

Chemical Analysis Report

NE-DIST-2022-11-18-01

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

Event Description: **Nassau West**
Request ID: **RQ-2022-11-14-24**
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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 08-DEC-2022 14:38

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: Unnamed Drain to Brandy Branch at Dillon Rd. Collection Date/Time: 11/17/2022 09:35

Field ID: G4NE0297

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370917	DEP SOP: NU-094-1	Color (true)	370		PCU	P422590	
	EPA 180.1 Rev. 2.0	Turbidity	0.80	I	NTU	P422602	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P423086	
		Sulfate	0.85		mg SO4/L	P423088	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P422891	
	SM 2540 C-2015	TDS	90		mg/L	P423109	
	SM 2540 D-2015	TSS	2	U	mg/L	P422926	
2370921	SM 4500-F- C-2011	Fluoride	0.030	I	mg F/L	P422895	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P423183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P422687	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422725	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P422690	
2370934	SM 5310 B-2011	Organic Carbon	44		mg C/L	P422887	
	EPA 200.7 Rev. 4.4	Calcium	3.27		mg/L	P422727	
		Iron	1.33E+03		ug/L	P422727	
		Magnesium	1.09		mg/L	P422727	
		Potassium	0.30	U	mg/L	P422727	
		Sodium	6.6		mg/L	P422727	
		Strontium	17.5		ug/L	P422727	
		Tin	3.0	U	ug/L	P422727	
		Titanium	1.6	I	ug/L	P422727	
		Vanadium	2.0	U	ug/L	P422727	
		Zinc	12	I	ug/L	P422727	
	EPA 200.8 Rev. 5.4	Aluminum	524		ug/L	P422727	
		Antimony	0.050	U	ug/L	P422727	
		Arsenic	0.35		ug/L	P422727	
		Barium	14.4		ug/L	P422727	
		Beryllium	0.049		ug/L	P422727	
		Boron	23.6		ug/L	P422727	
		Cadmium	0.020	U	ug/L	P422727	
		Chromium	0.63	I	ug/L	P422727	
		Cobalt	0.379		ug/L	P422727	
		Copper	2.45		ug/L	P422727	
		Lead	0.72		ug/L	P422727	
		Manganese	20.7		ug/L	P422727	
		Molybdenum	0.15	U	ug/L	P422727	
		Nickel	0.80	I	ug/L	P422727	
		Selenium	0.20	U	ug/L	P422727	
		Silver	0.010	U	ug/L	P422727	
		Thallium	0.10	U	ug/L	P422727	
	SM 2340 B-2011	Hardness	12.6		mg/L	P422727	

Field ID: G4NE0297

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 11/29/2022.

Sample Location: Unnamed Drain to Brandy Branch at US301

Collection Date/Time: 11/17/2022 09:55

Field ID: G4NE0302

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370938	EPA 200.7 Rev. 4.4	Calcium	4.00		mg/L	P422727	
		Iron	1.31E+03		ug/L	P422727	
		Magnesium	1.56		mg/L	P422727	
		Potassium	0.76	I	mg/L	P422727	
		Sodium	7.5		mg/L	P422727	
		Strontium	25.0		ug/L	P422727	
		Tin	3.0	U	ug/L	P422727	
		Titanium	0.88	I	ug/L	P422727	
		Vanadium	2.0	U	ug/L	P422727	
	EPA 200.8 Rev. 5.4	Zinc	8.8	I	ug/L	P422727	
		Aluminum	409		ug/L	P422727	
		Antimony	0.050	U	ug/L	P422727	
		Arsenic	0.39		ug/L	P422727	
		Barium	19.4		ug/L	P422727	
		Beryllium	0.047		ug/L	P422727	
		Boron	30.4		ug/L	P422727	
		Cadmium	0.020	I	ug/L	P422727	
		Chromium	0.57	I	ug/L	P422727	
		Cobalt	1.13		ug/L	P422727	
		Copper	2.63		ug/L	P422727	
		Lead	0.53		ug/L	P422727	
		Manganese	21.6		ug/L	P422727	
		Molybdenum	0.15	U	ug/L	P422727	
		Nickel	1.4	I	ug/L	P422727	
		Selenium	0.20	U	ug/L	P422727	
		Silver	0.010	U	ug/L	P422727	
		Thallium	0.10	U	ug/L	P422727	
	SM 2340 B-2011	Hardness	16.4		mg/L	P422727	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 11/29/2022.

