04/2016			02/08/2016	Sima Feizi	1768949, 1768950, 1768951
SM 2540 D-97	02/04/2016			02/09/2016	Dale L. Simmons	1768949, 1768950, 1768951
SM 4500 F-C-97	02/04/2016			02/09/2016	Sofia Elnemr	1768952, 1768953, 1768954
SM 5310 B-00	02/04/2016					