

Chemical Analysis Report

SO-DIST-2016-08-09-01

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

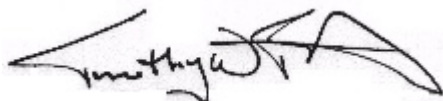
Event Description: **SMP: Bobcat Cr & Unnamed Ditches**
Request ID: **RQ-2016-08-01-06**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

For additional information please contact
Timothy W. Fitzpatrick
Liang-Tsair Lin, Ph.D.
Colin Wright, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 25-AUG-2016 09:40

A handwritten signature in black ink, appearing to read 'Timothy W. Fitzpatrick', with a stylized flourish at the end.

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: 2028 SITE 3

Collection Date/Time: 08/08/2016 09:10

Field ID: G3SD080816-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822480	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P309440	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P309869	
		Sulfate	13		mg SO4/L	P309872	
	SM 2120 B	Color (true)	330		PCU	P309417	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P309561	
	SM 2540 C-97	TDS	165		mg/L	P309824	
	SM 2540 D-97	TSS	6	I	mg/L	P309765	
	SM 4500 F-C-97	Fluoride	0.32		mg F/L	P309563	
1822482	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P309489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P309739	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P309670	
	EPA 365.1 Rev. 2.0	Total-P	0.51		mg P/L	P309698	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P310047	
1822484	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P309426	

Ref. Method and Comment:

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

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

Sample Location: BOBCAT CREEK IN PRESERVE EAST

Collection Date/Time: 08/08/2016 08:50

Field ID: G3SD080816-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822481	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P309440	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P309869	
		Sulfate	8.1		mg SO4/L	P309872	
	SM 2120 B	Color (true)	290		PCU	P309417	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P309561	
	SM 2540 C-97	TDS	180		mg/L	P309824	
	SM 2540 D-97	TSS	14		mg/L	P309765	
	SM 4500 F-C-97	Fluoride	0.32		mg F/L	P309563	
1822483	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P309489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P309740	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.083		mg N/L	P309670	
	EPA 365.1 Rev. 2.0	Total-P	0.68		mg P/L	P309698	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P310047	
1822485	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.45		mg P/L	P309426	

Ref. Method and Comment:

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

Sample Location: BLANK

Collection Date/Time: 08/08/2016 08:57

Field ID: G3SD-Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822486	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P309440	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P309869	

Field ID: G3SD-Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1822486	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P309872	
	SM 2120 B	Color (true)	2.5	U	PCU	P309417	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P309561	
	SM 2540 C-97	TDS	15	U	mg/L	P309823	
	SM 2540 D-97	TSS	2	U	mg/L	P309764	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P309563	
1822487	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P309489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P309740	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P309670	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P309698	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P310047	
1822488	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P309426	

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P309440

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309869

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309872

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P309489

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P309739

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P309740

Component	Result	Code	Units
-----------	--------	------	-------

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309670

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309698

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309426

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

Reference Method: SM 2120 B
Batch ID: P309417

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P309561

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

Reference Method: SM 2540 C-97
Batch ID: P309823

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P309824

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309764

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P309765

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P309563

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P310047

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: P309869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P309670

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: P309698

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P309426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2320 B-97
 Batch ID: P309561

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

Reference Method: SM 4500 F-C-97
 Batch ID: P309563

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P310047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822460	Chloride	97.5		P	90 - 110
1822461	Chloride	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P309872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822460	Sulfate	93.4		P	90 - 110
1822461	Sulfate	91.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P309489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822436	Ammonia-N	100	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P309740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822532	Kjeldahl Nitrogen	97.0	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P309670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822437	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P309698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822503	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P309426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822537	O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P309563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822434	Fluoride	98.3	99.0	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P310047

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1822503	Organic Carbon	102		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P309440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822433	Turbidity	1.03	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822460	Chloride	0.0560	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822460	Sulfate	0.232	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P309489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822436	Ammonia-N	1.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822325	Kjeldahl Nitrogen	3.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822532	Kjeldahl Nitrogen	1.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822437	NO2NO3-N	0.884	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822503	Total-P	0.759	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P309426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822537	O-Phosphate-P	0.400	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P309417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822498	Color (true)	1.43	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P309561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822434	Total Alkalinity	0.00364	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P309823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822270	TDS	3.38	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P309824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822434	TDS	4.78	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P309563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822434	Fluoride	0.509	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822503	Organic Carbon	0.0967	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A71020
Included Lab Sample IDs: 1822480, 1822481, 1822486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.0	97.6	P/P	90 - 115
Color (true)	97.6	100	P/P	90 - 115

