

Chemical Analysis Report

CEN-DIST-2023-10-04-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Run 13**
Request ID: **RQ-2023-10-02-26**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 19-OCT-2023 11:12



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: LAKE GEAR AT CENTER

Collection Date/Time: 10/03/2023 13:16

Field ID: G2CE0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442436	EPA 200.7 Rev. 4.4	Calcium	23.9		mg/L	P436035	
		Iron	36	I	ug/L	P436035	
		Magnesium	1.51		mg/L	P436035	
		Potassium	1.4		mg/L	P436035	
		Sodium	8.2		mg/L	P436035	
		Strontium	53.5		ug/L	P436035	
		Tin	3.0	U	ug/L	P436035	
		Titanium	0.75	U	ug/L	P436035	
		Vanadium	2.0	U	ug/L	P436035	
		Zinc	5.0	U	ug/L	P436035	
	EPA 200.8 Rev. 5.4	Aluminum	13	I	ug/L	P436035	
		Antimony	0.20	I	ug/L	P436035	
		Arsenic	2.08		ug/L	P436035	
		Barium	6.50		ug/L	P436035	
		Beryllium	0.010	U	ug/L	P436035	
		Boron	24.3		ug/L	P436035	
		Cadmium	0.020	U	ug/L	P436035	
		Chromium	0.40	U	ug/L	P436035	
		Cobalt	0.020	U	ug/L	P436035	
		Copper	1.39		ug/L	P436035	
		Lead	0.20	U	ug/L	P436035	
		Manganese	3.48		ug/L	P436035	
		Molybdenum	0.59	I	ug/L	P436035	
		Nickel	0.50	U	ug/L	P436035	
		Selenium	0.20	U	ug/L	P436035	
		Silver	0.010	U	ug/L	P436035	
		Thallium	0.10	U	ug/L	P436035	
	SM 2340 B-2011	Hardness	65.9		mg/L	P436035	

Sample Location: LAKE EMERALD AT CENTER

Collection Date/Time: 10/03/2023 11:25

Field ID: G4CE0204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442425	DEP SOP: NU-094-1	Color (true)	15		PCU	P435960	
	EPA 180.1 Rev. 2.0	Turbidity	3.5	A	NTU	P435958	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P436173	
		Sulfate	38		mg SO4/L	P436176	
	SM 2320 B-2011	Total Alkalinity	30		mg CaCO3/L	P436090	
	SM 2540 C-2015	TDS	130		mg/L	P436670	
	SM 2540 D-2015	TSS	5	I	mg/L	P436493	
	SM 4500-F- C-2011	Fluoride	0.043	I	mg F/L	P436092	
2442427	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P436136	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P436481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P436376	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P436113	
	SM 5310 B-2011	Organic Carbon	5.6		mg C/L	P436111	
2442429	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P435972	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FB

Collection Date/Time: 10/03/2023 11:35

Field ID: FB_10032023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442431	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P435960	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P435958	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P436173	
		Sulfate	0.20	U	mg SO4/L	P436176	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P436090	
	SM 2540 C-2015	TDS	15	U	mg/L	P436670	
	SM 2540 D-2015	TSS	2	U	mg/L	P436493	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P436092	
2442432	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P436133	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P436481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P436376	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P436210	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P436111	
2442433	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P435972	
2442438	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P436035	
		Iron	30	U	ug/L	P436035	
		Magnesium	0.040	U	mg/L	P436035	
		Potassium	0.30	U	mg/L	P436035	
		Sodium	0.50	U	mg/L	P436035	
		Strontium	2.0	U	ug/L	P436035	
		Tin	3.0	U	ug/L	P436035	
		Titanium	0.75	U	ug/L	P436035	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P436035	
		Zinc	5.0	U	ug/L	P436035	
		Aluminum	5.0	U	ug/L	P436035	
		Antimony	0.050	U	ug/L	P436035	
		Arsenic	0.050	U	ug/L	P436035	
		Barium	0.20	U	ug/L	P436035	
		Beryllium	0.010	U	ug/L	P436035	
		Boron	2.0	U	ug/L	P436035	
		Cadmium	0.020	U	ug/L	P436035	
		Chromium	0.40	U	ug/L	P436035	
		Cobalt	0.020	U	ug/L	P436035	
		Copper	0.40	U	ug/L	P436035	
		Lead	0.20	U	ug/L	P436035	
		Manganese	0.10	U	ug/L	P436035	
		Molybdenum	0.15	U	ug/L	P436035	
		Nickel	0.50	U	ug/L	P436035	
		Selenium	0.20	U	ug/L	P436035	
		Silver	0.010	U	ug/L	P436035	
		Thallium	0.10	U	ug/L	P436035	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE LUCERNE SW

