

Chemical Analysis Report

NE-DIST-2019-05-08-01

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

Event Description: **Nassau West**
Request ID: **RQ-2019-05-06-18**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 29-MAY-2019 14:02



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 and 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 by the Florida Department of Health Environmental Laboratory Certification Program 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: ST MARYS S PRONG @ US 90

Collection Date/Time: 05/07/2019 09:50

Field ID: 19010021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2084447	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P363612	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P363880	
		Sulfate	4.5		mg SO4/L	P363883	
	SM 2120 B	Color (true)	160		PCU	P363639	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P364170	
	SM 2540 C-97	TDS	87		mg/L	P364142	
	SM 2540 D-97	TSS	4	I	mg/L	P364237	
	SM 4500 F-C-97	Fluoride	0.082	I	mg F/L	P364174	
2084451	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P363844	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P363929	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P364064	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P363723	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P363921	
2084455	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P363650	
2084476	EPA 200.7 Rev. 4.4	Barium	24.7		ug/L	P363686	
		Calcium	8.15		mg/L	P363686	
		Iron	720		ug/L	P363686	
		Magnesium	2.81		mg/L	P363686	
		Potassium	1.7		mg/L	P363686	
		Sodium	8.7		mg/L	P363686	
		Zinc	5.0	I	ug/L	P363686	
		Aluminum	304		ug/L	P363686	
		Antimony	0.050	U	ug/L	P363686	
		Arsenic	0.45		ug/L	P363686	
	EPA 200.8 Rev. 5.4	Boron**	20.6		ug/L	P363686	
		Cadmium	0.020	U	ug/L	P363686	
		Chromium	0.53	I	ug/L	P363686	
		Copper	0.51	I	ug/L	P363686	
		Lead	0.47		ug/L	P363686	
		Nickel	0.50	U	ug/L	P363686	
		Selenium	0.20	U	ug/L	P363686	
		Silver	0.010	U	ug/L	P363686	
		Thallium	0.10	U	ug/L	P363686	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: DAUGHTERY BR @ CREWS RD

Collection Date/Time: 05/07/2019 10:15

Field ID: 19010136

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2084448	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P363612	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P363880	
		Sulfate	1.1		mg SO4/L	P363883	
	SM 2120 B	Color (true)	24	A	PCU	P363639	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P364170	
	SM 2540 C-97	TDS	85		mg/L	P364142	
	SM 2540 D-97	TSS	4	I	mg/L	P364237	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P364174	
2084452	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P363844	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P364338	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.0		mg N/L	P364064	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P363723	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P363921	
2084456	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P363650	
2084477	EPA 200.7 Rev. 4.4	Barium	75.7		ug/L	P363686	
		Calcium	8.78		mg/L	P363686	
		Iron	490		ug/L	P363686	
		Magnesium	5.49		mg/L	P363686	
		Potassium	1.1	I	mg/L	P363686	
		Sodium	9.5		mg/L	P363686	
		Zinc	7.6	I	ug/L	P363686	
		Aluminum	155		ug/L	P364412	
		Antimony	0.050	U	ug/L	P363686	
		Arsenic	0.30		ug/L	P363686	
	EPA 200.8 Rev. 5.4	Boron**	14.2		ug/L	P363686	
		Cadmium	0.042	I	ug/L	P363686	
		Chromium	0.49	I	ug/L	P363686	
		Copper	0.40	U	ug/L	P363686	
		Lead	0.23	I	ug/L	P363686	
		Nickel	0.83	I	ug/L	P363686	
		Selenium	0.24	I	ug/L	P363686	
		Silver	0.010	U	ug/L	P363686	
		Thallium	0.10	U	ug/L	P363686	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: The result was confirmed in the undigested sample on 05/13/2019.

EPA 200.8 Rev. 5.4: The aluminum result was confirmed on 05/15/2019.