Sample Location: UNNAMED STREAM @ CR 121

Collection Date/Time: 11/17/2022 11:05

Field ID: 19010127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370918	DEP SOP: NU-094-1	Color (true)	350		PCU	P422590	
	EPA 180.1 Rev. 2.0	Turbidity	0.70	I	NTU	P422602	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P423086	
		Sulfate	2.1		mg SO4/L	P423088	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P422891	
	SM 2540 C-2015	TDS	78		mg/L	P423109	
	SM 2540 D-2015	TSS	2	U	mg/L	P422926	
2370922	SM 4500-F- C-2011	Fluoride	0.031	I	mg F/L	P422895	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P423183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P422773	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422725	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P422690	
2370935	SM 5310 B-2011	Organic Carbon	37		mg C/L	P422887	
	EPA 200.7 Rev. 4.4	Calcium	4.64		mg/L	P422727	
		Iron	1.70E+03		ug/L	P422727	
		Magnesium	1.18		mg/L	P422727	
		Potassium	0.30	U	mg/L	P422727	
		Sodium	6.6		mg/L	P422727	
		Strontium	15.5		ug/L	P422727	
		Tin	3.0	U	ug/L	P422727	
		Titanium	1.2	I	ug/L	P422727	
		Vanadium	2.0	U	ug/L	P422727	
		Zinc	5.3	I	ug/L	P422727	
	EPA 200.8 Rev. 5.4	Aluminum	551		ug/L	P422727	
		Antimony	0.050	U	ug/L	P422727	
		Arsenic	0.61		ug/L	P422727	
		Barium	18.4		ug/L	P422727	
		Beryllium	0.048		ug/L	P422727	
		Boron	26.0		ug/L	P422727	
		Cadmium	0.020	U	ug/L	P422727	
		Chromium	0.81	I	ug/L	P422727	
		Cobalt	0.346		ug/L	P422727	
		Copper	0.40	U	ug/L	P422727	
		Lead	0.47		ug/L	P422727	
		Manganese	20.6		ug/L	P422727	
		Molybdenum	0.15	U	ug/L	P422727	
		Nickel	1.0	I	ug/L	P422727	
		Selenium	0.20	U	ug/L	P422727	
		Silver	0.010	U	ug/L	P422727	
		Thallium	0.10	U	ug/L	P422727	
	SM 2340 B-2011	Hardness	16.5		mg/L	P422727	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: ST MARYS R @ STOKES RD

Collection Date/Time: 11/17/2022 10:20

Field ID: 19010093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370919	DEP SOP: NU-094-1	Color (true)	340		PCU	P422590	
	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P422602	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P423086	
		Sulfate	1.9		mg SO4/L	P423088	
	SM 2320 B-2011	Total Alkalinity	6.5		mg CaCO3/L	P422891	
	SM 2540 C-2015	TDS	112		mg/L	P423109	
	SM 2540 D-2015	TSS	2	I	mg/L	P422926	
2370923	SM 4500-F- C-2011	Fluoride	0.047	I	mg F/L	P422895	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P423183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P423020	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P422725	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P422690	
2370936	SM 5310 B-2011	Organic Carbon	31		mg C/L	P422887	
	EPA 200.7 Rev. 4.4	Calcium	5.04		mg/L	P422727	
		Iron	800		ug/L	P422727	
		Magnesium	2.15		mg/L	P422727	
		Potassium	1.1	I	mg/L	P422727	
		Sodium	5.8		mg/L	P422727	
		Strontium	23.6		ug/L	P422727	
		Tin	3.0	U	ug/L	P422727	
		Titanium	1.3	I	ug/L	P422727	
		Vanadium	2.0	U	ug/L	P422727	
		Zinc	5.0	U	ug/L	P422727	
		Aluminum	341		ug/L	P422727	
		Antimony	0.050	U	ug/L	P422727	
		Arsenic	0.42		ug/L	P422727	
		Barium	18.2		ug/L	P422727	
		Beryllium	0.029	I	ug/L	P422727	
		Boron	25.7		ug/L	P422727	
		Cadmium	0.020	U	ug/L	P422727	
		Chromium	0.53	I	ug/L	P422727	
		Cobalt	0.259		ug/L	P422727	
		Copper	0.40	U	ug/L	P422727	
		Lead	0.46		ug/L	P422727	
		Manganese	17.9		ug/L	P422727	
		Molybdenum	0.33	I	ug/L	P422727	
		Nickel	0.55	I	ug/L	P422727	
		Selenium	0.20	U	ug/L	P422727	
		Silver	0.010	U	ug/L	P422727	
		Thallium	0.10	U	ug/L	P422727	
	SM 2340 B-2011	Hardness	21.4		mg/L	P422727	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: DEEP CR @ HAMP HICKS RD

