

Chemical Analysis Report

NE-DIST-2023-04-18-01

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

Event Description: **LSJR East**
Request ID: **RQ-2023-04-03-31**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Chris Bowen, Environmental Administrator

Date Certified: 09-MAY-2023 13:18



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: HOGPEN CR AT SAN PABLO ROAD

Collection Date/Time: 04/17/2023 10:05

Field ID: 20030696

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2400953	DEP SOP: NU-094-1	Color (true)	37		PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P428648	
	EPA 300.0 Rev. 2.1	Chloride	1.0E+04		mg Cl/L	P428894	
		Sulfate	1.5E+03		mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	101		mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	1.72E+04		mg/L	P429116	
	SM 2540 D-2015	TSS	8	IA	mg/L	P428909	
	SM 4500-F- C-2011	Fluoride	0.72		mg F/L	P429443	
2400954	EPA 350.1 Rev. 2.0	Ammonia-N	0.090		mg N/L	P428965	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P428919	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P429105	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P428737	
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P428911	

Ref. Method and Comment:

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

SM 4500-F- C-2011: LFB is unavailable because of analytical difficulties.

Sample Location: FB

Collection Date/Time: 04/17/2023 10:10

Field ID: FB_04172023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2400957	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P428648	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P428894	
		Sulfate	0.20	U	mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	15	U	mg/L	P429116	
	SM 2540 D-2015	TSS	2	U	mg/L	P428907	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P429109	
2400958	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P428830	MS
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P428921	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429081	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P428664	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P428910	
2400963	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P428697	
		Iron	30	U	ug/L	P428697	
		Magnesium	0.040	U	mg/L	P428697	
		Potassium	0.30	U	mg/L	P428697	
		Sodium	0.50	U	mg/L	P428697	
		Strontium	2.0	U	ug/L	P428697	
		Tin	3.0	U	ug/L	P428697	
		Titanium	0.75	U	ug/L	P428697	
		Vanadium	2.0	U	ug/L	P428697	
		Zinc	5.0	U	ug/L	P428697	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P428697	
		Antimony	0.050	U	ug/L	P428697	
		Arsenic	0.050	U	ug/L	P428697	
		Barium	0.20	U	ug/L	P428697	
		Beryllium	0.010	U	ug/L	P428697	
		Boron	2.0	U	ug/L	P428697	
		Cadmium	0.020	U	ug/L	P428697	
		Chromium	0.40	U	ug/L	P428697	
		Cobalt	0.020	U	ug/L	P428697	
		Copper	0.40	U	ug/L	P428697	
		Lead	0.20	U	ug/L	P428697	
		Manganese	0.10	U	ug/L	P428697	
		Molybdenum	0.15	U	ug/L	P428697	
		Nickel	0.50	U	ug/L	P428697	
		Selenium	0.20	U	ug/L	P428697	
		Silver	0.010	U	ug/L	P428697	
		Thallium	0.10	U	ug/L	P428697	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P428697	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for arsenic, manganese and molybdenum are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: GREENFIELD CR AT HODGES RD

Collection Date/Time: 04/17/2023 10:55

Field ID: G2NE1145

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2400955	DEP SOP: NU-094-1	Color (true)	47		PCU	P428631	
	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P428648	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P428894	
		Sulfate	48		mg SO4/L	P428898	
	SM 2320 B-2011	Total Alkalinity	92		mg CaCO3/L	P428868	
	SM 2540 C-2015	TDS	261		mg/L	P429116	
	SM 2540 D-2015	TSS	4	I	mg/L	P428907	
	SM 4500-F- C-2011	Fluoride	0.086	I	mg F/L	P429109	MS
2400956	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P428793	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P428921	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P429081	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P428664	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P428910	

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: GREENFIELD CREEK AT QUEENS HARBOUR BLVD. **Collection Date/Time: 04/17/2023 10:35**