Sample Location: DAUGHTERY BR @ CREWS RD DUP

Collection Date/Time: 05/07/2019 10:20

Field ID: 1910136DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2084449	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P363612	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P363880	
		Sulfate	1.1		mg SO4/L	P363883	
	SM 2120 B	Color (true)	24		PCU	P363639	
	SM 2320 B-97	Total Alkalinity	30		mg CaCO3/L	P364170	
	SM 2540 C-97	TDS	80		mg/L	P364142	
	SM 2540 D-97	TSS	4	I	mg/L	P364237	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P364174	
2084453	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P363844	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P363930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P364064	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P363723	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P363921	
2084457	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P363650	
2084478	EPA 200.7 Rev. 4.4	Barium	75.0		ug/L	P363686	
		Calcium	8.83		mg/L	P363686	
		Iron	300		ug/L	P363686	
		Magnesium	5.46		mg/L	P363686	
		Potassium	1.1	I	mg/L	P363686	
		Sodium	9.6		mg/L	P363686	
		Zinc	6.5	I	ug/L	P363686	
		Aluminum	112		ug/L	P364412	
		Antimony	0.050	U	ug/L	P363686	
		Arsenic	0.25		ug/L	P363686	
	EPA 200.8 Rev. 5.4	Boron**	14.5		ug/L	P363686	
		Cadmium	0.042	I	ug/L	P363686	
		Chromium	0.44	I	ug/L	P363686	
		Copper	0.40	U	ug/L	P363686	
		Lead	0.20	U	ug/L	P363686	
		Nickel	0.81	I	ug/L	P363686	
		Selenium	0.22	I	ug/L	P363686	
		Silver	0.010	U	ug/L	P363686	
		Thallium	0.10	U	ug/L	P363686	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: The result was confirmed in the undigested sample on 05/13/2019.

EPA 200.8 Rev. 5.4: The aluminum result was confirmed on 05/15/2019.

Sample Location: Field Blank 050719

Collection Date/Time: 05/07/2019 10:25

Field ID: SMP050719FB

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2084459	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P363613	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P363880	
		Sulfate	0.20	U	mg SO4/L	P363883	
		Color (true)	2.5	U	PCU	P363639	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P364170	
	SM 2540 C-97	TDS	15	U	mg/L	P364141	
	SM 2540 D-97	TSS	2	U	mg/L	P364236	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364174	
2084460	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P363906	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P363930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P364065	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P363874	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P363921	
2084461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363650	
2084480	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P363686	
		Calcium	0.075	U	mg/L	P363686	
		Iron	30	U	ug/L	P363686	
		Magnesium	0.040	U	mg/L	P363686	
		Potassium	0.30	U	mg/L	P363686	
		Sodium	0.50	U	mg/L	P363686	
		Zinc	5.0	U	ug/L	P363686	
		Aluminum	5.0	U	ug/L	P363686	
		Antimony	0.050	U	ug/L	P363686	
		Arsenic	0.050	U	ug/L	P363686	
		Boron**	2.0	U	ug/L	P363686	
		Cadmium	0.020	U	ug/L	P363686	
	EPA 200.8 Rev. 5.4	Chromium	0.40	U	ug/L	P363686	
		Copper	0.40	U	ug/L	P363686	
		Lead	0.20	U	ug/L	P363686	
		Nickel	0.50	U	ug/L	P363686	
		Selenium	0.20	U	ug/L	P363686	
		Silver	0.010	U	ug/L	P363686	
		Thallium	0.10	U	ug/L	P363686	

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: ST MARYS S PRONG @ CR 23C

Collection Date/Time: 05/07/2019 10:45

Field ID: 19010023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2084450	EPA 180.1 Rev. 2.0	Turbidity	11	A	NTU	P363613	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P363880	
		Sulfate	4.8		mg SO4/L	P363883	
		Color (true)	130		PCU	P363639	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P364170	
	SM 2540 C-97	TDS	93		mg/L	P364142	
	SM 2540 D-97	TSS	3	I	mg/L	P364237	
	SM 4500 F-C-97	Fluoride	0.098	I	mg F/L	P364174	
2084454	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P363906	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P363930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P364064	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P363723	
	SM 5310 B-00	Organic Carbon	9.3		mg C/L	P363921	
2084458	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P363650	
2084479	EPA 200.7 Rev. 4.4	Barium	30.3		ug/L	P363686	
		Calcium	10.3		mg/L	P363686	
		Iron	740		ug/L	P363686	
		Magnesium	3.47		mg/L	P363686	
		Potassium	2.0		mg/L	P363686	
		Sodium	10.0		mg/L	P363686	
		Zinc	5.0	U	ug/L	P363686	
	EPA 200.8 Rev. 5.4	Aluminum	464		ug/L	P363686	
		Antimony	0.059	I	ug/L	P363686	
		Arsenic	0.51		ug/L	P363686	
		Boron**	22.8		ug/L	P363686	
		Cadmium	0.020	U	ug/L	P363686	
		Chromium	0.79	I	ug/L	P363686	
		Copper	0.65	I	ug/L	P363686	
		Lead	0.64		ug/L	P363686	
		Nickel	0.51	I	ug/L	P363686	
		Selenium	0.20	U	ug/L	P363686	
		Silver	0.010	U	ug/L	P363686	
		Thallium	0.10	U	ug/L	P363686	