Collection Date/Time: 11/17/2022 10:45

Field ID: 19010084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370920	DEP SOP: NU-094-1	Color (true)	360		PCU	P422591	
	EPA 180.1 Rev. 2.0	Turbidity	5.4	A	NTU	P422602	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P423086	
		Sulfate	1.5		mg SO4/L	P423088	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P422891	
	SM 2540 C-2015	TDS	83		mg/L	P423109	
	SM 2540 D-2015	TSS	4	I	mg/L	P422926	
2370924	SM 4500-F- C-2011	Fluoride	0.033	I	mg F/L	P422895	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P423183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P423020	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422725	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P422690	
2370937	SM 5310 B-2011	Organic Carbon	34		mg C/L	P422887	
	EPA 200.7 Rev. 4.4	Calcium	3.06		mg/L	P422727	
		Iron	2.22E+03		ug/L	P422727	
		Magnesium	1.22		mg/L	P422727	
		Potassium	0.42	I	mg/L	P422727	
		Sodium	6.8		mg/L	P422727	
		Strontium	16.5		ug/L	P422727	
		Tin	3.0	U	ug/L	P422727	
		Titanium	1.7	I	ug/L	P422727	
		Vanadium	2.0	U	ug/L	P422727	
		Zinc	5.0	U	ug/L	P422727	
	EPA 200.8 Rev. 5.4	Aluminum	563		ug/L	P422727	
		Antimony	0.050	U	ug/L	P422727	
		Arsenic	0.86		ug/L	P422727	
		Barium	18.6		ug/L	P422727	
		Beryllium	0.053		ug/L	P422727	
		Boron	20.5		ug/L	P422727	
		Cadmium	0.020	U	ug/L	P422727	
		Chromium	0.75	I	ug/L	P422727	
		Cobalt	0.455		ug/L	P422727	
		Copper	0.40	I	ug/L	P422727	
		Lead	1.11		ug/L	P422727	
		Manganese	24.8		ug/L	P422727	
		Molybdenum	0.15	U	ug/L	P422727	
		Nickel	1.0	I	ug/L	P422727	
		Selenium	0.20	U	ug/L	P422727	
		Silver	0.010	U	ug/L	P422727	
		Thallium	0.10	U	ug/L	P422727	
	SM 2340 B-2011	Hardness	12.7		mg/L	P422727	

Field ID: 19010084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 11/30/2022.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P422590

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P422591

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422602

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422727

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: P422727

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423183

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422687

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422773

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422725

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

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

Reference Method: SM 2320 B-2011
Batch ID: P422891

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P423109

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P422926

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422887

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: P422590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P422591

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: P422602

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	103		P	85 - 115
Sodium	102		P	85 - 115
Strontium	103		P	85 - 115
Tin	102		P	85 - 115
Titanium	99.6		P	85 - 115
Vanadium	98.5		P	85 - 115
Zinc	98.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.4		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	103		P	85 - 115
Barium	104		P	85 - 115
Beryllium	97.6		P	85 - 115
Boron	103		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	97.0		P	85 - 115
Cobalt	108		P	85 - 115
Copper	101		P	85 - 115
Lead	99.8		P	85 - 115
Manganese	95.8		P	85 - 115
Molybdenum	98.8		P	85 - 115
Nickel	99.1		P	85 - 115
Selenium	99.4		P	85 - 115
Silver	104		P	85 - 115
Thallium	99.4		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423183