Collection Date/Time: 10/03/2023 11:06

Field ID: G4CE0202

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442426	DEP SOP: NU-094-1	Color (true)	6.4		PCU	P435960	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P435958	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P436173	
		Sulfate	12		mg SO4/L	P436176	
	SM 2320 B-2011	Total Alkalinity	62		mg CaCO3/L	P436090	
	SM 2540 C-2015	TDS	90	A	mg/L	P436670	
	SM 2540 D-2015	TSS	4	IA	mg/L	P436493	
	SM 4500-F- C-2011	Fluoride	0.076	I	mg F/L	P436092	
2442428	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P436136	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P436481	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P436376	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P436113	
	SM 5310 B-2011	Organic Carbon	3.3		mg C/L	P436111	
2442430	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P435972	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE LAWSONA NW OF CENTER

Collection Date/Time: 10/03/2023 10:32

Field ID: G2CE0286

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442437	EPA 200.7 Rev. 4.4	Calcium	14.4		mg/L	P436035	
		Iron	37	I	ug/L	P436035	
		Magnesium	2.16		mg/L	P436035	
		Potassium	1.4		mg/L	P436035	
		Sodium	8.3		mg/L	P436035	
		Strontium	41.3		ug/L	P436035	
		Tin	3.0	U	ug/L	P436035	
		Titanium	0.98	I	ug/L	P436035	
		Vanadium	2.0	U	ug/L	P436035	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P436035	
		Aluminum	62		ug/L	P436035	
		Antimony	0.81		ug/L	P436035	
		Arsenic	0.73		ug/L	P436035	
		Barium	13.0		ug/L	P436035	
		Beryllium	0.010	U	ug/L	P436035	
		Boron	29.5		ug/L	P436035	
		Cadmium	0.020	U	ug/L	P436035	
		Chromium	0.40	U	ug/L	P436035	
		Cobalt	0.042	I	ug/L	P436035	
		Copper	2.61		ug/L	P436035	
		Lead	1.81		ug/L	P436035	
		Manganese	7.53		ug/L	P436035	
		Molybdenum	0.94		ug/L	P436035	
		Nickel	0.50	U	ug/L	P436035	
		Selenium	0.20	U	ug/L	P436035	
		Silver	0.010	U	ug/L	P436035	
		Thallium	0.10	U	ug/L	P436035	
	SM 2340 B-2011	Hardness	44.9		mg/L	P436035	

Ref. Method and Comment:
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 10/09/2023.

Sample Location: LAKE OLIVE AT CENTER

Collection Date/Time: 10/03/2023 09:58

Field ID: G4CE0223

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442971	DEP SOP: NU-094-1	Color (true)	19		PCU	P435965	
	EPA 180.1 Rev. 2.0	Turbidity	3.6	A	NTU	P435962	
	EPA 300.0 Rev. 2.1	Chloride	15	A	mg Cl/L	P436175	
		Sulfate	4.9	A	mg SO4/L	P436178	
	SM 2320 B-2011	Total Alkalinity	59		mg CaCO3/L	P436090	
	SM 2540 C-2015	TDS	111		mg/L	P436670	
	SM 2540 D-2015	TSS	6	I	mg/L	P436493	
	SM 4500-F- C-2011	Fluoride	0.077	I	mg F/L	P436092	
2442973	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P436234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P436274	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P436452	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P436214	
	SM 5310 B-2011	Organic Carbon	5.8		mg C/L	P436112	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKE DOWNEY AT CENTER

