Chemical Analysis Report

CEN-DIST-2017-03-31-02

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

Event Description: **Glencoe/ Sand/ UnDrain 2673 / Mizner's**
Request ID: **RQ-2017-03-27-49**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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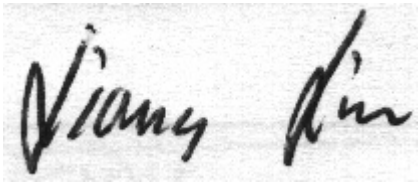
Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-APR-2017 14:58



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: Mizner's Branch @ 50m Upstream of Main Trail Rd **Collection Date/Time: 03/30/2017 10:25**

Field ID: G5CE0093 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885157	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P322689	
	EPA 300.0 Rev. 2.1	Chloride	81		mg Cl/L	P323119	
		Sulfate	10		mg SO4/L	P323122	
	SM 2120 B	Color (true)	39		PCU	P322590	
	SM 2320 B-97	Total Alkalinity	202		mg CaCO3/L	P323004	
	SM 2540 C-97	TDS	354		mg/L	P322987	
	SM 2540 D-97	TSS	3	I	mg/L	P323024	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P323007	
1885160	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P322607	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P322637	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P322722	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P322707	
	SM 5310 B-00	Organic Carbon	9.6		mg C/L	P322613	
1885163	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P322611	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Unnamed Drain of Spruce Creek @ CR 421 **Collection Date/Time: 03/30/2017 11:15**

Field ID: G5CE0022 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885158	EPA 180.1 Rev. 2.0	Turbidity	4.0	A	NTU	P322689	
	EPA 300.0 Rev. 2.1	Chloride	70		mg Cl/L	P323119	
		Sulfate	2.4		mg SO4/L	P323122	
	SM 2120 B	Color (true)	36		PCU	P322590	
	SM 2320 B-97	Total Alkalinity	295		mg CaCO3/L	P323004	
	SM 2540 C-97	TDS	408		mg/L	P322988	
	SM 2540 D-97	TSS	3	I	mg/L	P323025	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P323007	
1885161	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P322607	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P322637	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P322722	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P322707	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P322613	
1885164	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P322611	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Sand Creek @ 100m US of CR 415 **Collection Date/Time: 03/30/2017 11:40**

Field ID: G5CE0094 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885159	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P322689	
	EPA 300.0 Rev. 2.1	Chloride	72		mg Cl/L	P323119	
		Sulfate	6.5		mg SO4/L	P323122	
	SM 2120 B	Color (true)	86		PCU	P322590	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P323004	
	SM 2540 C-97	TDS	216	A	mg/L	P322988	
	SM 2540 D-97	TSS	4	IA	mg/L	P323025	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P323007	
1885162	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P322607	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P322637	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322723	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P322707	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P322613	
1885165	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P322611	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
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: P322689

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323119

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323122

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322637

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: P322722

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322723

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322611

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

Reference Method: SM 2120 B
Batch ID: P322590

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323004

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

Reference Method: SM 2540 C-97
Batch ID: P322987

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P322988

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323024

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P323025

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322613

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: P323119

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

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: P322637

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322722

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322723

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: P322723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322611

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

Reference Method: SM 2320 B-97
Batch ID: P323004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885255	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885255	Sulfate	99.8		P	90 - 110
1885448	Sulfate	98.6		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884977	Ammonia-N	106	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885161	Kjeldahl Nitrogen	99.2	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885058	NO2NO3-N	97.0	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885162	NO2NO3-N	95.0	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885071	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885112	O-Phosphate-P	94.5	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885134	Fluoride	98.9	98.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884977	Organic Carbon	102		P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885158	Turbidity	4.49	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885255	Chloride	0.402	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885255	Sulfate	0.0484	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884977	Ammonia-N	5.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885161	Kjeldahl Nitrogen	0.496	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885058	NO2NO3-N	1.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885162	NO2NO3-N	1.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885071	Total-P	0.459	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885112	O-Phosphate-P	1.36	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885131	Color (true)	2.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P323004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885134	Total Alkalinity	0.0234	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885131	TDS	3.12	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P322988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885159	TDS	5.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885134	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884977	Organic Carbon	0.290	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: A75503
Included Lab Sample IDs: 1885157, 1885158, 1885159

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75505
Included Lab Sample IDs: 1885160, 1885161, 1885162

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75506
Included Lab Sample IDs: 1885163, 1885164, 1885165