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422687

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422773

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422725

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

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

Reference Method: SM 2320 B-2011
Batch ID: P422891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.5		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P423109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.7		P	90 - 110

Reference Method: SM 2540 D-2015
Batch ID: P422926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.6		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P422727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370860	Iron	106	105	P/P	80 - 120
2370860	Magnesium	105	104	P/P	80 - 120
2370860	Potassium	103	103	P/P	80 - 120
2370860	Sodium	103		P	80 - 120
2370860	Strontium	103	101	P/P	80 - 120
2370860	Tin	100	102	P/P	80 - 120
2370860	Titanium	101	100	P/P	80 - 120
2370860	Vanadium	99.9	98.2	P/P	80 - 120
2370860	Zinc	97.9	96.0	P/P	80 - 120
2371012	Calcium	105		P	80 - 120
2371012	Iron	105		P	80 - 120
2371012	Magnesium	105		P	80 - 120
2371012	Potassium	100		P	80 - 120
2371012	Sodium	102		P	80 - 120
2371012	Strontium	102		P	80 - 120
2371012	Tin	101		P	80 - 120
2371012	Titanium	99.6		P	80 - 120
2371012	Vanadium	99.2		P	80 - 120
2371012	Zinc	98.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P422727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370860	Aluminum	96.5	95.7	P/P	80 - 120
2370860	Antimony	105	105	P/P	80 - 120
2370860	Arsenic	104	102	P/P	80 - 120
2370860	Barium	104	103	P/P	80 - 120
2370860	Beryllium	97.0	94.5	P/P	80 - 120
2370860	Boron	106	106	P/P	80 - 120
2370860	Cadmium	102	102	P/P	80 - 120
2370860	Chromium	98.9	98.6	P/P	80 - 120
2370860	Cobalt	107	104	P/P	80 - 120
2370860	Copper	96.6	94.4	P/P	80 - 120
2370860	Lead	102	102	P/P	80 - 120
2370860	Manganese	98.0	97.4	P/P	80 - 120
2370860	Molybdenum	105	103	P/P	80 - 120
2370860	Nickel	96.2	94.2	P/P	80 - 120
2370860	Selenium	98.8	98.7	P/P	80 - 120
2370860	Silver	104	103	P/P	80 - 120
2370860	Thallium	103	103	P/P	80 - 120
2371012	Aluminum	96.2		P	80 - 120
2371012	Antimony	100		P	80 - 120
2371012	Arsenic	96.9		P	80 - 120
2371012	Barium	101		P	80 - 120
2371012	Beryllium	92.0		P	80 - 120
2371012	Boron	104		P	80 - 120
2371012	Cadmium	100		P	80 - 120
2371012	Chromium	95.7		P	80 - 120
2371012	Cobalt	102		P	80 - 120
2371012	Copper	93.3		P	80 - 120
2371012	Lead	100		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2371012	Manganese	94.6		P	80 - 120
2371012	Molybdenum	98.0		P	80 - 120
2371012	Nickel	95.4		P	80 - 120
2371012	Selenium	91.7		P	80 - 120
2371012	Silver	103		P	80 - 120
2371012	Thallium	99.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370887	Chloride	96.9		P	90 - 110
2370899	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370887	Sulfate	96.1		P	90 - 110
2370899	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370886	Ammonia-N	96.6	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370848	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370805	Kjeldahl Nitrogen	91.9	95.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370945	Kjeldahl Nitrogen	99.6	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370921	NO2NO3-N	100	99.5	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370922	Total-P	102	103	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370883	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370974	Organic Carbon	96.2	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P422590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370855	Color (true)	3.02	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P422591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370944	Color (true)	6.02	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370920	Turbidity	5.70	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370860	Calcium	2.56	Spike	P	0 - 20
2370860	Iron	0.500	Spike	P	0 - 20
2370860	Magnesium	0.776	Spike	P	0 - 20
2370860	Potassium	0.221	Spike	P	0 - 20
2370860	Sodium	1.73	Spike	P	0 - 20
2370860	Strontium	1.48	Spike	P	0 - 20
2370860	Tin	1.43	Spike	P	0 - 20
2370860	Titanium	1.04	Spike	P	0 - 20
2370860	Vanadium	1.73	Spike	P	0 - 20
2370860	Zinc	1.93	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370860	Aluminum	0.822	Spike	P	0 - 20
2370860	Antimony	0.295	Spike	P	0 - 20
2370860	Arsenic	2.09	Spike	P	0 - 20
2370860	Barium	1.22	Spike	P	0 - 20
2370860	Beryllium	2.65	Spike	P	0 - 20
2370860	Boron	0.163	Spike	P	0 - 20
2370860	Cadmium	0.217	Spike	P	0 - 20
2370860	Chromium	0.334	Spike	P	0 - 20
2370860	Cobalt	3.14	Spike	P	0 - 20
2370860	Copper	2.10	Spike	P	0 - 20
2370860	Lead	0.151	Spike	P	0 - 20
2370860	Manganese	0.550	Spike	P	0 - 20
2370860	Molybdenum	1.58	Spike	P	0 - 20
2370860	Nickel	2.09	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P422727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370860	Selenium	0.179	Spike	P	0 - 20
2370860	Silver	0.482	Spike	P	0 - 20
2370860	Thallium	0.0558	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370887	Chloride	0.00828	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370887	Sulfate	0.147	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370886	Ammonia-N	0.908	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370848	Kjeldahl Nitrogen	1.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370805	Kjeldahl Nitrogen	2.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370945	Kjeldahl Nitrogen	0.160	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422725