Collection Date/Time: 10/03/2023 12:26

Field ID: G2CE0227

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2442972	DEP SOP: NU-094-1	Color (true)	30		PCU	P435965	
	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P435962	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P436175	
		Sulfate	3.7		mg SO4/L	P436178	
	SM 2320 B-2011	Total Alkalinity	7.2		mg CaCO3/L	P436090	
	SM 2540 C-2015	TDS	70		mg/L	P436670	
	SM 2540 D-2015	TSS	2	U	mg/L	P436493	
	SM 4500-F- C-2011	Fluoride	0.035	I	mg F/L	P436092	
2442974	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P436234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P436274	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P436452	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P436214	
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P436181	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P435960

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P435965

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435958

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435962

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P436035

Component	Result	Code	Units
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
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Component	Result	Code	Units
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 300.0 Rev. 2.1
Batch ID: P436173

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436175

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436176

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436178

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436133

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436136

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436274

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436481

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436376

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436452

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436113

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436210

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436214

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435972

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

Reference Method: SM 2320 B-2011
Batch ID: P436090

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

Reference Method: SM 2540 C-2015
Batch ID: P436670

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P436493

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P436092

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P436111

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

Reference Method: SM 5310 B-2011
Batch ID: P436112

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

Reference Method: SM 5310 B-2011
Batch ID: P436181

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P435960

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.8		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P435965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	105		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	105		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P436035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	80 - 120
Iron	104		P	80 - 120
Magnesium	107		P	80 - 120
Potassium	99.2		P	80 - 120
Sodium	102		P	80 - 120
Strontium	101		P	80 - 120
Tin	103		P	80 - 120
Titanium	98.6		P	80 - 120
Vanadium	101		P	80 - 120
Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.8		P	85 - 115
Antimony	97.8		P	85 - 115
Arsenic	101		P	85 - 115
Barium	103		P	85 - 115
Beryllium	93.2		P	85 - 115
Boron	101		P	85 - 115
Cadmium	99.1		P	85 - 115
Chromium	97.4		P	85 - 115
Cobalt	99.7		P	85 - 115
Copper	99.8		P	85 - 115
Lead	97.0		P	85 - 115
Manganese	98.1		P	85 - 115
Molybdenum	98.5		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	99.2		P	85 - 115
Selenium	101		P	85 - 115
Silver	108		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436175

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436176

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436178

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436133

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436136

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436234

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: P436274

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436481

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436376

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436452

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436113

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436210

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436214

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: P435972

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

Reference Method: SM 2320 B-2011
Batch ID: P436090

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.8		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P436670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	94.8		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P436493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	102		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P436092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P436111

