Chemical Analysis Report

SO-DIST-2016-02-12-02

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

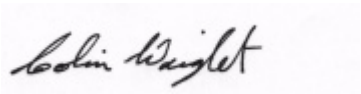
Event Description: **SMP: C-139 and L-28 Tieback**
Request ID: **RQ-2016-02-22-67**
Customer: **SO-DIST**
Project ID: **SMP**

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

Certified by: Colin Wright, Environmental Administrator

Date Certified: 02-MAR-2016 11:51



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: C-139 Annex @ Half Bridge Rd **Collection Date/Time: 02/11/2016 10:40**

Field ID: G1SD021116-2 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770939	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P298539	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P298713	
		Sulfate	8.0		mg SO4/L	P298715	
	SM 2120 B	Color (true)	110		PCU	P298529	
	SM 2320 B-97	Total Alkalinity	162		mg CaCO3/L	P299109	
	SM 2540 C-97	TDS	256		mg/L	P299078	
	SM 2540 D-97	TSS	2	U	mg/L	P299016	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P299043	
1770941	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P299121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P298773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P298981	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P298786	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P298947	
1770943	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P298534	

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

Sample Location: L-28 Tieback @ Northern Bridge **Collection Date/Time: 02/11/2016 09:45**

Field ID: G1SD021116-1 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1770940	EPA 180.1 Rev. 2.0	Turbidity	5.8	A	NTU	P298539	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P298859	
		Sulfate	9.2		mg SO4/L	P298856	
	SM 2120 B	Color (true)	120		PCU	P298529	
	SM 2320 B-97	Total Alkalinity	169		mg CaCO3/L	P299109	
	SM 2540 C-97	TDS	246		mg/L	P299078	
	SM 2540 D-97	TSS	9	I	mg/L	P299016	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P299043	
1770942	EPA 350.1 Rev. 2.0	Ammonia-N	0.053		mg N/L	P299121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P298773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P298975	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P298786	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P298947	
1770944	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P298534	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298539

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298713

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298715

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298856

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298859

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299121

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298773

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298975

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298981

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298786

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 dissolved
Batch ID: P298534

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

Reference Method: SM 2120 B
Batch ID: P298529

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P299109

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

Reference Method: SM 2540 C-97
Batch ID: P299078

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299016

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P299043

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P298947

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: P298713

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298715

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298715

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298856

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298859

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298773

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298981

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298786

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: P298534

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P299109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P299043

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P298947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770593	Chloride	103		P	90 - 110
1770594	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770593	Sulfate	98.4		P	90 - 110
1770594	Sulfate	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770982	Sulfate	100		P	90 - 110
1770983	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770982	Chloride	103		P	90 - 110
1770983	Chloride	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770941	Ammonia-N	96.1	95.6	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770932	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770942	NO2NO3-N	97.6	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770931	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770931	Total-P	103	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770943	O-Phosphate-P	98.9	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770959	Fluoride	97.6	98.8	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P298947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1770601	Organic Carbon	92.6	93.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770940	Turbidity	0.520	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298713

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770593	Chloride	0.124	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298715

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770593	Sulfate	0.0477	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298856

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770982	Sulfate	1.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P298859

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770982	Chloride	0.0844	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299121

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770941	Ammonia-N	0.342	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P298773

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770932	Kjeldahl Nitrogen	0.274	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298975

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770942	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P298981

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770931	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P298786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770931	Total-P	4.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770943	O-Phosphate-P	1.15	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P298529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770927	Color (true)	1.23	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770959	Total Alkalinity	0.847	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770907	TDS	1.70	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P299043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770959	Fluoride	1.01	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P298947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1770601	Organic Carbon	0.508	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: A67591
Included Lab Sample IDs: 1770939, 1770940

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67592
Included Lab Sample IDs: 1770943, 1770944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	99.4	P/P	90 - 110
O-Phosphate-P	99.8	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67593
Included Lab Sample IDs: 1770939, 1770940