Field ID: 20030809

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2400980	EPA 200.7 Rev. 4.4	Calcium	196		mg/L	P428935	
		Iron	360		ug/L	P428935	
		Magnesium	547		mg/L	P428935	
		Potassium	168		mg/L	P428935	
		Sodium	4.27E+03		mg/L	P428935	
		Strontium	3.47E+03		ug/L	P428935	
		Tin	60	U	ug/L	P428935	
		Titanium	2.2	U	ug/L	P428935	
		Vanadium	6.0	U	ug/L	P428935	
		Zinc	15	U	ug/L	P428935	
	EPA 200.8 Rev. 5.4	Aluminum	181		ug/L	P428935	
		Antimony	0.20	U	ug/L	P428935	
		Arsenic	1.60		ug/L	P428935	
		Barium	30.6		ug/L	P428935	
		Beryllium	0.10	U	ug/L	P428935	
		Boron	1.89E+03		ug/L	P428935	
		Cadmium	0.080	U	ug/L	P428935	
		Chromium	4.0	U	ug/L	P428935	
		Cobalt	0.17	I	ug/L	P428935	
		Copper	1.6	I	ug/L	P428935	
		Lead	0.80	U	ug/L	P428935	
		Manganese	64.0		ug/L	P428935	
		Molybdenum	4.2		ug/L	P428935	
		Nickel	2.0	U	ug/L	P428935	
		Selenium	0.80	U	ug/L	P428935	
		Silver	0.040	U	ug/L	P428935	
		Thallium	0.40	U	ug/L	P428935	
	SM 2340 B-2011	Hardness	2.74E+03		mg/L	P428935	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, sodium and strontium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Open Creek at San Pablo Road

Collection Date/Time: 04/17/2023 11:20

Field ID: 20030695

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2400982	EPA 8276	Chlordane	2.0	U	ng/L	P428666	
		Toxaphene	15	U	ng/L	P428666	

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P428631

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428648

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P428697

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 200.7 Rev. 4.4
Batch ID: P428935

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: P428697

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P428697

Component	Result	Code	Units
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	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: P428935

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
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: P428894

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428898

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428793

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428965

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428919

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429081

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429105

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428664

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428737

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

Reference Method: EPA 8276
Batch ID: P428666

Component	Result	Code	Units
Chlordane	2.0	U	ng/L
Chlordane	2.0	U	ng/L
Toxaphene	15	U	ng/L
Toxaphene	15	U	ng/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P428868

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

Reference Method: SM 2540 C-2015
Batch ID: P429116

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P428907

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P428909

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P429443

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P428910

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

Reference Method: SM 5310 B-2011
Batch ID: P428911

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: P428631

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428648

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P428697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	100		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	102		P	85 - 115
Sodium	103		P	85 - 115
Strontium	100		P	85 - 115
Tin	98.7		P	85 - 115
Titanium	98.7		P	85 - 115
Vanadium	98.7		P	85 - 115
Zinc	99.1		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P428935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.3		P	80 - 120
Iron	99.4		P	80 - 120
Magnesium	103		P	80 - 120
Potassium	104		P	80 - 120
Sodium	106		P	80 - 120
Strontium	101		P	80 - 120
Tin	97.0		P	80 - 120
Titanium	97.3		P	80 - 120
Vanadium	98.4		P	80 - 120
Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P428697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.7		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	101		P	85 - 115
Barium	102		P	85 - 115
Beryllium	94.0		P	85 - 115
Boron	101		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	97.1		P	85 - 115
Cobalt	103		P	85 - 115
Copper	97.5		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lead	103		P	85 - 115
Manganese	99.6		P	85 - 115
Molybdenum	98.9		P	85 - 115
Nickel	99.3		P	85 - 115
Selenium	100		P	85 - 115
Silver	105		P	85 - 115
Thallium	99.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	85 - 115
Antimony	105		P	85 - 115
Arsenic	101		P	85 - 115
Barium	105		P	85 - 115
Beryllium	81.7		P	80 - 120
Boron	104		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	99.8		P	80 - 120
Cobalt	97.7		P	85 - 115
Copper	101		P	85 - 115
Lead	95.3		P	85 - 115
Manganese	103		P	85 - 115
Molybdenum	102		P	85 - 115
Nickel	99.0		P	85 - 115
Selenium	102		P	85 - 115
Silver	102		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P428894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P428898