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

Reference Method: SM 5310 B-2011
Batch ID: P436112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P436181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P436035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442436	Calcium	99.6		P	80 - 120
2442436	Iron	102	103	P/P	80 - 120
2442436	Magnesium	104	104	P/P	80 - 120
2442436	Potassium	99.2	99.5	P/P	80 - 120
2442436	Sodium	99.5		P	80 - 120
2442436	Strontium	100	99.2	P/P	80 - 120
2442436	Tin	107	103	P/P	80 - 120
2442436	Titanium	102	98.2	P/P	80 - 120
2442436	Vanadium	104	100	P/P	80 - 120
2442436	Zinc	107	102	P/P	80 - 120
2442778	Calcium	98.6		P	80 - 120
2442778	Iron	102		P	80 - 120
2442778	Magnesium	102		P	80 - 120
2442778	Potassium	94.4		P	80 - 120
2442778	Sodium	99.7		P	80 - 120
2442778	Strontium	98.7		P	80 - 120
2442778	Tin	97.2		P	80 - 120
2442778	Titanium	99.6		P	80 - 120
2442778	Vanadium	101		P	80 - 120
2442778	Zinc	98.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P436035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442436	Aluminum	96.4	98.0	P/P	80 - 120
2442436	Antimony	96.7	96.9	P/P	80 - 120
2442436	Arsenic	99.1	100	P/P	80 - 120
2442436	Barium	101	102	P/P	80 - 120
2442436	Beryllium	94.1	93.1	P/P	80 - 120
2442436	Boron	97.7	99.9	P/P	80 - 120
2442436	Cadmium	98.1	98.8	P/P	80 - 120
2442436	Chromium	96.2	97.0	P/P	80 - 120
2442436	Cobalt	96.6	97.5	P/P	80 - 120
2442436	Copper	98.1	98.6	P/P	80 - 120
2442436	Lead	96.1	96.8	P/P	80 - 120
2442436	Manganese	95.7	96.9	P/P	80 - 120
2442436	Molybdenum	97.8	99.2	P/P	80 - 120
2442436	Nickel	96.5	97.9	P/P	80 - 120
2442436	Selenium	96.3	99.1	P/P	80 - 120
2442436	Silver	105	106	P/P	80 - 120
2442436	Thallium	102	102	P/P	80 - 120
2442778	Aluminum	88.4		P	80 - 120
2442778	Antimony	89.2		P	80 - 120
2442778	Arsenic	89.6		P	80 - 120
2442778	Barium	91.5		P	80 - 120
2442778	Beryllium	87.8		P	80 - 120
2442778	Boron	94.7		P	80 - 120
2442778	Cadmium	92.6		P	80 - 120
2442778	Chromium	85.6		P	80 - 120
2442778	Cobalt	87.5		P	80 - 120
2442778	Copper	88.1		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442778	Lead	86.7		P	80 - 120
2442778	Manganese	89.9		P	80 - 120
2442778	Molybdenum	90.6		P	80 - 120
2442778	Nickel	86.8		P	80 - 120
2442778	Selenium	87.6		P	80 - 120
2442778	Silver	97.5		P	80 - 120
2442778	Thallium	92.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442501	Chloride	104		P	90 - 110
2442658	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442971	Chloride	106		P	90 - 110
2443095	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442501	Sulfate	95.9		P	90 - 110
2442658	Sulfate	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442971	Sulfate	98.1		P	90 - 110
2443095	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442500	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442380	Ammonia-N	102	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442901	Ammonia-N	98.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442922	Kjeldahl Nitrogen	108	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442390	Kjeldahl Nitrogen	98.2	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442427	NO2NO3-N	95.0	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442973	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442389	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442551	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442908	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442430	O-Phosphate-P	96.4	96.6	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P436092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442786	Fluoride	100	99.6	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P436111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442303	Organic Carbon	92.9	95.8	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P436112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442661	Organic Carbon	96.2	99.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P436181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2442901	Organic Carbon	98.5		P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P435965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442759	Color (true)	20.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442425	Turbidity	14.4	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P435962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442971	Turbidity	2.25	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P436035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442436	Calcium	0.425	Spike	P	0 - 20
2442436	Iron	0.591	Spike	P	0 - 20
2442436	Magnesium	0.296	Spike	P	0 - 20
2442436	Potassium	0.177	Spike	P	0 - 20
2442436	Sodium	1.03	Spike	P	0 - 20
2442436	Strontium	0.914	Spike	P	0 - 20
2442436	Tin	3.68	Spike	P	0 - 20
2442436	Titanium	4.16	Spike	P	0 - 20
2442436	Vanadium	4.28	Spike	P	0 - 20
2442436	Zinc	5.10	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442436	Aluminum	1.63	Spike	P	0 - 20
2442436	Antimony	0.235	Spike	P	0 - 20
2442436	Arsenic	0.903	Spike	P	0 - 20
2442436	Barium	0.742	Spike	P	0 - 20
2442436	Beryllium	1.10	Spike	P	0 - 20
2442436	Boron	1.79	Spike	P	0 - 20
2442436	Cadmium	0.775	Spike	P	0 - 20
2442436	Chromium	0.832	Spike	P	0 - 20
2442436	Cobalt	0.937	Spike	P	0 - 20
2442436	Copper	0.528	Spike	P	0 - 20
2442436	Lead	0.717	Spike	P	0 - 20
2442436	Manganese	1.15	Spike	P	0 - 20
2442436	Molybdenum	1.30	Spike	P	0 - 20
2442436	Nickel	1.36	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P436035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442436	Selenium	2.81	Spike	P	0 - 20
2442436	Silver	1.42	Spike	P	0 - 20
2442436	Thallium	0.201	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442501	Chloride	0.782	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442971	Chloride	0.120	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442501	Sulfate	0.485	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P436178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442971	Sulfate	0.0364	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442500	Ammonia-N	0.325	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442380	Ammonia-N	2.37	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442901	Ammonia-N	1.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442922	Kjeldahl Nitrogen	0.483	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442390	Kjeldahl Nitrogen	2.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442427	NO2NO3-N	3.11	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442973	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442389	Total-P	0.257	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442551	Total-P	1.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442908	Total-P	0.594	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442430	O-Phosphate-P	0.207	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P436090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442786	Total Alkalinity	1.02	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P436670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442426	TDS	7.73	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P436092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442786	Fluoride	0.525	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P436111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442303	Organic Carbon	1.83	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P436112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442661	Organic Carbon	2.23	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P436181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2442901	Organic Carbon	0.324	Sample	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A121948

