Chemical Analysis Report

CEN-DIST-2017-03-28-01

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

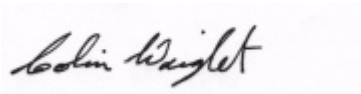
Event Description: **Long Branch**
Request ID: **RQ-2017-03-27-44**
Customer: **CEN-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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

Certified by: Colin Wright, Program Administrator

Date Certified: 20-APR-2017 09:57



Report Comments:
Added micro overflow results.

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 groups are included in this report: Metals, Nutrients and Pesticides.

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: Longranch @ .7 mi DS of CR 13 **Collection Date/Time: 03/27/2017 10:45**

Field ID: G2CE0036 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1883464	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P322450	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P322945	
		Sulfate	10		mg SO4/L	P322949	
	SM 2120 B	Color (true)	29	A	PCU	P322333	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P322802	
	SM 2540 C-97	TDS	242	A	mg/L	P322946	
	SM 2540 D-97	TSS	2	U	mg/L	P322696	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P323008	
1883465	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P322421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P322352	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P322469	
	EPA 365.1 Rev. 2.0	Total-P	0.34		mg P/L	P322392	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P322429	
1883466	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P322360	
1883473	EPA 200.7 Rev. 4.4	Calcium	56.3		mg/L	P322485	
		Iron	160		ug/L	P322485	
		Magnesium	3.09		mg/L	P322485	
		Potassium	1.6		mg/L	P322485	
		Sodium	23.2		mg/L	P322485	
		Zinc	5.0	U	ug/L	P322485	
	EPA 200.8 Rev. 5.4	Arsenic	0.66		ug/L	P322485	
		Cadmium	0.020	U	ug/L	P322485	
		Chromium	0.40	U	ug/L	P322485	
		Copper	0.56	I	ug/L	P322485	
		Lead	0.050	U	ug/L	P322485	
		Nickel	0.25	I	ug/L	P322485	
		Silver	0.010	U	ug/L	P322485	
1883476	EPA 8321B	Sucralose**	0.46		ug/L	P322291	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322450

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322485

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322485

Component	Result	Code	Units
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322485

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322945

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322949

Component	Result	Code	Units
Sulfate	0.22	I	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322421

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322352

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322469

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322392

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: P322360

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

Reference Method: EPA 8321B
Batch ID: P322291

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P322333

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322802

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

Reference Method: SM 2540 C-97
Batch ID: P322946

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322696

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323008

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322429

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322485

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	94.8		P	85 - 115
Iron	107		P	85 - 115
Magnesium	94.9		P	85 - 115
Potassium	102		P	85 - 115
Sodium	103		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	98.3		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	99.1		P	85 - 115
Lead	102		P	85 - 115
Nickel	102		P	85 - 115
Silver	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322945

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	91.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322352

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322469

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322392

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322360

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

Reference Method: EPA 8321B
Batch ID: P322291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	94.3		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P322802

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

Reference Method: SM 4500 F-C-97
Batch ID: P323008

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

Reference Method: SM 5310 B-00
Batch ID: P322429

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 200.7 Rev. 4.4
Batch ID: P322485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883509	Calcium	101		P	80 - 120
1883509	Iron	110		P	80 - 120
1883509	Magnesium	105		P	80 - 120
1883509	Potassium	103		P	80 - 120
1883509	Sodium	102		P	80 - 120
1883509	Zinc	102		P	80 - 120
1883935	Calcium	104		P	80 - 120
1883935	Iron	108	107	P/P	80 - 120
1883935	Magnesium	104		P	80 - 120
1883935	Potassium	101	99.5	P/P	80 - 120
1883935	Sodium	102	102	P/P	80 - 120
1883935	Zinc	98.1	100	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883509	Arsenic	102		P	80 - 120
1883509	Cadmium	102		P	80 - 120
1883509	Chromium	99.2		P	80 - 120
1883509	Copper	97.4		P	80 - 120
1883509	Lead	104		P	80 - 120
1883509	Nickel	97.2		P	80 - 120
1883509	Silver	104		P	80 - 120
1883935	Arsenic	95.4	97.6	P/P	80 - 120
1883935	Cadmium	94.0	92.9	P/P	80 - 120
1883935	Chromium	93.5	95.3	P/P	80 - 120
1883935	Copper	90.9	92.2	P/P	80 - 120
1883935	Lead	97.5	98.4	P/P	80 - 120
1883935	Nickel	91.4	93.9	P/P	80 - 120
1883935	Silver	101	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883693	Chloride	98.9		P	90 - 110
1883694	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883693	Sulfate	99.4		P	90 - 110
1883694	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883465	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883465	Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883494	NO2NO3-N	101	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883124	Total-P	102	106	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883496	O-Phosphate-P	97.4	97.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P322291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883597	Sucralose	100	107	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P323008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883034	Fluoride	98.8	99.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883465	Organic Carbon	97.4	96.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883467	Turbidity	0.980	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883935	Calcium	1.14	Spike	P	0 - 20
1883935	Iron	1.25	Spike	P	0 - 20
1883935	Magnesium	0.386	Spike	P	0 - 20
1883935	Potassium	1.20	Spike	P	0 - 20
1883935	Sodium	0.167	Spike	P	0 - 20
1883935	Zinc	2.41	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883935	Arsenic	2.29	Spike	P	0 - 20
1883935	Cadmium	1.10	Spike	P	0 - 20
1883935	Chromium	1.94	Spike	P	0 - 20
1883935	Copper	1.41	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P322485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883935	Lead	0.972	Spike	P	0 - 20
1883935	Nickel	2.64	Spike	P	0 - 20
1883935	Silver	1.41	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883693	Chloride	0.683	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883693	Sulfate	8.02	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883465	Ammonia-N	0.0358	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883465	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883494	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883124	Total-P	3.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883496	O-Phosphate-P	0.205	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P322291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883597	Sucralose	6.76	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P322333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883464	Color (true)	0.391	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883034	Total Alkalinity	3.74	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883464	TDS	0.414	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P323008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883034	Fluoride	0.506	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883465	Organic Carbon	0.686	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
Surrogates