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: P363612

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363613

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363686

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
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: P363686

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364412

Component	Result	Code	Units
Aluminum	5.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363880

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363883

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363844

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363906

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363929

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363930

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364338

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364064

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364065

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363723

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
Batch ID: P363874

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363650

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

Reference Method: SM 2120 B
Batch ID: P363639

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364170

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

Reference Method: SM 2540 C-97
Batch ID: P364141

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P364142

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364236

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364237

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364174

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P363921

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: P363686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.5		P	85 - 115
Calcium	99.3		P	85 - 115
Iron	100		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	99.4		P	85 - 115
Sodium	101		P	85 - 115
Zinc	98.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.0		P	85 - 115
Antimony	98.2		P	85 - 115
Arsenic	102		P	85 - 115
Boron	97.5		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	99.3		P	85 - 115
Copper	99.6		P	85 - 115
Lead	100		P	85 - 115
Nickel	99.9		P	85 - 115
Selenium	101		P	85 - 115
Silver	98.4		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363883

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363844

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363906

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: P363929

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363930

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364338

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364064

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: P364065

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: P363723

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363874

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: P363650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.8		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P363639

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364170

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P363921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	89.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083973	Barium	99.0		P	80 - 120
2083973	Calcium	100		P	80 - 120
2083973	Iron	99.5		P	80 - 120
2083973	Magnesium	105		P	80 - 120
2083973	Potassium	97.1		P	80 - 120
2083973	Sodium	102		P	80 - 120
2083973	Zinc	99.6		P	80 - 120
2084515	Barium	98.1	99.9	P/P	80 - 120
2084515	Calcium	100		P	80 - 120
2084515	Iron	101	103	P/P	80 - 120
2084515	Magnesium	101	105	P/P	80 - 120
2084515	Potassium	96.7		P	80 - 120
2084515	Sodium	101		P	80 - 120
2084515	Zinc	102	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083973	Aluminum	94.1		P	80 - 120
2083973	Antimony	97.4		P	80 - 120
2083973	Arsenic	99.9		P	80 - 120
2083973	Boron	95.7		P	80 - 120
2083973	Cadmium	98.2		P	80 - 120
2083973	Chromium	99.4		P	80 - 120
2083973	Copper	97.6		P	80 - 120
2083973	Lead	100		P	80 - 120
2083973	Nickel	98.6		P	80 - 120
2083973	Selenium	99.6		P	80 - 120
2083973	Silver	96.8		P	80 - 120
2083973	Thallium	103		P	80 - 120
2084515	Aluminum	93.9	93.5	P/P	80 - 120
2084515	Antimony	98.3	97.1	P/P	80 - 120
2084515	Arsenic	102	99.6	P/P	80 - 120
2084515	Boron	93.8	92.4	P/P	80 - 120
2084515	Cadmium	98.9	98.9	P/P	80 - 120
2084515	Chromium	97.1	96.7	P/P	80 - 120
2084515	Copper	98.2	96.3	P/P	80 - 120
2084515	Lead	99.7	99.1	P/P	80 - 120
2084515	Nickel	98.7	98.1	P/P	80 - 120
2084515	Selenium	99.6	97.1	P/P	80 - 120
2084515	Silver	96.5	94.0	P/P	80 - 120
2084515	Thallium	103	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086459	Aluminum	100	101	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083563	Chloride	98.9		P	90 - 110
2084529	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083563	Sulfate	99.2		P	90 - 110
2084529	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084302	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084361	Ammonia-N	99.7	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084453	Kjeldahl Nitrogen	92.8	91.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2085819	Kjeldahl Nitrogen	101	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084414	NO2NO3-N	100	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084504	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084454	Total-P	99.5	99.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084162	Total-P	108	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084277	O-Phosphate-P	98.2	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2084386	Fluoride	96.1	95.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P363921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2083388	Organic Carbon	94.4	93.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084531	Turbidity	2.09	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084450	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P363686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084515	Barium	1.84	Spike	P	0 - 20
2084515	Calcium	1.03	Spike	P	0 - 20
2084515	Iron	2.61	Spike	P	0 - 20
2084515	Magnesium	2.41	Spike	P	0 - 20
2084515	Potassium	1.42	Spike	P	0 - 20
2084515	Sodium	2.01	Spike	P	0 - 20
2084515	Zinc	2.09	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P363686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084515	Aluminum	0.390	Spike	P	0 - 20
2084515	Antimony	1.29	Spike	P	0 - 20
2084515	Arsenic	2.05	Spike	P	0 - 20
2084515	Boron	0.952	Spike	P	0 - 20
2084515	Cadmium	0.0298	Spike	P	0 - 20
2084515	Chromium	0.420	Spike	P	0 - 20
2084515	Copper	1.96	Spike	P	0 - 20
2084515	Lead	0.674	Spike	P	0 - 20
2084515	Nickel	0.644	Spike	P	0 - 20
2084515	Selenium	2.46	Spike	P	0 - 20
2084515	Silver	2.62	Spike	P	0 - 20
2084515	Thallium	0.673	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086459	Aluminum	0.748	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2083563	Chloride	1.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2083563	Sulfate	0.137	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084302	Ammonia-N	0.295	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084361	Ammonia-N	0.442	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084442	Kjeldahl Nitrogen	5.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084453	Kjeldahl Nitrogen	0.854	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2085819	Kjeldahl Nitrogen	3.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084414	NO2NO3-N	0.881	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084504	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084454	Total-P	0.125	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084162	Total-P	4.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084277	O-Phosphate-P	1.20	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P363639