Included Lab Sample IDs: 2442425, 2442426, 2442431, 2442971, 2442972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	98.8	P/P	90 - 110
Chloride	99.2	102	P/P	90 - 110
Sulfate	100	103	P/P	90 - 110
Sulfate	100	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A121951

Included Lab Sample IDs: 2442425, 2442426, 2442431, 2442971, 2442972

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

Reference Method: DEP SOP: NU-094-1

Run ID: A121952

Included Lab Sample IDs: 2442425, 2442426, 2442431, 2442971, 2442972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 110
Color (true)	99.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A121955

Included Lab Sample IDs: 2442429, 2442430, 2442433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	97.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A121987

Included Lab Sample IDs: 2442425, 2442426, 2442431, 2442971, 2442972

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.7	96.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A121987

Included Lab Sample IDs: 2442425, 2442426, 2442431, 2442971, 2442972

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

Reference Method: SM 5310 B-2011

Run ID: A121999

Included Lab Sample IDs: 2442427, 2442428, 2442432, 2442973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	96.2	P/P	90 - 110
Organic Carbon	96.2	96.4	P/P	90 - 110
Organic Carbon	97.0	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122010

Included Lab Sample IDs: 2442427, 2442428, 2442432

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122018

Included Lab Sample IDs: 2442436, 2442437, 2442438

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.0	98.3	P/P	90 - 110
Aluminum	98.3	99.2	P/P	90 - 110
Antimony	93.4	93.8	P/P	90 - 110
Antimony	93.4	93.4	P/P	90 - 110
Arsenic	99.2	98.8	P/P	90 - 110
Arsenic	99.9	99.2	P/P	90 - 110
Barium	99.0	98.5	P/P	90 - 110
Barium	99.2	99.0	P/P	90 - 110
Beryllium	93.1	96.3	P/P	90 - 110
Beryllium	96.3	96.1	P/P	90 - 110
Boron	95.7	99.5	P/P	90 - 110
Boron	96.1	95.7	P/P	90 - 110
Cadmium	98.2	99.0	P/P	90 - 110
Cadmium	99.0	99.5	P/P	90 - 110
Chromium	97.2	99.1	P/P	90 - 110
Chromium	99.1	99.2	P/P	90 - 110
Cobalt	97.8	98.8	P/P	90 - 110
Cobalt	98.8	98.5	P/P	90 - 110
Copper	96.4	95.2	P/P	90 - 110
Copper	96.9	96.4	P/P	90 - 110
Lead	95.0	95.0	P/P	90 - 110
Lead	95.0	95.0	P/P	90 - 110
Manganese	96.2	99.4	P/P	90 - 110
Manganese	99.4	102	P/P	90 - 110
Molybdenum	97.5	97.7	P/P	90 - 110
Molybdenum	97.7	97.6	P/P	90 - 110
Nickel	98.5	98.9	P/P	90 - 110
Nickel	98.9	98.3	P/P	90 - 110
Selenium	98.7	99.2	P/P	90 - 110
Selenium	99.2	98.1	P/P	90 - 110
Silver	97.0	97.5	P/P	90 - 110
Silver	97.5	97.4	P/P	90 - 110
Thallium	97.0	97.4	P/P	90 - 110
Thallium	97.4	97.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A122023