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370921	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370922	Total-P	0.442	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P422891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370883	Total Alkalinity	0.595	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P423109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370586	TDS	1.97	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P422895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370883	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370974	Organic Carbon	0.218	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A116036

Included Lab Sample IDs: 2370917, 2370918, 2370919, 2370920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116038

Included Lab Sample IDs: 2370917, 2370918, 2370919, 2370920

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116096

Included Lab Sample IDs: 2370921, 2370922, 2370923, 2370924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116111

Included Lab Sample IDs: 2370923

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116114

Included Lab Sample IDs: 2370921, 2370922, 2370924

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116131

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	92.7	93.6	P/P	90 - 110
Aluminum	93.6	93.3	P/P	90 - 110
Antimony	96.5	97.9	P/P	90 - 110
Antimony	97.1	96.5	P/P	90 - 110
Arsenic	95.9	93.3	P/P	90 - 110
Arsenic	96.0	95.9	P/P	90 - 110
Barium	96.1	95.9	P/P	90 - 110
Barium	96.8	96.1	P/P	90 - 110
Beryllium	93.6	92.7	P/P	90 - 110
Beryllium	95.7	93.6	P/P	90 - 110
Cadmium	100	99.3	P/P	90 - 110
Cadmium	99.3	101	P/P	90 - 110
Copper	91.3	90.4	P/P	90 - 110
Lead	97.1	97.2	P/P	90 - 110
Lead	97.2	96.8	P/P	90 - 110
Molybdenum	96.2	95.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116131

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Molybdenum	96.2	96.2	P/P	90 - 110
Selenium	96.8	96.8	P/P	90 - 110
Selenium	98.3	96.8	P/P	90 - 110
Silver	100	100	P/P	90 - 110
Silver	100	99.8	P/P	90 - 110
Thallium	95.6	96.1	P/P	90 - 110
Thallium	96.1	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116154

Included Lab Sample IDs: 2370921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.9	92.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A116179

Included Lab Sample IDs: 2370921, 2370922, 2370923, 2370924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	99.0	P/P	90 - 110
Organic Carbon	99.0	98.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A116180

Included Lab Sample IDs: 2370917, 2370918, 2370919, 2370920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.9	95.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116180

Included Lab Sample IDs: 2370917, 2370918, 2370919, 2370920

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116187

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	99.8	P/P	90 - 110
Calcium	99.8	100	P/P	90 - 110
Iron	100	100	P/P	90 - 110
Iron	103	100	P/P	90 - 110
Magnesium	102	99.0	P/P	90 - 110
Magnesium	99.0	99.6	P/P	90 - 110
Potassium	101	98.3	P/P	90 - 110
Potassium	98.3	98.8	P/P	90 - 110
Sodium	102	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116187