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084448	Color (true)	1.60	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084386	Total Alkalinity	0.743	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P364141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084359	TDS	3.28	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P364142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084360	TDS	1.17	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P364174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2084386	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2083388	Organic Carbon	0.857	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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91297

Included Lab Sample IDs: 2084447, 2084448, 2084449, 2084450, 2084459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A91305

Included Lab Sample IDs: 2084447, 2084448, 2084449, 2084450, 2084459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91312

Included Lab Sample IDs: 2084455, 2084456, 2084457, 2084458, 2084461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	99.6	P/P	90 - 110
O-Phosphate-P	99.5	98.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91366

Included Lab Sample IDs: 2084476, 2084477, 2084478, 2084479, 2084480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	98.7	P/P	90 - 110
Barium	101	101	P/P	95 - 105
Calcium	101	102	P/P	95 - 105
Calcium	99.5	98.0	P/P	90 - 110
Iron	100	101	P/P	95 - 105
Iron	98.7	98.4	P/P	90 - 110
Magnesium	101	101	P/P	95 - 105
Magnesium	98.8	99.1	P/P	90 - 110
Potassium	100	102	P/P	95 - 105
Potassium	98.6	98.2	P/P	90 - 110
Sodium	101	106	P/P	95 - 105
Sodium	103	102	P/P	90 - 110
Zinc	100	99.1	P/P	90 - 110
Zinc	102	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91385

Included Lab Sample IDs: 2084451, 2084452, 2084453

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91386

Included Lab Sample IDs: 2084477, 2084478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91386