Included Lab Sample IDs: 2442974

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122031

Included Lab Sample IDs: 2442427, 2442428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.5	P/P	90 - 110
Total-P	99.2	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122033

Included Lab Sample IDs: 2442973, 2442974

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A122038

Included Lab Sample IDs: 2442436, 2442437, 2442438

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	95 - 105
Calcium	104	100	P/P	90 - 110
Iron	103	99.4	P/P	90 - 110
Iron	103	103	P/P	95 - 105
Magnesium	103	103	P/P	95 - 105
Magnesium	103	100	P/P	90 - 110
Potassium	98.7	95.8	P/P	90 - 110
Potassium	98.7	98.7	P/P	95 - 105
Sodium	101	103	P/P	95 - 105
Sodium	103	99.0	P/P	90 - 110
Strontium	97.4	96.9	P/P	90 - 110
Strontium	98.3	97.4	P/P	95 - 105
Tin	97.5	95.3	P/P	90 - 110
Tin	98.8	97.5	P/P	95 - 105
Titanium	96.5	96.0	P/P	90 - 110
Titanium	98.0	96.5	P/P	95 - 105
Vanadium	97.4	97.0	P/P	90 - 110
Vanadium	98.5	97.4	P/P	95 - 105
Zinc	100	98.8	P/P	95 - 105
Zinc	98.8	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122046

Included Lab Sample IDs: 2442973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.9	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122074

Included Lab Sample IDs: 2442432, 2442974

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122091

Included Lab Sample IDs: 2442427, 2442428, 2442432

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122118

Included Lab Sample IDs: 2442973, 2442974

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122130

Included Lab Sample IDs: 2442973, 2442974

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: A122164

Included Lab Sample IDs: 2442427, 2442428, 2442432

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.1	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				
DEP SOP: NU-094-1	Color (true)	97.8					
	Color (true)	102				20.0	
EPA 180.1 Rev. 2.0	Turbidity	105				14.4	
	Turbidity	105				2.25	
EPA 200.7 Rev. 4.4	Calcium	102	99.6	98.6			0.425
	Iron	104	102	103	102		0.591
	Magnesium	107	104	104	102		0.296
	Potassium	99.2	99.2	99.5	94.4		0.177
	Sodium	102	99.5	99.7			1.03
	Strontium	101	100	99.2	98.7		0.914
	Tin	103	107	103	97.2		3.68
	Titanium	98.6	102	98.2	99.6		4.16
	Vanadium	101	104	100	101		4.28
	Zinc	103	107	102	98.5		5.10
EPA 200.8 Rev. 5.4	Aluminum	99.8	96.4	98.0	88.4		1.63
	Antimony	97.8	96.7	96.9	89.2		0.235
	Arsenic	101	99.1	100	89.6		0.903
	Barium	103	101	102	91.5		0.742
	Beryllium	93.2	94.1	93.1	87.8		1.10
	Boron	101	97.7	99.9	94.7		1.79
	Cadmium	99.1	98.1	98.8	92.6		0.775
	Chromium	97.4	96.2	97.0	85.6		0.832
	Cobalt	99.7	96.6	97.5	87.5		0.937
	Copper	99.8	98.1	98.6	88.1		0.528
	Lead	97.0	96.1	96.8	86.7		0.717
	Manganese	98.1	95.7	96.9	89.9		1.15
	Molybdenum	98.5	97.8	99.2	90.6		1.30
	Nickel	99.2	96.5	97.9	86.8		1.36
	Selenium	101	96.3	99.1	87.6		2.81
	Silver	108	105	106	97.5		1.42
	Thallium	102	92.0	102	102		0.201
EPA 300.0 Rev. 2.1	Chloride	97.3	104	105		0.782	
	Chloride	102	106	106		0.120	
	Sulfate	93.1	95.9	99.7		0.485	
	Sulfate	96.3	98.1	104		0.0364	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	102			0.325
	Ammonia-N	101	102	99.4			2.37
	Ammonia-N	101	98.6	101			1.54
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	108	108			0.483
	Kjeldahl Nitrogen	101	98.2	101			2.56
EPA 353.2 Rev. 2.0	NO2NO3-N	100	95.0	98.0			3.11
	NO2NO3-N	101	102	102			0.491
EPA 365.1 Rev. 2.0	Total-P	102	107	107			0.257
	Total-P	102	105	103			1.97
	Total-P	103	105	105			0.594
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	96.4	96.6			0.207
SM 2320 B-2011	Total Alkalinity	96.8				1.02	
SM 2540 C-2015	TDS	94.8				7.73	
SM 2540 D-2015	TSS	102					
SM 4500-F- C-2011	Fluoride	100	100	99.6			0.525
SM 5310 B-2011	Organic Carbon	97.4	92.9	95.8			1.83
	Organic Carbon	95.6	96.2	99.5			2.23
	Organic Carbon	97.9	98.5			0.324	