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A67638
Included Lab Sample IDs: 1770939, 1770940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.4	P/P	90 - 110
Chloride	99.9	102	P/P	90 - 110
Sulfate	96.1	99.9	P/P	90 - 110
Sulfate	96.7	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67693
Included Lab Sample IDs: 1770942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A67698
Included Lab Sample IDs: 1770941, 1770942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	96.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A67710
Included Lab Sample IDs: 1770941, 1770942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.5	93.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A67721
Included Lab Sample IDs: 1770941, 1770942

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A67724
Included Lab Sample IDs: 1770941

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: A67743
Included Lab Sample IDs: 1770939, 1770940

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

Reference Method: SM 2320 B-97
Run ID: A67766
Included Lab Sample IDs: 1770939, 1770940

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A67770
Included Lab Sample IDs: 1770941, 1770942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.2	P/P	90 - 110
Ammonia-N	98.2	99.1	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.520	
EPA 300.0 Rev. 2.1	Chloride	104	103	103		0.124	
	Chloride	103	103	102		0.0844	
	Sulfate	99.0	98.4	98.0		0.0477	
	Sulfate	99.0	100	101		1.01	
EPA 350.1 Rev. 2.0	Ammonia-N	95.3	96.1	95.6			0.342
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.1	104	104			0.274
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	97.6	97.6			0.0
	NO2NO3-N	98.5	99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	101	103	97.7			4.76

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	98.9	100			1.15
SM 2120 B	Color (true)					1.23	
SM 2320 B-97	Total Alkalinity	101				0.847	
SM 2540 C-97	TDS					1.70	
SM 4500 F-C-97	Fluoride	97.6	97.6	98.8			1.01
SM 5310 B-00	Organic Carbon	95.2	92.6	93.3			0.508

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1770939, 1770940
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1770939, 1770940
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1770939, 1770940
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1770941, 1770942
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1770941, 1770942
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1770941, 1770942
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1770941, 1770942
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1770943, 1770944
SM 2120 B / E31780	True Color measured at 450 nm	1770939, 1770940
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1770939, 1770940
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1770939, 1770940
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1770939, 1770940
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1770939, 1770940
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1770941, 1770942

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	02/12/2016			02/12/2016 14:25	Sima Feizi	1770939, 1770940
EPA 300.0 Rev. 2.1	02/12/2016			02/17/2016	Julia Storbeck	1770940
	02/12/2016			02/17/2016	Ping Hua	1770939
EPA 350.1 Rev. 2.0	02/12/2016			02/23/2016	Diana M. Turner	1770941, 1770942
EPA 351.2 Rev. 2.0	02/12/2016	02/18/2016	Christopher Armour	02/19/2016	Bryan A. Werth	1770941, 1770942
EPA 353.2 Rev. 2.0	02/12/2016			02/19/2016	Virginia P. Brown	1770941, 1770942
EPA 365.1 Rev. 2.0	02/12/2016	02/18/2016	Christopher Armour	02/19/2016	Lipi Saha	1770941, 1770942
EPA 365.1 Rev. 2.0 dissolved	02/12/2016			02/12/2016 13:32	Julia Storbeck	1770943
	02/12/2016			02/12/2016 13:57	Julia Storbeck	1770944
SM 2120 B	02/12/2016			02/12/2016 13:50	Rochelle Y Jackson	1770939
	02/12/2016			02/12/2016 13:51	Rochelle Y Jackson	1770940
SM 2320 B-97	02/12/2016			02/23/2016	Dale L. Simmons	1770939, 1770940
SM 2540 C-97	02/12/2016			02/17/2016	Yijie Li	1770939, 1770940
SM 2540 D-97	02/12/2016			02/17/2016	Yijie Li	1770939, 1770940
SM 4500 F-C-97	02/12/2016			02/22/2016	Dale L. Simmons	1770939, 1770940
SM 5310 B-00	02/12/2016			02/19/2016	Diana M. Turner	1770941, 1770942