

Chemical Analysis Report

SO-DIST-2017-01-25-01

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

Event Description: **SMP: L-28 Tieback**
Request ID: **RQ-2017-01-09-28**
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
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 17-FEB-2017 10:50



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: TEN MILE CANAL @ OLD US 41-ABOVE WEIR Collection Date/Time: 01/24/2017 08:35

Field ID: SD012417-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866148	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P318722	
	EPA 300.0 Rev. 2.1	Chloride	77		mg Cl/L	P318934	
		Sulfate	6.3		mg SO4/L	P318933	
	SM 2120 B	Color (true)	41		PCU	P318732	
	SM 2320 B-97	Total Alkalinity	207		mg CaCO3/L	P318853	
	SM 2540 C-97	TDS	368		mg/L	P319148	
	SM 2540 D-97	TSS	2	U	mg/L	P319045	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P318857	
1866151	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P318943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P318751	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P318880	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P318764	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P318781	
1866154	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318727	

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: TEN MILE CANAL @ OLD US 41-ABOVE WEIR Collection Date/Time: 01/24/2017 08:40 DUPLICATE

Field ID: SD012417-2 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866149	EPA 180.1 Rev. 2.0	Turbidity	1.1	A	NTU	P318722	
	EPA 300.0 Rev. 2.1	Chloride	76		mg Cl/L	P318934	
		Sulfate	6.7		mg SO4/L	P318933	
	SM 2120 B	Color (true)	41		PCU	P318732	
	SM 2320 B-97	Total Alkalinity	208		mg CaCO3/L	P318853	
	SM 2540 C-97	TDS	366		mg/L	P319148	
	SM 2540 D-97	TSS	2	U	mg/L	P319045	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P318857	
1866152	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P318943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P318751	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P318880	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P318764	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P318781	
1866155	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318727	

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: FIELD BLANK Collection Date/Time: 01/24/2017 08:50

Field ID: SD012417-3

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866150	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P318722	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P318934	

Field ID: SD012417-3

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1866150	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P318933	
	SM 2120 B	Color (true)	2.5	U	PCU	P318732	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P318853	
	SM 2540 C-97	TDS	15	U	mg/L	P319149	
	SM 2540 D-97	TSS	2	UQ	mg/L	P319178	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P318857	
1866153	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P318943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P318751	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P318881	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P318764	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P318781	
1866156	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P318727	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample reanalyzed out of holding time due to analytical difficulties.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P318722

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P318933

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P318934

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P318943

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P318751

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318880

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318881

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: P318764

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318727

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

Reference Method: SM 2120 B
Batch ID: P318732

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P318853

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

Reference Method: SM 2540 C-97
Batch ID: P319148

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P319149

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319045

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P319178

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P318857

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P318781

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: P318933

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P318934

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P318943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P318751

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P318880

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P318881

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: P318881

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318764

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318727

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

Reference Method: SM 2320 B-97
Batch ID: P318853

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

Reference Method: SM 4500 F-C-97
Batch ID: P318857

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P318781

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866166	Sulfate	96.3		P	90 - 110
1866173	Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866166	Chloride	102		P	90 - 110
1866173	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866151	Ammonia-N	98.2	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866152	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866017	NO2NO3-N	101	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866169	NO2NO3-N	94.5	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866144	Total-P	98.2	92.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866178	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P318857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866165	Fluoride	97.1	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P318781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866114	Organic Carbon	92.6	90.8	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P318722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866149	Turbidity	15.5	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866173	Sulfate	0.569	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P318934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866173	Chloride	0.523	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P318943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866151	Ammonia-N	0.526	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P318751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866152	Kjeldahl Nitrogen	2.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866017	NO2NO3-N	1.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P318881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866169	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P318764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866144	Total-P	5.87	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P318727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866178	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P318732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866173	Color (true)	1.24	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P318853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866165	Total Alkalinity	0.491	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P319148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866098	TDS	3.80	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P319149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866215	TDS	4.43	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P318857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866165	Fluoride	0.492	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P318781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866114	Organic Carbon	1.48	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 300.0 Rev. 2.1

Run ID: A74088

Included Lab Sample IDs: 1866148, 1866149, 1866150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	99.0	96.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74103

Included Lab Sample IDs: 1866148, 1866149, 1866150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74104

Included Lab Sample IDs: 1866154, 1866155, 1866156

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

Reference Method: SM 2120 B

Run ID: A74106

Included Lab Sample IDs: 1866148, 1866149, 1866150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A74125