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2442425, 2442426, 2442431, 2442971, 2442972
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2442425, 2442426, 2442431, 2442971, 2442972
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2442436, 2442437, 2442438
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2442436, 2442437, 2442438
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2442425, 2442426, 2442431, 2442971, 2442972
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2442425, 2442426, 2442431, 2442971, 2442972
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2442427, 2442428, 2442432, 2442973, 2442974
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2442427, 2442428, 2442432, 2442973, 2442974
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2442427, 2442428, 2442432, 2442973, 2442974
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2442427, 2442428, 2442432, 2442973, 2442974
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2442429, 2442430, 2442433
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2442425, 2442426, 2442431, 2442971, 2442972
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2442436, 2442437
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2442425, 2442426, 2442431, 2442971, 2442972
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2442425, 2442426, 2442431, 2442971, 2442972
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2442425, 2442426, 2442431, 2442971, 2442972
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2442427, 2442428, 2442432, 2442973, 2442974

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	10/04/2023			10/04/2023 15:21	Samantha L Bates	2442425
	10/04/2023			10/04/2023 15:22	Samantha L Bates	2442426
	10/04/2023			10/04/2023 15:23	Samantha L Bates	2442431
	10/04/2023			10/04/2023 16:05	Samantha L Bates	2442971
	10/04/2023			10/04/2023 16:06	Samantha L Bates	2442972
EPA 180.1 Rev. 2.0	10/04/2023			10/04/2023 11:58	Alexis Price	2442425
	10/04/2023			10/04/2023 12:00	Alexis Price	2442426
	10/04/2023			10/04/2023 12:01	Alexis Price	2442431
	10/04/2023			10/04/2023 14:51	Alexis Price	2442971
	10/04/2023			10/04/2023 14:52	Alexis Price	2442972
EPA 200.7 Rev. 4.4	10/04/2023	10/05/2023 13:30	George D Taylor	10/09/2023 14:25	McKinley C Carter	2442438
	10/04/2023	10/05/2023 13:30	George D Taylor	10/09/2023 15:58	McKinley C Carter	2442436
	10/04/2023	10/05/2023 13:30	George D Taylor	10/09/2023 16:29	McKinley C Carter	2442437
EPA 200.8 Rev. 5.4	10/04/2023	10/05/2023 13:30	George D Taylor	10/06/2023 15:53	Conrad Hartmann	2442438
	10/04/2023	10/05/2023 13:30	George D Taylor	10/06/2023 16:46	Conrad Hartmann	2442436
	10/04/2023	10/05/2023 13:30	George D Taylor	10/06/2023 17:48	Conrad Hartmann	2442437
EPA 300.0 Rev. 2.1	10/04/2023			10/06/2023 17:42	James L Waggeberby	2442425
	10/04/2023			10/06/2023 17:57	James L Waggeberby	2442426
	10/04/2023			10/06/2023 18:12	James L Waggeberby	2442431
	10/04/2023			10/07/2023 07:17	James L Waggeberby	2442971
	10/04/2023			10/07/2023 09:02	James L Waggeberby	2442972
EPA 350.1 Rev. 2.0	10/04/2023			10/06/2023 12:59	Ping Hua	2442432
	10/04/2023			10/06/2023 14:26	Ping Hua	2442427
	10/04/2023			10/06/2023 14:28	Ping Hua	2442428
	10/04/2023			10/09/2023 12:56	Khloe J Berg	2442973
	10/04/2023			10/09/2023 12:57	Khloe J Berg	2442974
EPA 351.2 Rev. 2.0	10/04/2023	10/11/2023 12:38	Ping Hua	10/12/2023 13:07	Ping Hua	2442973
	10/04/2023	10/11/2023 12:38	Ping Hua	10/12/2023 13:08	Ping Hua	2442974
	10/04/2023	10/13/2023 12:35	Simonne.V. Calhoun	10/16/2023 11:24	Samantha L Bates	2442427
	10/04/2023	10/13/2023 12:35	Simonne.V. Calhoun	10/16/2023 11:25	Samantha L Bates	2442428
	10/04/2023	10/13/2023 12:35	Simonne.V. Calhoun	10/16/2023 11:27	Samantha L Bates	2442432
EPA 353.2 Rev. 2.0	10/04/2023			10/11/2023 13:12	Anna M. Plaviak	2442427
	10/04/2023			10/11/2023 13:18	Anna M. Plaviak	2442428
	10/04/2023			10/11/2023 13:19	Anna M. Plaviak	2442432
	10/04/2023			10/12/2023 12:33	Anna M. Plaviak	2442973
	10/04/2023			10/12/2023 12:44	Anna M. Plaviak	2442974
EPA 365.1 Rev. 2.0	10/04/2023	10/06/2023 14:30	Alexis Price	10/09/2023 16:59	James L Waggeberby	2442427
	10/04/2023	10/06/2023 14:30	Alexis Price	10/09/2023 17:07	James L Waggeberby	2442428
	10/04/2023	10/09/2023 17:34	Adam P Silver	10/10/2023 12:08	James L Waggeberby	2442973
	10/04/2023	10/09/2023 17:34	Adam P Silver	10/11/2023 10:07	James L Waggeberby	2442432