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A71020

Included Lab Sample IDs: 1822480, 1822481, 1822486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	97.6	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A71024

Included Lab Sample IDs: 1822484, 1822485, 1822488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A71025

Included Lab Sample IDs: 1822480, 1822481, 1822486

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71041

Included Lab Sample IDs: 1822482, 1822483, 1822487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71072

Included Lab Sample IDs: 1822480, 1822481, 1822486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71072

Included Lab Sample IDs: 1822480, 1822481, 1822486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71097

Included Lab Sample IDs: 1822482, 1822483, 1822487

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71170

Included Lab Sample IDs: 1822482

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A71171
Included Lab Sample IDs: 1822482, 1822483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A71172
Included Lab Sample IDs: 1822483, 1822487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	96.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A71177
Included Lab Sample IDs: 1822480, 1822481, 1822486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	101	P/P	90 - 110
Sulfate	96.0	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A71187
Included Lab Sample IDs: 1822487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A71236
Included Lab Sample IDs: 1822482, 1822483, 1822487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	97.1	P/P	90 - 110
Organic Carbon	96.8	96.1	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				1.03	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5 94.8		0.0560	
	Sulfate	94.1	93.4 91.2		0.232	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	100 98.1			1.75
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108				3.02
	Kjeldahl Nitrogen	107	97.0 98.6			1.26
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100 102			0.884
EPA 365.1 Rev. 2.0	Total-P	109	102 101			0.759
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.7 100			0.400

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 2120 B	Color (true)				1.43	
SM 2320 B-97	Total Alkalinity	103			0.0036	
SM 2540 C-97	TDS				3.38	
	TDS				4.78	
SM 4500 F-C-97	Fluoride	96.3	98.3 99.0			0.509
SM 5310 B-00	Organic Carbon	96.0	102			0.0967

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1822480, 1822481, 1822486
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1822480, 1822481, 1822486
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1822480, 1822481, 1822486
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1822482, 1822483, 1822487
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1822482, 1822483, 1822487
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1822482, 1822483, 1822487
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1822482, 1822483, 1822487
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1822484, 1822485, 1822488
SM 2120 B / E31780	True Color measured at 450 nm	1822480, 1822481, 1822486
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1822480, 1822481, 1822486
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1822480, 1822481, 1822486
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1822480, 1822481, 1822486
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1822480, 1822481, 1822486
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1822482, 1822483, 1822487

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	08/09/2016			08/09/2016 14:10	Sima Feizi	1822480, 1822481, 1822486
EPA 300.0 Rev. 2.1	08/09/2016			08/17/2016	Ping Hua	1822480, 1822481, 1822486
EPA 350.1 Rev. 2.0	08/09/2016			08/09/2016	Julie Michelle Frank	1822482, 1822483, 1822487
EPA 351.2 Rev. 2.0	08/09/2016	08/15/2016	Sofia Elnemr	08/16/2016	Virginia P. Brown	1822482, 1822483, 1822487
EPA 353.2 Rev. 2.0	08/09/2016			08/11/2016	Peter D. Kaus	1822482, 1822483, 1822487
EPA 365.1 Rev. 2.0	08/09/2016	08/15/2016	Vijayalakshmi Reddy	08/16/2016	Lipi Saha	1822482, 1822483
	08/09/2016	08/15/2016	Vijayalakshmi Reddy	08/17/2016	Lipi Saha	1822487
EPA 365.1 Rev. 2.0 dissolved	08/09/2016			08/09/2016 14:31	Julia Storbeck	1822488
	08/09/2016			08/09/2016 14:33	Julia Storbeck	1822484
	08/09/2016			08/09/2016 14:58	Julia Storbeck	1822485
SM 2120 B	08/09/2016			08/09/2016 13:36	Rochelle Y Jackson	1822486
	08/09/2016			08/09/2016 14:13	Rochelle Y Jackson	1822480
	08/09/2016			08/09/2016 14:15	Rochelle Y Jackson	1822481
SM 2320 B-97	08/09/2016			08/10/2016	Dale L. Simmons	1822480, 1822481, 1822486
SM 2540 C-97	08/09/2016			08/10/2016	Yijie Li	1822480, 1822481, 1822486
SM 2540 D-97	08/09/2016			08/10/2016	Yijie Li	1822480, 1822481, 1822486
SM 4500 F-C-97	08/09/2016			08/10/2016	Dale L. Simmons	1822480, 1822481, 1822486
SM 5310 B-00	08/09/2016			08/19/2016	Sofia Elnemr	1822482, 1822483, 1822487