Chemical Analysis Report

CEN-DIST-2018-07-17-02

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

Event Description: **Little Haw / Haw Crk**
Request ID: **RQ-2018-07-16-40**
Customer: **CEN-DIST**
Project ID: **SMP**

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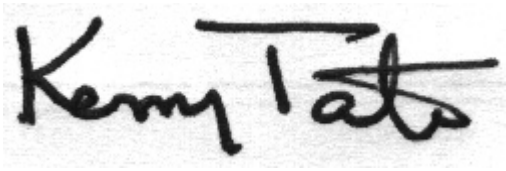
Date Certified: 06-AUG-2018 14:03



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: LITTLE HAW CREEK @ 25M DS of SR40 (2630C) **Collection Date/Time: 07/16/2018 10:19**

Field ID: G2CE0128 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007725	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P348727	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P349064	
		Sulfate	0.23	I	mg SO4/L	P349067	
	SM 2120 B	Color (true)	590		PCU	P348607	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348736	
	SM 2540 C-97	TDS	110		mg/L	P348939	
	SM 2540 D-97	TSS	4	I	mg/L	P349044	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P348739	
2007726	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P348710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P348771	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P348667	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P348880	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P348822	
2007727	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P348598	

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: (2630C) **Collection Date/Time: 07/16/2018 10:22**

Field ID: G2CE0128_DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007728	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P348727	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P349064	
		Sulfate	0.23	I	mg SO4/L	P349067	
	SM 2120 B	Color (true)	580		PCU	P348607	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348736	
	SM 2540 C-97	TDS	106		mg/L	P348939	
	SM 2540 D-97	TSS	3	I	mg/L	P349044	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P348739	
2007729	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P348710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P348771	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P348667	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P348880	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P348823	
2007730	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P348598	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WASHROOM **Collection Date/Time: 07/16/2018 10:27**

Field ID: BLANK_07162018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2007731	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P348727	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P349064	
		Sulfate	0.20	U	mg SO4/L	P349067	
	SM 2120 B	Color (true)	2.5	U	PCU	P348607	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348736	
	SM 2540 C-97	TDS	15	U	mg/L	P348936	
	SM 2540 D-97	TSS	2	U	mg/L	P349041	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P348739	
2007732	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P348710	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P349468	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P348667	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P348880	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P348823	
2007733	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P348598	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348727

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349064

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349067

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348710

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348771

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349468

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348667

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348880

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348598

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P348607

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P348736

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

Reference Method: SM 2540 C-97
Batch ID: P348936

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P348939

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349041

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349044

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P348739

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P348822

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

Reference Method: SM 5310 B-00
Batch ID: P348823

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: P349064

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349067

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348710

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348771

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348667

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348880

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348598

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.2		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P348607

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P348736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P348739

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

Reference Method: SM 5310 B-00
Batch ID: P348822

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P348823

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007742	Chloride	107		P	90 - 110
2008648	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007742	Sulfate	106		P	90 - 110
2008648	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007744	Ammonia-N	98.0	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007744	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011655	Kjeldahl Nitrogen	96.2	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348667

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007744	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007744	Total-P	97.8	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007656	O-Phosphate-P	94.4	95.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P348739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007885	Fluoride	97.5	96.9	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P348822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007448	Organic Carbon	96.2	95.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007657	Turbidity	0.758	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007742	Chloride	5.53	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007742	Sulfate	6.36	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007744	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007744	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011655	Kjeldahl Nitrogen	1.93	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348667

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007744	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007744	Total-P	0.0980	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007656	O-Phosphate-P	0.634	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P348607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007756	Color (true)	5.65	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P348736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007885	Total Alkalinity	0.368	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P348936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007250	TDS	2.87	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P348939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007638	TDS	1.26	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P348739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007885	Fluoride	0.516	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P348822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007448	Organic Carbon	0.779	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P348823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007729	Organic Carbon	0.278	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85281
Included Lab Sample IDs: 2007727, 2007730, 2007733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.2	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A85283
Included Lab Sample IDs: 2007725, 2007728, 2007731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	103	106	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85308
Included Lab Sample IDs: 2007726, 2007729, 2007732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85320
Included Lab Sample IDs: 2007726, 2007729, 2007732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85325
Included Lab Sample IDs: 2007725, 2007728, 2007731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A85328
Included Lab Sample IDs: 2007725, 2007728, 2007731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A85328
Included Lab Sample IDs: 2007725, 2007728, 2007731

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

Reference Method: SM 5310 B-00
Run ID: A85362
Included Lab Sample IDs: 2007726, 2007729, 2007732

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A85362
Included Lab Sample IDs: 2007726, 2007729, 2007732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.0	P/P	90 - 110
Organic Carbon	96.8	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85379
Included Lab Sample IDs: 2007726, 2007729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	93.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85408
Included Lab Sample IDs: 2007726, 2007729, 2007732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A85417
Included Lab Sample IDs: 2007725, 2007728, 2007731