Included Lab Sample IDs: 2084477, 2084478

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91399

Included Lab Sample IDs: 2084476, 2084477, 2084478, 2084479, 2084480

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	92.8	90.4	P/P	90 - 110
Aluminum	93.2	92.8	P/P	90 - 110
Aluminum	94.0	93.2	P/P	90 - 110
Antimony	93.3	93.6	P/P	90 - 110
Antimony	94.8	93.3	P/P	90 - 110
Antimony	95.6	94.8	P/P	90 - 110
Arsenic	95.4	95.5	P/P	90 - 110
Arsenic	96.5	95.4	P/P	90 - 110
Arsenic	98.5	96.5	P/P	90 - 110
Boron	93.4	95.4	P/P	90 - 110
Boron	95.4	92.6	P/P	90 - 110
Cadmium	93.8	93.3	P/P	90 - 110
Cadmium	95.4	93.8	P/P	90 - 110
Cadmium	95.6	95.4	P/P	90 - 110
Chromium	94.8	94.1	P/P	90 - 110
Chromium	95.4	96.0	P/P	90 - 110
Chromium	96.0	94.8	P/P	90 - 110
Copper	94.4	94.4	P/P	90 - 110
Copper	95.9	94.4	P/P	90 - 110
Copper	98.3	95.9	P/P	90 - 110
Lead	96.5	95.6	P/P	90 - 110
Lead	97.4	96.5	P/P	90 - 110
Lead	98.3	97.4	P/P	90 - 110
Nickel	94.9	94.7	P/P	90 - 110
Nickel	95.7	94.9	P/P	90 - 110
Nickel	99.0	95.7	P/P	90 - 110
Selenium	94.2	93.7	P/P	90 - 110
Selenium	96.2	94.2	P/P	90 - 110
Selenium	98.7	96.2	P/P	90 - 110
Silver	92.2	91.8	P/P	90 - 110
Silver	93.4	92.2	P/P	90 - 110
Silver	94.3	93.4	P/P	90 - 110
Thallium	93.5	92.6	P/P	90 - 110
Thallium	95.0	93.5	P/P	90 - 110
Thallium	95.3	95.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91404

Included Lab Sample IDs: 2084447, 2084448, 2084449, 2084450, 2084459

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91404

Included Lab Sample IDs: 2084447, 2084448, 2084449, 2084450, 2084459

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91412

Included Lab Sample IDs: 2084454, 2084460

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

Reference Method: SM 5310 B-00

Run ID: A91414

Included Lab Sample IDs: 2084451, 2084452, 2084453, 2084454, 2084460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	90.6	92.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91427

Included Lab Sample IDs: 2084451, 2084454

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91428

Included Lab Sample IDs: 2084452, 2084453

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91443

Included Lab Sample IDs: 2084477, 2084478, 2084479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	90.6	93.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91455

Included Lab Sample IDs: 2084460

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91473

Included Lab Sample IDs: 2084451, 2084452, 2084453, 2084454, 2084460

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91473

Included Lab Sample IDs: 2084451, 2084452, 2084453, 2084454, 2084460

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91485

Included Lab Sample IDs: 2084451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91497

Included Lab Sample IDs: 2084453, 2084454, 2084460

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

Reference Method: SM 2320 B-97

Run ID: A91513

Included Lab Sample IDs: 2084447, 2084448, 2084449, 2084450, 2084459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91513

Included Lab Sample IDs: 2084447, 2084448, 2084449, 2084450, 2084459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91618

Included Lab Sample IDs: 2084452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91674

Included Lab Sample IDs: 2084477, 2084478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	101	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.09	
	Turbidity					0.0	
EPA 200.7 Rev. 4.4	Barium	99.5	99.0	98.1	99.9		1.84
	Calcium	99.3	100	100			1.03
	Iron	100	99.5	101	103		2.61
	Magnesium	107	105	101	105		2.41
	Potassium	99.4	97.1	96.7			1.42
	Sodium	101	102	101			2.01
	Zinc	98.2	99.6	102	105		2.09
EPA 200.8 Rev. 5.4	Aluminum	96.0	94.1	93.9	93.5		0.390
	Aluminum	103	100	101			0.748
	Antimony	98.2	97.4	98.3	97.1		1.29
	Arsenic	102	99.9	102	99.6		2.05
	Boron	97.5	95.7	93.8	92.4		0.952
	Cadmium	100	98.2	98.9	98.9		0.0298
	Chromium	99.3	99.4	97.1	96.7		0.420
	Copper	99.6	97.6	98.2	96.3		1.96
	Lead	100	100	99.7	99.1		0.674
	Nickel	99.9	98.6	98.7	98.1		0.644
	Selenium	101	99.6	99.6	97.1		2.46
	Silver	98.4	96.8	96.5	94.0		2.62
	Thallium	103	103	103	102		0.673
EPA 300.0 Rev. 2.1	Chloride	98.4	98.9	98.9		1.12	
	Sulfate	98.7	99.2	99.5		0.137	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102	102			0.295
	Ammonia-N	101	99.7	99.2			0.442
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106					5.61
	Kjeldahl Nitrogen	98.9	92.8	91.8			0.854
	Kjeldahl Nitrogen	99.4	101	106			3.46
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	100	99.2			0.881
	NO ₂ NO ₃ -N	100	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	99.4	99.5	99.3			0.125
	Total-P	107	108	103			4.28
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	98.2	99.8			1.20
SM 2120 B	Color (true)	99.3				1.60	
SM 2320 B-97	Total Alkalinity	102				0.743	
SM 2540 C-97	TDS					3.28	
	TDS					1.17	
SM 4500 F-C-97	Fluoride	96.7	96.1	95.6			0.476
SM 5310 B-00	Organic Carbon	89.2	94.4	93.2			0.857