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	10/04/2023	10/09/2023 17:34	Adam P Silver	10/11/2023 10:55	James L Waggeberby	2442974
EPA 365.1 Rev. 2.0 dissolved	10/04/2023			10/04/2023 16:40	Elise M. Gillis	2442430
	10/04/2023			10/04/2023 16:42	Elise M. Gillis	2442429
	10/04/2023			10/04/2023 16:43	Elise M. Gillis	2442433
SM 2320 B-2011	10/04/2023			10/06/2023 02:20	Adam P Silver	2442425
	10/04/2023			10/06/2023 02:32	Adam P Silver	2442426
	10/04/2023			10/06/2023 02:42	Adam P Silver	2442431
	10/04/2023			10/06/2023 03:21	Adam P Silver	2442971
	10/04/2023			10/06/2023 03:33	Adam P Silver	2442972
SM 2340 B-2011	10/04/2023			10/09/2023 15:58	McKinley C Carter	2442436
	10/04/2023			10/09/2023 16:29	McKinley C Carter	2442437
SM 2540 C-2015	10/04/2023			10/09/2023 15:48	Yijie Li	2442425, 2442426, 2442431, 2442971, 2442972
SM 2540 D-2015	10/04/2023			10/09/2023 15:48	Yijie Li	2442425, 2442426, 2442431, 2442971, 2442972
SM 4500-F- C-2011	10/04/2023			10/06/2023 02:20	Adam P Silver	2442425
	10/04/2023			10/06/2023 02:32	Adam P Silver	2442426
	10/04/2023			10/06/2023 02:42	Adam P Silver	2442431
	10/04/2023			10/06/2023 03:21	Adam P Silver	2442971
	10/04/2023			10/06/2023 03:33	Adam P Silver	2442972
SM 5310 B-2011	10/04/2023			10/05/2023 16:09	Elise M. Gillis	2442427
	10/04/2023			10/05/2023 19:22	Elise M. Gillis	2442428
	10/04/2023			10/05/2023 19:35	Elise M. Gillis	2442432
	10/04/2023			10/06/2023 05:19	Elise M. Gillis	2442973
	10/04/2023			10/07/2023 04:27	Khloe J Berg	2442974