Included Lab Sample IDs: 1866151, 1866152, 1866153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	97.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74143

Included Lab Sample IDs: 1866148, 1866149, 1866150

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

Reference Method: SM 4500 F-C-97

Run ID: A74143

Included Lab Sample IDs: 1866148, 1866149, 1866150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	100	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74147

Included Lab Sample IDs: 1866151, 1866152, 1866153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	95.5	P/P	90 - 110
NO2NO3-N	97.5	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74157

Included Lab Sample IDs: 1866151, 1866152, 1866153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.0	P/P	90 - 110
Kjeldahl Nitrogen	99.4	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74163

Included Lab Sample IDs: 1866151, 1866152, 1866153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74164

Included Lab Sample IDs: 1866151, 1866152, 1866153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	99.2	P/P	90 - 110
Ammonia-N	99.2	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				15.5	
EPA 300.0 Rev. 2.1	Chloride	103	101 102		0.523	
	Sulfate	98.5	97.1 96.3		0.569	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.2 98.8			0.526
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	101 105			2.77
EPA 353.2 Rev. 2.0	NO2NO3-N	101	101 98.9			1.69
	NO2NO3-N	99.0	94.5 94.5			0.0
EPA 365.1 Rev. 2.0	Total-P	98.5	98.2 92.4			5.87
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101 101			0.0
SM 2120 B	Color (true)				1.24	
SM 2320 B-97	Total Alkalinity	104			0.491	
SM 2540 C-97	TDS				3.80	
	TDS				4.43	
SM 4500 F-C-97	Fluoride	97.8	97.1 97.6			0.492
SM 5310 B-00	Organic Carbon	96.8	92.6 90.8			1.48

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1866148, 1866149, 1866150
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1866148, 1866149, 1866150
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1866148, 1866149, 1866150
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1866151, 1866152, 1866153
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1866151, 1866152, 1866153
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1866151, 1866152, 1866153
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1866151, 1866152, 1866153
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1866154, 1866155, 1866156
SM 2120 B / E31780	True Color measured at 450 nm	1866148, 1866149, 1866150
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1866148, 1866149, 1866150
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1866148, 1866149, 1866150
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1866148, 1866149, 1866150
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1866148, 1866149, 1866150
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1866151, 1866152, 1866153

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	01/25/2017			01/25/2017 12:56	Sima Feizi	1866148
	01/25/2017			01/25/2017 12:58	Sima Feizi	1866149
	01/25/2017			01/25/2017 13:04	Sima Feizi	1866150
EPA 300.0 Rev. 2.1	01/25/2017	01/26/2017	Adrian Shelby	01/27/2017	Ping Hua	1866148, 1866149, 1866150
EPA 350.1 Rev. 2.0	01/25/2017			01/27/2017	Sofia Elnemr	1866151, 1866152, 1866153
EPA 351.2 Rev. 2.0	01/25/2017			01/27/2017	Joseph Suarez	1866151, 1866152, 1866153
EPA 353.2 Rev. 2.0	01/25/2017	01/26/2017	Vijayalakshmi Reddy	01/27/2017	Beverly Y. Sanders	1866151, 1866152, 1866153
EPA 365.1 Rev. 2.0	01/25/2017			01/27/2017	Lipi Saha	1866151, 1866152, 1866153
EPA 365.1 Rev. 2.0 dissolved	01/25/2017			01/25/2017 16:05	Julia Storbeck	1866156
SM 2120 B	01/25/2017			01/25/2017 16:09	Julia Storbeck	1866154, 1866155
	01/25/2017			01/25/2017 16:34	Jared I. Manley	1866148
	01/25/2017			01/25/2017 16:35	Jared I. Manley	1866149
	01/25/2017			01/25/2017 16:36	Jared I. Manley	1866150
SM 2320 B-97	01/25/2017			01/27/2017	Dale L. Simmons	1866148, 1866149, 1866150
SM 2540 C-97	01/25/2017			01/27/2017	Blanca Fach	1866148, 1866149, 1866150
SM 2540 D-97	01/25/2017			01/27/2017	Blanca Fach	1866148, 1866149
	01/25/2017			02/01/2017	Christopher Armour	1866150
SM 4500 F-C-97	01/25/2017			01/27/2017	Dale L. Simmons	1866148, 1866149, 1866150
SM 5310 B-00	01/25/2017			01/25/2017	Julie Michelle Frank	1866151, 1866152, 1866153