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P428793

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P428830

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

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428919

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429081

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: P429105

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428664

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: P428737

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

Reference Method: EPA 8276
Batch ID: P428666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	75.5		P	61 - 116
Toxaphene	92.6		P	48 - 124

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P428868

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.3		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P429116

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

Reference Method: SM 2540 D-2015
Batch ID: P428907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.9		P	85 - 106

Reference Method: SM 2540 D-2015
Batch ID: P428909

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	100		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P428910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P428911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P428697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400401	Calcium	97.4		P	80 - 120
2400401	Iron	99.0	99.7	P/P	80 - 120
2400401	Magnesium	96.4		P	80 - 120
2400401	Potassium	98.4	99.3	P/P	80 - 120
2400401	Sodium	102		P	80 - 120
2400401	Strontium	98.4	98.7	P/P	80 - 120
2400401	Tin	98.2	96.6	P/P	80 - 120
2400401	Titanium	99.3	98.9	P/P	80 - 120
2400401	Vanadium	99.2	98.6	P/P	80 - 120
2400401	Zinc	95.2	94.7	P/P	80 - 120
2400729	Calcium	100		P	80 - 120
2400729	Iron	100		P	80 - 120
2400729	Magnesium	102		P	80 - 120
2400729	Potassium	101		P	80 - 120
2400729	Sodium	106		P	80 - 120
2400729	Strontium	99.6		P	80 - 120
2400729	Tin	99.5		P	80 - 120
2400729	Titanium	97.9		P	80 - 120
2400729	Vanadium	101		P	80 - 120
2400729	Zinc	99.5		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P428935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400980	Iron	99.2	99.9	P/P	80 - 120
2400980	Tin	84.6	101	P/P	80 - 120
2400980	Titanium	98.4	99.7	P/P	80 - 120
2400980	Vanadium	103	104	P/P	80 - 120
2400980	Zinc	99.0	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400401	Aluminum	101	98.9	P/P	80 - 120
2400401	Antimony	105	104	P/P	80 - 120
2400401	Barium	103	102	P/P	80 - 120
2400401	Beryllium	94.0	96.3	P/P	80 - 120
2400401	Boron	106	105	P/P	80 - 120
2400401	Cadmium	104	105	P/P	80 - 120
2400401	Chromium	98.2	96.9	P/P	80 - 120
2400401	Cobalt	102	102	P/P	80 - 120
2400401	Copper	95.4	95.0	P/P	80 - 120
2400401	Lead	105	106	P/P	80 - 120
2400401	Manganese	101	101	P/P	80 - 120
2400401	Nickel	96.2	94.7	P/P	80 - 120
2400401	Selenium	98.7	98.0	P/P	80 - 120
2400401	Silver	106	106	P/P	80 - 120
2400401	Thallium	103	106	P/P	80 - 120
2400729	Aluminum	96.5		P	80 - 120
2400729	Antimony	102		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400729	Arsenic	98.1		P	80 - 120
2400729	Barium	99.0		P	80 - 120
2400729	Beryllium	92.5		P	80 - 120
2400729	Boron	99.3		P	80 - 120
2400729	Cadmium	103		P	80 - 120
2400729	Chromium	95.2		P	80 - 120
2400729	Cobalt	102		P	80 - 120
2400729	Copper	97.5		P	80 - 120
2400729	Lead	105		P	80 - 120
2400729	Molybdenum	101		P	80 - 120
2400729	Nickel	97.5		P	80 - 120
2400729	Selenium	97.1		P	80 - 120
2400729	Silver	104		P	80 - 120
2400729	Thallium	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P428935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400980	Aluminum	117	114	P/P	70 - 130
2400980	Antimony	104	104	P/P	70 - 130
2400980	Arsenic	112	113	P/P	70 - 130
2400980	Barium	105	106	P/P	70 - 130
2400980	Beryllium	99.0	99.6	P/P	70 - 130
2400980	Boron	114	117	P/P	70 - 130
2400980	Cadmium	94.6	97.3	P/P	70 - 130
2400980	Chromium	94.0	92.1	P/P	70 - 130
2400980	Cobalt	96.6	95.7	P/P	70 - 130
2400980	Copper	108	110	P/P	70 - 130
2400980	Lead	105	105	P/P	70 - 130
2400980	Manganese	102	102	P/P	70 - 130
2400980	Molybdenum	119	119	P/P	70 - 130
2400980	Nickel	95.5	94.8	P/P	70 - 130
2400980	Selenium	102	101	P/P	70 - 130
2400980	Silver	91.6	91.3	P/P	70 - 130
2400980	Thallium	112	113	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P428894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401008	Chloride	103		P	90 - 110
2401091	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P428898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401008	Sulfate	101		P	90 - 110
2401091	Sulfate	103		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400866	Ammonia-N	94.2	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401012	Ammonia-N	99.2	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400909	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400914	Kjeldahl Nitrogen	98.6	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401012	Kjeldahl Nitrogen	99.2	91.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400907	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400954	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400866	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400954	Total-P	96.6	98.8	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8276
Batch ID: P428666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401257	Chlordane	69.1	68.5	P/P	53 - 126
2401257	Toxaphene	82.8	86.9	P/P	56 - 211