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	99.6	98.8	P/P	90 - 110
Strontium	101	103	P/P	90 - 110
Strontium	103	101	P/P	90 - 110
Tin	101	96.0	P/P	90 - 110
Tin	96.0	100	P/P	90 - 110
Titanium	101	96.2	P/P	90 - 110
Titanium	96.2	99.6	P/P	90 - 110
Vanadium	101	96.2	P/P	90 - 110
Vanadium	96.2	99.8	P/P	90 - 110
Zinc	100	97.0	P/P	90 - 110
Zinc	97.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116198

Included Lab Sample IDs: 2370922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	95.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116201

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	101	98.8	P/P	90 - 110
Chromium	93.7	92.8	P/P	90 - 110
Manganese	92.4	93.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116220

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	90.7	91.2	P/P	90 - 110
Nickel	90.7	91.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A116247

Included Lab Sample IDs: 2370934, 2370935, 2370936, 2370937, 2370938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	94.9	97.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116259

Included Lab Sample IDs: 2370917, 2370918, 2370919, 2370920

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116263

Included Lab Sample IDs: 2370923, 2370924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	96.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116287

Included Lab Sample IDs: 2370921, 2370922, 2370923, 2370924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	98.6	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	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	99.2				3.02	
	Color (true)	101				6.02	
EPA 180.1 Rev. 2.0	Turbidity	101				5.70	
EPA 200.7 Rev. 4.4	Calcium	104	105				2.56
	Iron	106	106	105	105		0.500
	Magnesium	106	105	104	105		0.776
	Potassium	103	103	103	100		0.221
	Sodium	102	103	102			1.73
	Strontium	103	103	101	102		1.48
	Tin	102	100	102	101		1.43
	Titanium	99.6	101	100	99.6		1.04
	Vanadium	98.5	99.9	98.2	99.2		1.73
	Zinc	98.0	97.9	96.0	98.6		1.93
EPA 200.8 Rev. 5.4	Aluminum	98.4	96.5	95.7	96.2		0.822
	Antimony	100	105	105	100		0.295
	Arsenic	103	104	102	96.9		2.09
	Barium	104	104	103	101		1.22
	Beryllium	97.6	97.0	94.5	92.0		2.65
	Boron	103	106	106	104		0.163
	Cadmium	101	102	102	100		0.217
	Chromium	97.0	98.9	98.6	95.7		0.334
	Cobalt	108	107	104	102		3.14
	Copper	101	96.6	94.4	93.3		2.10
	Lead	99.8	102	102	100		0.151
	Manganese	95.8	98.0	97.4	94.6		0.550
	Molybdenum	98.8	105	103	98.0		1.58
	Nickel	99.1	96.2	94.2	95.4		2.09
	Selenium	99.4	98.8	98.7	91.7		0.179
	Silver	104	104	103	103		0.482
	Thallium	99.4	103	103	99.0		0.0558
EPA 300.0 Rev. 2.1	Chloride	101	96.9	98.0		0.0082	
	Sulfate	99.8	96.1	97.1		0.147	
EPA 350.1 Rev. 2.0	Ammonia-N	100	96.6	97.6			0.908
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.3	103	104			1.37
	Kjeldahl Nitrogen	99.4	91.9	95.7			2.11
	Kjeldahl Nitrogen	100	99.6	99.8			0.160
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100	99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	101	102	103			0.442
SM 2320 B-2011	Total Alkalinity	97.5				0.595	
SM 2540 C-2015	TDS	97.7				1.97	
SM 2540 D-2015	TSS	93.6					
SM 4500-F- C-2011	Fluoride	102	101	101			0.0
SM 5310 B-2011	Organic Carbon	97.1	96.2	96.4			0.218

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2370917, 2370918, 2370919, 2370920
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2370917, 2370918, 2370919, 2370920
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2370934, 2370935, 2370936, 2370937, 2370938
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2370934, 2370935, 2370936, 2370937, 2370938