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2084447, 2084448, 2084449, 2084450, 2084459
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2084476, 2084477, 2084478, 2084479, 2084480
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2084476, 2084477, 2084478, 2084479, 2084480
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2084447, 2084448, 2084449, 2084450, 2084459
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2084447, 2084448, 2084449, 2084450, 2084459

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2084451, 2084452, 2084453, 2084454, 2084460
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2084451, 2084452, 2084453, 2084454, 2084460
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2084451, 2084452, 2084453, 2084454, 2084460
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2084451, 2084452, 2084453, 2084454, 2084460
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2084455, 2084456, 2084457, 2084458, 2084461
SM 2120 B / E31780	True Color measured at 450 nm	2084447, 2084448, 2084449, 2084450, 2084459
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2084447, 2084448, 2084449, 2084450, 2084459
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2084447, 2084448, 2084449, 2084450, 2084459
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2084447, 2084448, 2084449, 2084450, 2084459
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2084447, 2084448, 2084449, 2084450, 2084459
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2084451, 2084452, 2084453, 2084454, 2084460

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	05/08/2019			05/08/2019 16:03	Adrian Shelby	2084447, 2084448, 2084449, 2084450, 2084459
EPA 200.7 Rev. 4.4	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/10/2019 14:54	Betina Topolski	2084480
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/10/2019 17:28	Betina Topolski	2084476
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/10/2019 17:34	Betina Topolski	2084477
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/10/2019 17:40	Betina Topolski	2084478
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/10/2019 17:46	Betina Topolski	2084479
EPA 200.8 Rev. 5.4	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 14:17	Betina Topolski	2084477
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 14:23	Betina Topolski	2084478
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 17:55	Martin Acosta	2084480
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 20:56	Martin Acosta	2084476
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 21:34	Martin Acosta	2084477
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 21:43	Martin Acosta	2084478
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/13/2019 21:53	Martin Acosta	2084479
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/15/2019 07:07	Martin Acosta	2084477
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/15/2019 07:17	Martin Acosta	2084478
	05/08/2019	05/09/2019 14:50	Elliott D. Healy	05/15/2019 07:26	Martin Acosta	2084479
	05/08/2019	05/22/2019 17:00	Elliott D. Healy	05/24/2019 17:45	Robert K Palmer	2084477
	05/08/2019	05/22/2019 17:00	Elliott D. Healy	05/24/2019 17:55	Robert K Palmer	2084478
	05/08/2019			05/13/2019 20:00	Lipi Saha	2084447
EPA 300.0 Rev. 2.1	05/08/2019			05/13/2019 20:36	Lipi Saha	2084448
	05/08/2019			05/13/2019 20:48	Lipi Saha	2084449
	05/08/2019			05/13/2019 21:01	Lipi Saha	2084450
	05/08/2019			05/13/2019 21:13	Lipi Saha	2084459
	05/08/2019			05/10/2019 13:43	Ping Hua	2084451
EPA 350.1 Rev. 2.0	05/08/2019			05/10/2019 13:46	Ping Hua	2084452
	05/08/2019			05/10/2019 13:48	Ping Hua	2084453
	05/08/2019			05/13/2019 12:18	Ping Hua	2084454
	05/08/2019			05/13/2019 12:21	Ping Hua	2084460
	05/08/2019	05/14/2019 12:30	Adrian Shelby	05/16/2019 11:29	Joseph Suarez	2084451
EPA 351.2 Rev. 2.0	05/08/2019	05/14/2019 12:30	Adrian Shelby	05/17/2019 09:20	Joseph Suarez	2084453
	05/08/2019	05/14/2019 12:30	Adrian Shelby	05/17/2019 09:25	Joseph Suarez	2084454
	05/08/2019	05/14/2019 12:30	Adrian Shelby	05/17/2019 09:26	Joseph Suarez	2084460
	05/08/2019	05/21/2019 12:30	Adrian Shelby	05/23/2019 09:56	Joseph Suarez	2084452
	05/08/2019			05/16/2019 10:57	Beverly Y. Sanders	2084451
EPA 353.2 Rev. 2.0	05/08/2019			05/16/2019 11:13	Beverly Y. Sanders	2084460
	05/08/2019			05/16/2019 13:09	Beverly Y. Sanders	2084452
	05/08/2019			05/16/2019 13:10	Beverly Y. Sanders	2084453
	05/08/2019			05/16/2019 13:12	Beverly Y. Sanders	2084454
	05/08/2019	05/10/2019 08:53	Joseph Suarez	05/14/2019 15:39	Rosalyn Ballman	2084454