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400967	Fluoride	105	106	F/F	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P429443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400123	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P428910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401014	Organic Carbon	96.2	96.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P428911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400913	Organic Carbon	90.1	90.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P428631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400865	Color (true)	6.34	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P428648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400707	Turbidity	2.53	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P428697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400401	Calcium	0.515	Spike	P	0 - 20
2400401	Iron	0.622	Spike	P	0 - 20
2400401	Magnesium	0.129	Spike	P	0 - 20
2400401	Potassium	0.773	Spike	P	0 - 20
2400401	Sodium	0.249	Spike	P	0 - 20
2400401	Strontium	0.307	Spike	P	0 - 20
2400401	Tin	1.62	Spike	P	0 - 20
2400401	Titanium	0.386	Spike	P	0 - 20
2400401	Vanadium	0.480	Spike	P	0 - 20
2400401	Zinc	0.478	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P428935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400980	Calcium	0.0162	Spike	P	0 - 20
2400980	Iron	0.657	Spike	P	0 - 20
2400980	Magnesium	0.725	Spike	P	0 - 20
2400980	Potassium	0.129	Spike	P	0 - 20
2400980	Sodium	0.335	Spike	P	0 - 20
2400980	Strontium	0.0192	Spike	P	0 - 20
2400980	Tin	17.2	Spike	P	0 - 20
2400980	Titanium	1.19	Spike	P	0 - 20
2400980	Vanadium	0.244	Spike	P	0 - 20
2400980	Zinc	1.84	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P428697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400401	Aluminum	2.22	Spike	P	0 - 20
2400401	Antimony	1.18	Spike	P	0 - 20
2400401	Arsenic	0.345	Spike	P	0 - 20
2400401	Barium	0.997	Spike	P	0 - 20
2400401	Beryllium	2.46	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P428697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400401	Boron	0.346	Spike	P	0 - 20
2400401	Cadmium	0.356	Spike	P	0 - 20
2400401	Chromium	1.29	Spike	P	0 - 20
2400401	Cobalt	0.461	Spike	P	0 - 20
2400401	Copper	0.365	Spike	P	0 - 20
2400401	Lead	0.681	Spike	P	0 - 20
2400401	Manganese	0.0797	Spike	P	0 - 20
2400401	Molybdenum	2.31	Spike	P	0 - 20
2400401	Nickel	1.45	Spike	P	0 - 20
2400401	Selenium	0.762	Spike	P	0 - 20
2400401	Silver	0.656	Spike	P	0 - 20
2400401	Thallium	2.59	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P428935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400980	Aluminum	2.41	Spike	P	0 - 20
2400980	Antimony	0.0922	Spike	P	0 - 20
2400980	Arsenic	0.621	Spike	P	0 - 20
2400980	Barium	0.846	Spike	P	0 - 20
2400980	Beryllium	0.623	Spike	P	0 - 20
2400980	Boron	0.313	Spike	P	0 - 20
2400980	Cadmium	2.80	Spike	P	0 - 20
2400980	Chromium	2.12	Spike	P	0 - 20
2400980	Cobalt	0.885	Spike	P	0 - 20
2400980	Copper	1.21	Spike	P	0 - 20
2400980	Lead	0.00603	Spike	P	0 - 20
2400980	Manganese	0.247	Spike	P	0 - 20
2400980	Molybdenum	0.0135	Spike	P	0 - 20
2400980	Nickel	0.747	Spike	P	0 - 20
2400980	Selenium	0.473	Spike	P	0 - 20
2400980	Silver	0.254	Spike	P	0 - 20
2400980	Thallium	1.04	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401008	Chloride	0.204	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P428898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401008	Sulfate	0.227	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400866	Ammonia-N	0.892	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401012	Ammonia-N	3.37	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400909	Ammonia-N	0.655	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400914	Kjeldahl Nitrogen	1.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401012	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400907	NO2NO3-N	0.317	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400954	NO2NO3-N	0.280	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400866	Total-P	0.445	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400954	Total-P	1.93	Spike	P	0 - 20