Quality Assurance Report
Surrogates

Lab Sample ID: 1883476
Field Sample ID: G2CE0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	88.5	P	40 - 150

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A75415
Included Lab Sample IDs: 1883464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75424
Included Lab Sample IDs: 1883466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A75437
Included Lab Sample IDs: 1883465

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

Reference Method: SM 5310 B-00
Run ID: A75441
Included Lab Sample IDs: 1883465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75454
Included Lab Sample IDs: 1883464

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

Reference Method: EPA 8321B
Run ID: A75457
Included Lab Sample IDs: 1883476

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	94.6	90.2	P/P	60 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A75458
Included Lab Sample IDs: 1883465

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A75459
Included Lab Sample IDs: 1883465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A75463
Included Lab Sample IDs: 1883465

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A75525
Included Lab Sample IDs: 1883473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	103	103	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	100	99.4	P/P	90 - 110
Zinc	100	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A75535
Included Lab Sample IDs: 1883473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	104	100	P/P	90 - 110
Cadmium	99.2	99.7	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Copper	103	103	P/P	90 - 110
Lead	103	103	P/P	90 - 110
Nickel	105	103	P/P	90 - 110
Silver	105	104	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A75578
Included Lab Sample IDs: 1883464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A75640
Included Lab Sample IDs: 1883464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.4	101	P/P	90 - 110
Sulfate	101	93.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A75665
Included Lab Sample IDs: 1883464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.5	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						0.980	
EPA 200.7 Rev. 4.4	Calcium	94.8	101	104				1.14
	Iron	107	110	108	107			1.25
	Magnesium	94.9	105	104				0.386
	Potassium	102	103	101	99.5			1.20
	Sodium	103	102	102	102			0.167
	Zinc	101	102	98.1	100			2.41
EPA 200.8 Rev. 5.4	Arsenic	102	102	95.4	97.6			2.29
	Cadmium	98.3	94.0	92.9	102			1.10
	Chromium	97.9	99.2	93.5	95.3			1.94
	Copper	99.1	97.4	90.9	92.2			1.41
	Lead	102	104	97.5	98.4			0.972
	Nickel	102	97.2	91.4	93.9			2.64
	Silver	104	104	101	102			1.41
EPA 300.0 Rev. 2.1	Chloride	97.5	98.9	98.5			0.683	
	Sulfate	91.8	99.4	102			8.02	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	100	100				0.0358
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	106	104				1.27
EPA 353.2 Rev. 2.0	NO2NO3-N	101	101	99.5				1.50
EPA 365.1 Rev. 2.0	Total-P	107	102	106				3.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.4	97.6				0.205
EPA 8321B	Sucralose	94.3	100	107				6.76
SM 2120 B	Color (true)						0.391	
SM 2320 B-97	Total Alkalinity	104					3.74	
SM 2540 C-97	TDS						0.414	
SM 4500 F-C-97	Fluoride	97.4	98.8	99.6				0.506
SM 5310 B-00	Organic Carbon	97.4	97.4	96.4				0.686

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1883464
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1883473
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1883473
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1883464
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1883464
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1883465
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1883465
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1883465
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1883465
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1883466
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1883476
SM 2120 B / E31780	True Color measured at 450 nm	1883464
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1883464
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1883464
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1883464
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1883464
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1883465

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	03/28/2017			03/28/2017 16:08	Blanca Fach	1883464
EPA 200.7 Rev. 4.4	03/28/2017	03/30/2017	Elliott D. Healy	03/31/2017	Martin Acosta	1883473
EPA 200.8 Rev. 5.4	03/28/2017	03/30/2017	Elliott D. Healy	04/03/2017	Betina Topolski	1883473
EPA 300.0 Rev. 2.1	03/28/2017			04/06/2017	Ping Hua	1883464
EPA 350.1 Rev. 2.0	03/28/2017			03/29/2017	Julie Michelle Frank	1883465
EPA 351.2 Rev. 2.0	03/28/2017	03/29/2017	Adrian Shelby	03/30/2017	Joseph Suarez	1883465
EPA 353.2 Rev. 2.0	03/28/2017			03/30/2017	Beverly Y. Sanders	1883465
EPA 365.1 Rev. 2.0	03/28/2017	03/29/2017	Vijayalakshmi Reddy	03/30/2017	Christopher Armour	1883465
EPA 365.1 Rev. 2.0 dissolved	03/28/2017			03/28/2017 14:58	Virginia P. Brown	1883466
EPA 8321B	03/28/2017	03/29/2017	Mohammad Ghaffari	03/29/2017	Mohammad Ghaffari	1883476
SM 2120 B	03/28/2017			03/28/2017 15:14	Julie Michelle Frank	1883464
SM 2320 B-97	03/28/2017			04/05/2017	Dale L. Simmons	1883464
SM 2540 C-97	03/28/2017			03/30/2017	Sima Feizi	1883464
SM 2540 D-97	03/28/2017			03/30/2017	Sima Feizi	1883464
SM 4500 F-C-97	03/28/2017			04/07/2017	Dale L. Simmons	1883464
SM 5310 B-00	03/28/2017			03/28/2017	Julie Michelle Frank	1883465