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	98.9	P/P	90 - 110
O-Phosphate-P	99.8	99.6	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A75508
Included Lab Sample IDs: 1885160, 1885161, 1885162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75544
Included Lab Sample IDs: 1885157, 1885158, 1885159

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75553
Included Lab Sample IDs: 1885160, 1885161, 1885162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	92.5	93.0	P/P	90 - 110
NO2NO3-N	93.5	92.5	P/P	90 - 110
NO2NO3-N	94.5	93.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A75568
Included Lab Sample IDs: 1885160, 1885161, 1885162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	103	P/P	90 - 110
Kjeldahl Nitrogen	110	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75582
Included Lab Sample IDs: 1885160, 1885161

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75604
Included Lab Sample IDs: 1885162

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

Reference Method: SM 2320 B-97
Run ID: A75665
Included Lab Sample IDs: 1885157, 1885158, 1885159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A75665
Included Lab Sample IDs: 1885157, 1885158, 1885159

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75723
Included Lab Sample IDs: 1885157, 1885158, 1885159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	106	P/P	90 - 110
Sulfate	98.0	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					4.49	
EPA 300.0 Rev. 2.1	Chloride	103	103			0.402	
	Sulfate	99.7	99.8	98.6		0.0484	
EPA 350.1 Rev. 2.0	Ammonia-N	101	106	100			5.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	99.2	99.9			0.496
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	97.0	94.5			1.62
	NO2NO3-N	96.0	95.0	94.0			1.06
EPA 365.1 Rev. 2.0	Total-P	103	107	107			0.459
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	94.5	96.0			1.36
SM 2120 B	Color (true)					2.22	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 2320 B-97	Total Alkalinity	105				0.0234	
SM 2540 C-97	TDS					3.12	
	TDS					5.08	
SM 4500 F-C-97	Fluoride	97.4	98.9	98.9			0.0
SM 5310 B-00	Organic Carbon	97.8	102				0.290

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1885157, 1885158, 1885159
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1885157, 1885158, 1885159
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1885157, 1885158, 1885159
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1885160, 1885161, 1885162
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1885160, 1885161, 1885162
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1885160, 1885161, 1885162
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1885160, 1885161, 1885162
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1885163, 1885164, 1885165
SM 2120 B / E31780	True Color measured at 450 nm	1885157, 1885158, 1885159
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1885157, 1885158, 1885159
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1885157, 1885158, 1885159
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1885157, 1885158, 1885159
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1885157, 1885158, 1885159
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1885160, 1885161, 1885162

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	03/31/2017			03/31/2017 15:55	Blanca Fach	1885157, 1885158, 1885159
EPA 300.0 Rev. 2.1	03/31/2017			04/11/2017	Ping Hua	1885157, 1885158, 1885159
EPA 350.1 Rev. 2.0	03/31/2017			03/31/2017	Julie Michelle Frank	1885160, 1885161, 1885162
EPA 351.2 Rev. 2.0	03/31/2017	04/03/2017	Adrian Shelby	04/04/2017	Joseph Suarez	1885160, 1885161, 1885162
EPA 353.2 Rev. 2.0	03/31/2017			04/04/2017	Beverly Y. Sanders	1885160, 1885161, 1885162
EPA 365.1 Rev. 2.0	03/31/2017	04/04/2017	Adrian Shelby	04/05/2017	Lipi Saha	1885160, 1885161, 1885162
EPA 365.1 Rev. 2.0 dissolved	03/31/2017			03/31/2017 15:44	Anthony C. Onicha	1885164
	03/31/2017			03/31/2017 15:45	Anthony C. Onicha	1885165
	03/31/2017			03/31/2017 15:58	Anthony C. Onicha	1885163
SM 2120 B	03/31/2017			03/31/2017 14:38	Julia Storbeck	1885157, 1885158
	03/31/2017			03/31/2017 14:39	Julia Storbeck	1885159
SM 2320 B-97	03/31/2017			04/07/2017	Dale L. Simmons	1885157, 1885158, 1885159
SM 2540 C-97	03/31/2017			04/05/2017	Yijie Li	1885157, 1885158, 1885159
SM 2540 D-97	03/31/2017			04/05/2017	Yijie Li	1885157, 1885158, 1885159
SM 4500 F-C-97	03/31/2017			04/07/2017	Dale L. Simmons	1885157, 1885158, 1885159
SM 5310 B-00	03/31/2017			03/31/2017	Christopher Armour	1885160
	03/31/2017			04/01/2017	Christopher Armour	1885161, 1885162