Reference Method: EPA 8276
Batch ID: P428666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401257	Chlordane	0.942	Spike	P	0 - 25
2401257	Toxaphene	4.86	Spike	P	0 - 26

Reference Method: SM 2320 B-2011
Batch ID: P428868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401010	Total Alkalinity	1.34	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P429116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400353	TDS	3.08	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P429109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400967	Fluoride	0.470	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P429443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400123	Fluoride	0.483	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P428910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401014	Organic Carbon	0.0	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P428911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400913	Organic Carbon	0.0984	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Surrogates

Lab Sample ID: 2400982
Field Sample ID: 20030695

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	65.8	P	30 - 101
EPA 8276	PCNB	105	P	48 - 121

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A118636

Included Lab Sample IDs: 2400953, 2400955, 2400957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A118641

Included Lab Sample IDs: 2400953, 2400955, 2400957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	99.1	P/P	90 - 110
Sulfate	99.5	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A118642

Included Lab Sample IDs: 2400953, 2400955, 2400957

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118685

Included Lab Sample IDs: 2400956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118690

Included Lab Sample IDs: 2400956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	97.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118693

Included Lab Sample IDs: 2400963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	99.5	P/P	90 - 110
Antimony	103	102	P/P	90 - 110
Arsenic	102	100	P/P	90 - 110
Barium	101	99.3	P/P	90 - 110
Beryllium	99.4	97.7	P/P	90 - 110
Boron	105	102	P/P	90 - 110
Cadmium	102	101	P/P	90 - 110
Chromium	99.4	99.2	P/P	90 - 110
Cobalt	106	104	P/P	90 - 110
Copper	99.0	97.6	P/P	90 - 110
Lead	103	105	P/P	90 - 110
Manganese	100	101	P/P	90 - 110
Molybdenum	100	100	P/P	90 - 110
Nickel	101	99.6	P/P	90 - 110
Selenium	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118693

Included Lab Sample IDs: 2400963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	106	105	P/P	90 - 110
Thallium	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118700

Included Lab Sample IDs: 2400954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118712

Included Lab Sample IDs: 2400958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118713

Included Lab Sample IDs: 2400963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	97.6	P/P	90 - 110
Iron	99.5	96.6	P/P	90 - 110
Magnesium	99.6	96.8	P/P	90 - 110
Potassium	100	97.7	P/P	90 - 110
Sodium	102	99.9	P/P	90 - 110
Strontium	98.9	97.8	P/P	90 - 110
Tin	97.0	96.8	P/P	90 - 110
Titanium	96.3	95.6	P/P	90 - 110
Vanadium	97.5	96.9	P/P	90 - 110
Zinc	97.2	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118721