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	05/08/2019	05/10/2019 08:53	Joseph Suarez	05/14/2019 15:48	Rosalyn Ballman	2084451
	05/08/2019	05/10/2019 08:53	Joseph Suarez	05/14/2019 18:20	Rosalyn Ballman	2084452
	05/08/2019	05/10/2019 08:53	Joseph Suarez	05/14/2019 18:21	Rosalyn Ballman	2084453
	05/08/2019	05/14/2019 10:06	Joseph Suarez	05/15/2019 13:53	Rosalyn Ballman	2084460
EPA 365.1 Rev. 2.0 dissolved	05/08/2019			05/08/2019 14:46	Jhamieka S. Greenwood	2084461
	05/08/2019			05/08/2019 14:47	Jhamieka S. Greenwood	2084456
	05/08/2019			05/08/2019 14:48	Jhamieka S. Greenwood	2084457
	05/08/2019			05/08/2019 14:54	Jhamieka S. Greenwood	2084458
	05/08/2019			05/08/2019 14:55	Jhamieka S. Greenwood	2084455
SM 2120 B	05/08/2019			05/08/2019 15:40	Blanca Fach	2084448
	05/08/2019			05/08/2019 15:41	Blanca Fach	2084449
	05/08/2019			05/08/2019 15:42	Blanca Fach	2084450
	05/08/2019			05/08/2019 15:43	Blanca Fach	2084459
SM 2320 B-97	05/08/2019			05/08/2019 15:59	Blanca Fach	2084447
	05/08/2019			05/17/2019 00:49	Dale L. Simmons	2084447
	05/08/2019			05/17/2019 01:01	Dale L. Simmons	2084448
	05/08/2019			05/17/2019 01:12	Dale L. Simmons	2084449
	05/08/2019			05/17/2019 01:24	Dale L. Simmons	2084450
SM 2540 C-97	05/08/2019			05/17/2019 01:38	Dale L. Simmons	2084459
	05/08/2019			05/10/2019 16:05	Yijie Li	2084447, 2084448, 2084449, 2084450, 2084459
SM 2540 D-97	05/08/2019			05/10/2019 16:05	Yijie Li	2084447, 2084448, 2084449, 2084450, 2084459
SM 4500 F-C-97	05/08/2019			05/17/2019 00:49	Dale L. Simmons	2084447
	05/08/2019			05/17/2019 01:01	Dale L. Simmons	2084448
	05/08/2019			05/17/2019 01:12	Dale L. Simmons	2084449
	05/08/2019			05/17/2019 01:24	Dale L. Simmons	2084450
	05/08/2019			05/17/2019 01:38	Dale L. Simmons	2084459
SM 5310 B-00	05/08/2019			05/14/2019 02:49	Julia Storbeck	2084451
	05/08/2019			05/14/2019 03:03	Julia Storbeck	2084452
	05/08/2019			05/14/2019 03:18	Julia Storbeck	2084453
	05/08/2019			05/14/2019 03:31	Julia Storbeck	2084454
	05/08/2019			05/14/2019 03:44	Julia Storbeck	2084460