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	103	P/P	90 - 110
Sulfate	101	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85631
Included Lab Sample IDs: 2007732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	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					0.758	
EPA 300.0 Rev. 2.1	Chloride	101	107	103		5.53	
	Sulfate	108	106	99.5		6.36	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.0	99.4			1.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	102	101			1.05
	Kjeldahl Nitrogen	99.8	96.2	98.8			1.93
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	103			1.47
EPA 365.1 Rev. 2.0	Total-P	99.4	97.8	97.7			0.0980
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	94.4	95.0			0.634
SM 2120 B	Color (true)	99.2				5.65	
SM 2320 B-97	Total Alkalinity	102				0.368	
SM 2540 C-97	TDS					2.87	
	TDS					1.26	
SM 4500 F-C-97	Fluoride	97.6	97.5	96.9			0.516
SM 5310 B-00	Organic Carbon	97.5	96.2	95.1			0.779
	Organic Carbon	97.4					0.278

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2007725, 2007728, 2007731
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2007725, 2007728, 2007731
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2007725, 2007728, 2007731
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2007726, 2007729, 2007732
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2007726, 2007729, 2007732
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2007726, 2007729, 2007732
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2007726, 2007729, 2007732
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2007727, 2007730, 2007733
SM 2120 B / E31780	True Color measured at 450 nm	2007725, 2007728, 2007731
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2007725, 2007728, 2007731
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2007725, 2007728, 2007731
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2007725, 2007728, 2007731
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2007725, 2007728, 2007731
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2007726, 2007729, 2007732

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	07/17/2018			07/17/2018 16:55	Blanca Fach	2007725, 2007728, 2007731
EPA 300.0 Rev. 2.1	07/17/2018			07/24/2018 02:56	Lipi Saha	2007725
	07/17/2018			07/24/2018 03:08	Lipi Saha	2007728
	07/17/2018			07/24/2018 03:20	Lipi Saha	2007731
EPA 350.1 Rev. 2.0	07/17/2018			07/18/2018 14:30	Ping Hua	2007726
	07/17/2018			07/18/2018 14:32	Ping Hua	2007729
	07/17/2018			07/18/2018 14:40	Ping Hua	2007732
EPA 351.2 Rev. 2.0	07/17/2018	07/19/2018 17:30	Adrian Shelby	07/20/2018 11:56	Joseph Suarez	2007726
	07/17/2018	07/19/2018 17:30	Adrian Shelby	07/20/2018 11:58	Joseph Suarez	2007729
	07/17/2018	08/01/2018 10:30	Adrian Shelby	08/02/2018 09:14	Joseph Suarez	2007732
EPA 353.2 Rev. 2.0	07/17/2018			07/18/2018 12:12	Lauren Bottorf	2007732
	07/17/2018			07/18/2018 13:23	Lauren Bottorf	2007726
	07/17/2018			07/18/2018 13:24	Lauren Bottorf	2007729
EPA 365.1 Rev. 2.0	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 13:06	Beverly Y. Sanders	2007732
	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 13:08	Beverly Y. Sanders	2007726
	07/17/2018	07/20/2018 13:40	Sima Feizi	07/23/2018 13:09	Beverly Y. Sanders	2007729
EPA 365.1 Rev. 2.0 dissolved	07/17/2018			07/17/2018 15:35	Julia Storbeck	2007733
	07/17/2018			07/17/2018 15:38	Julia Storbeck	2007727
	07/17/2018			07/17/2018 15:39	Julia Storbeck	2007730
SM 2120 B	07/17/2018			07/17/2018 16:13	Tanya Welborn	2007731
	07/17/2018			07/17/2018 16:55	Tanya Welborn	2007725, 2007728
SM 2320 B-97	07/17/2018			07/19/2018 01:05	Dale L. Simmons	2007725
	07/17/2018			07/19/2018 01:13	Dale L. Simmons	2007728
	07/17/2018			07/19/2018 01:26	Dale L. Simmons	2007731
SM 2540 C-97	07/17/2018			07/18/2018 16:21	Yijie Li	2007725, 2007728, 2007731
SM 2540 D-97	07/17/2018			07/18/2018 16:21	Yijie Li	2007725, 2007728, 2007731
SM 4500 F-C-97	07/17/2018			07/19/2018 01:05	Dale L. Simmons	2007725
	07/17/2018			07/19/2018 01:13	Dale L. Simmons	2007728
	07/17/2018			07/19/2018 01:26	Dale L. Simmons	2007731
SM 5310 B-00	07/17/2018			07/19/2018 00:47	Megan Treadwell	2007726
	07/17/2018			07/19/2018 01:35	Megan Treadwell	2007729
	07/17/2018			07/19/2018 03:07	Megan Treadwell	2007732