Included Lab Sample IDs: 2400958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	96.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A118726

Included Lab Sample IDs: 2400953, 2400955, 2400957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.8	95.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A118740

Included Lab Sample IDs: 2400954, 2400956, 2400958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	99.1	P/P	90 - 110
Organic Carbon	98.6	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118767

Included Lab Sample IDs: 2400954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	99.2	P/P	90 - 110

Reference Method: EPA 8276

Run ID: A118778

Included Lab Sample IDs: 2400982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	104		P	80 - 120
Toxaphene	112		P	80 - 120

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118783

Included Lab Sample IDs: 2400956, 2400958

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118789

Included Lab Sample IDs: 2400954, 2400956, 2400958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	107	P/P	90 - 110
Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118830

Included Lab Sample IDs: 2400954

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

Reference Method: SM 4500-F- C-2011

Run ID: A118831

Included Lab Sample IDs: 2400955, 2400957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118841

Included Lab Sample IDs: 2400980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	105	P/P	90 - 110
Antimony	103	104	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Barium	103	103	P/P	90 - 110
Boron	102	102	P/P	90 - 110
Cadmium	102	102	P/P	90 - 110
Cobalt	98.4	99.4	P/P	90 - 110
Copper	104	105	P/P	90 - 110
Lead	94.2	93.8	P/P	90 - 110
Manganese	103	105	P/P	90 - 110
Molybdenum	100	100	P/P	90 - 110
Nickel	100	101	P/P	90 - 110
Selenium	103	101	P/P	90 - 110
Silver	100	101	P/P	90 - 110
Thallium	103	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118847

Included Lab Sample IDs: 2400980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	100	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	103	104	P/P	90 - 110
Strontium	102	104	P/P	90 - 110
Tin	100	99.2	P/P	90 - 110
Titanium	97.8	99.3	P/P	90 - 110
Vanadium	99.5	101	P/P	90 - 110
Zinc	100	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118867

Included Lab Sample IDs: 2400980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	99.6	98.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118889

Included Lab Sample IDs: 2400980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	97.3	95.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118947

Included Lab Sample IDs: 2400980

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

Quality Assurance Report

Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A118968

Included Lab Sample IDs: 2400953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	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			LCS	Precision SMP	MS
DEP SOP: NU-094-1	Color (true)	101					6.34	
EPA 180.1 Rev. 2.0	Turbidity	99.2					2.53	
EPA 200.7 Rev. 4.4	Calcium	101	97.4	100				0.515
	Calcium	99.3						0.0162
	Iron	100	100	99.0	99.7			0.622
	Iron	99.4	99.2	99.9				0.657
	Magnesium	101	96.4	102				0.129
	Magnesium	103						0.725
	Potassium	102	98.4	99.3	101			0.773
	Potassium	104						0.129
	Sodium	103	102	106				0.249
	Sodium	106						0.335
	Strontium	100	99.6	98.4	98.7			0.307
	Strontium	101						0.0192
	Tin	98.7	98.2	96.6	99.5			1.62
	Tin	97.0	101	84.6				17.2
	Titanium	98.7	99.3	98.9	97.9			0.386
	Titanium	97.3	98.4	99.7				1.19
	Vanadium	98.7	99.2	98.6	101			0.480
	Vanadium	98.4	103	104				0.244
	Zinc	99.1	95.2	94.7	99.5			0.478
	Zinc	101	99.0	101				1.84
EPA 200.8 Rev. 5.4	Aluminum	99.7	101	98.9	96.5			2.22
	Aluminum	104	117	114				2.41
	Antimony	102	105	104	102			1.18
	Antimony	105	104	104				0.0922
	Arsenic	101	98.1					0.345
	Arsenic	101	112	113				0.621
	Barium	102	103	102	99.0			0.997
	Barium	105	105	106				0.846
	Beryllium	94.0	94.0	96.3	92.5			2.46
	Beryllium	81.7	99.0	99.6				0.623
	Boron	101	106	105	99.3			0.346
	Boron	104	114	117				0.313
	Cadmium	102	104	105	103			0.356
	Cadmium	102	94.6	97.3				2.80
	Chromium	97.1	98.2	96.9	95.2			1.29
	Chromium	99.8	94.0	92.1				2.12
	Cobalt	103	102	102	102			0.461
	Cobalt	97.7	96.6	95.7				0.885
	Copper	97.5	95.4	95.0	97.5			0.365
	Copper	101	108	110				1.21
	Lead	103	105	106	105			0.681
	Lead	95.3	105	105				0.0060
	Manganese	99.6	101	101				0.0797
	Manganese	103	102	102				0.247
	Molybdenum	98.9	101					2.31
	Molybdenum	102	119	119				0.0135
	Nickel	99.3	96.2	94.7	97.5			1.45
	Nickel	99.0	95.5	94.8				0.747
	Selenium	100	98.7	98.0	97.1			0.762
	Selenium	102	102	101				0.473
	Silver	105	106	106	104			0.656
	Silver	102	91.6	91.3				0.254

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	MS
			LCS	SMP	MS		
EPA 200.8 Rev. 5.4	Thallium	99.7	103	106	103		2.59
	Thallium	103	112	113			1.04
EPA 300.0 Rev. 2.1	Chloride	99.9	103	103		0.204	
	Sulfate	102	101	103		0.227	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	94.2	95.8			0.892
	Ammonia-N	95.2	99.2	103			3.37
	Ammonia-N	96.2	102	103			0.655
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	98.6	99.8			1.04
	Kjeldahl Nitrogen	104	99.2	91.5			4.75
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	101			0.317
	NO2NO3-N	102	101	100			0.280
EPA 365.1 Rev. 2.0	Total-P	102	105	104			0.445
	Total-P	101	96.6	98.8			1.93
EPA 8276	Chlordane	75.5	69.1	68.5			0.942
	Toxaphene	92.6	82.8	86.9			4.86
SM 2320 B-2011	Total Alkalinity	96.3				1.34	
SM 2540 C-2015	TDS	106				3.08	
SM 2540 D-2015	TSS	96.9					
	TSS	100					
SM 4500-F- C-2011	Fluoride	103	105	106			0.470
	Fluoride		101	101			0.483
SM 5310 B-2011	Organic Carbon	96.1	96.2	96.2			0.0
	Organic Carbon	99.3	90.1	90.2			0.0984

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2400953, 2400955, 2400957
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2400953, 2400955, 2400957
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2400963, 2400980
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2400963, 2400980
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2400953, 2400955, 2400957
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2400953, 2400955, 2400957
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2400954, 2400956, 2400958
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2400954, 2400956, 2400958
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2400954, 2400956, 2400958
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2400954, 2400956, 2400958
EPA 8276	Chlordane and Toxaphene in water matrices by GC/MS with Negative Chemical Ionization	2400982
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2400953, 2400955, 2400957
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2400963, 2400980
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2400953, 2400955, 2400957
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2400953, 2400955, 2400957
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2400953, 2400955, 2400957
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2400954, 2400956, 2400958

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	04/18/2023			04/18/2023 14:24	Alexis Price	2400953, 2400955
	04/18/2023			04/18/2023 14:25	Alexis Price	2400957
	04/18/2023			04/18/2023 13:17	Chandler E Cox	2400953
EPA 180.1 Rev. 2.0	04/18/2023			04/18/2023 13:18	Chandler E Cox	2400955
	04/18/2023			04/18/2023 13:19	Chandler E Cox	2400957
	04/18/2023	04/19/2023 11:45	George D Taylor	04/20/2023 19:28	McKinley C Carter	2400963
EPA 200.7 Rev. 4.4	04/18/2023	04/25/2023 11:35	George D Taylor	04/28/2023 03:04	McKinley C Carter	2400980
	04/18/2023	04/25/2023 11:35	George D Taylor	04/28/2023 04:02	McKinley C Carter	2400980
	04/18/2023	04/25/2023 11:35	George D Taylor	05/03/2023 17:44	McKinley C Carter	2400980
EPA 200.8 Rev. 5.4	04/18/2023	04/19/2023 11:45	George D Taylor	04/20/2023 18:05	Conrad Hartmann	2400963
	04/18/2023	04/25/2023 11:35	George D Taylor	04/27/2023 15:56	Emily M Philpot	2400980
	04/18/2023	04/25/2023 11:35	George D Taylor	04/27/2023 17:12	Emily M Philpot	2400980
EPA 300.0 Rev. 2.1	04/18/2023	04/25/2023 11:35	George D Taylor	04/28/2023 13:30	Emily M Philpot	2400980
	04/18/2023	04/25/2023 11:35	George D Taylor	05/01/2023 21:55	Conrad Hartmann	2400980
	04/18/2023			04/21/2023 13:05	James L Waggeberby	2400953
EPA 350.1 Rev. 2.0	04/18/2023			04/21/2023 13:20	James L Waggeberby	2400955
	04/18/2023			04/21/2023 13:35	James L Waggeberby	2400957
	04/18/2023			04/20/2023 14:38	Khloe J Berg	2400956
EPA 351.2 Rev. 2.0	04/18/2023			04/21/2023 13:38	Ping Hua	2400958
	04/18/2023			04/25/2023 13:16	Ping Hua	2400954
	04/18/2023	04/25/2023 12:18	Simonne.V. Calhoun	04/26/2023 12:02	Samantha L Bates	2400954
EPA 353.2 Rev. 2.0	04/18/2023	04/25/2023 12:18	Simonne.V. Calhoun	04/26/2023 12:44	Samantha L Bates	2400956
	04/18/2023	04/25/2023 12:18	Simonne.V. Calhoun	04/26/2023 12:45	Samantha L Bates	2400958
	04/18/2023			04/26/2023 09:25	Beverly Y. Sanders	2400956
EPA 365.1 Rev. 2.0	04/18/2023			04/26/2023 09:26	Beverly Y. Sanders	2400958
	04/18/2023			04/26/2023 14:23	Anna M. Plaviak	2400954
	04/18/2023	04/19/2023 13:15	Alexis Price	04/20/2023 12:00	Simonne.V. Calhoun	2400956
EPA 8276	04/18/2023	04/19/2023 13:15	Alexis Price	04/22/2023 15:09	James L Waggeberby	2400958
	04/18/2023	04/20/2023 13:15	Alexis Price	04/21/2023 09:31	James L Waggeberby	2400954
	04/18/2023	04/21/2023 08:00	Fe-Val Siddell	04/25/2023 12:30	Arthur Maknenko	2400982
SM 2320 B-2011	04/18/2023			04/22/2023 01:09	Dale L. Simmons	2400955
	04/18/2023			04/22/2023 01:15	Dale L. Simmons	2400957
	04/18/2023			04/22/2023 03:25	Dale L. Simmons	2400953
SM 2340 B-2011	04/18/2023			04/20/2023 19:28	McKinley C Carter	2400963
	04/18/2023			04/28/2023 04:02	McKinley C Carter	2400980
	04/18/2023			04/19/2023 15:28	Yijie Li	2400953, 2400955, 2400957
SM 2540 D-2015	04/18/2023			04/19/2023 15:28	Yijie Li	2400953, 2400955, 2400957
SM 4500-F- C-2011	04/18/2023			04/26/2023 18:01	Dale L. Simmons	2400955
	04/18/2023			04/26/2023 18:07	Dale L. Simmons	2400957
	04/18/2023			05/05/2023 01:41	Adam P Silver	2400953

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	04/18/2023			04/21/2023 19:12	Elise M. Gillis	2400956
	04/18/2023			04/21/2023 19:25	Elise M. Gillis	2400958
	04/18/2023			04/22/2023 05:20	Elise M. Gillis	2400954