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2370917, 2370918, 2370919, 2370920
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2370917, 2370918, 2370919, 2370920
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2370921, 2370922, 2370923, 2370924
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2370921, 2370922, 2370923, 2370924
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2370921, 2370922, 2370923, 2370924
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2370921, 2370922, 2370923, 2370924
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2370917, 2370918, 2370919, 2370920
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2370934, 2370935, 2370936, 2370937, 2370938
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2370917, 2370918, 2370919, 2370920
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2370917, 2370918, 2370919, 2370920
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2370917, 2370918, 2370919, 2370920
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2370921, 2370922, 2370923, 2370924

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	11/18/2022			11/18/2022 14:45	Chandler E Cox	2370917
	11/18/2022			11/18/2022 14:46	Chandler E Cox	2370918, 2370919
	11/18/2022			11/18/2022 14:47	Chandler E Cox	2370920
EPA 180.1 Rev. 2.0	11/18/2022			11/18/2022 14:15	Khloe J Berg	2370917
	11/18/2022			11/18/2022 14:17	Khloe J Berg	2370918
	11/18/2022			11/18/2022 14:18	Khloe J Berg	2370919
EPA 200.7 Rev. 4.4	11/18/2022			11/18/2022 14:21	Khloe J Berg	2370920
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/29/2022 22:13	McKinley C Carter	2370934
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/29/2022 22:21	McKinley C Carter	2370935
EPA 200.8 Rev. 5.4	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/29/2022 22:29	McKinley C Carter	2370936
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/29/2022 23:04	McKinley C Carter	2370937
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/29/2022 23:12	McKinley C Carter	2370938
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/27/2022 22:48	Megan Whitefoot	2370934
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/27/2022 22:57	Megan Whitefoot	2370935
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/27/2022 23:07	Megan Whitefoot	2370936
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/27/2022 23:17	Megan Whitefoot	2370937
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/28/2022 00:14	Megan Whitefoot	2370938
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/30/2022 17:50	Emily M Philpot	2370934
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/30/2022 18:00	Emily M Philpot	2370935
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/30/2022 18:10	Emily M Philpot	2370936
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/30/2022 18:19	Emily M Philpot	2370937
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	11/30/2022 18:29	Emily M Philpot	2370938
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/01/2022 19:03	Emily M Philpot	2370934
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/01/2022 19:09	Emily M Philpot	2370935
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/01/2022 19:16	Emily M Philpot	2370936
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/01/2022 19:22	Emily M Philpot	2370937
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/01/2022 19:29	Emily M Philpot	2370938
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/03/2022 02:15	Emily M Philpot	2370934
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/03/2022 02:25	Emily M Philpot	2370935
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/03/2022 02:34	Emily M Philpot	2370936
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/03/2022 02:44	Emily M Philpot	2370937
	11/18/2022	11/22/2022 12:00	Vijayalakshmi Reddy	12/03/2022 02:54	Emily M Philpot	2370938
EPA 300.0 Rev. 2.1	11/18/2022			12/02/2022 22:12	Anna M. Plaviak	2370917
	11/18/2022			12/02/2022 22:27	Anna M. Plaviak	2370918
	11/18/2022			12/02/2022 22:42	Anna M. Plaviak	2370919
EPA 350.1 Rev. 2.0	11/18/2022			12/02/2022 22:57	Anna M. Plaviak	2370920
	11/18/2022			12/06/2022 16:35	Judith K. Clark	2370921
	11/18/2022			12/06/2022 16:36	Judith K. Clark	2370922
	11/18/2022			12/06/2022 16:38	Judith K. Clark	2370923
	11/18/2022			12/06/2022 16:39	Judith K. Clark	2370924

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 351.2 Rev. 2.0	11/18/2022	11/22/2022 09:10	Simonne.V. Calhoun	11/28/2022 13:40	Judith K. Clark	2370921
	11/18/2022	11/28/2022 13:20	Simonne.V. Calhoun	11/30/2022 16:12	Judith K. Clark	2370922
	11/18/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 14:20	Judith K. Clark	2370923
	11/18/2022	12/02/2022 13:20	Simonne.V. Calhoun	12/05/2022 14:22	Judith K. Clark	2370924
EPA 353.2 Rev. 2.0	11/18/2022			11/22/2022 11:27	Beverly Y. Sanders	2370921
	11/18/2022			11/22/2022 11:34	Beverly Y. Sanders	2370922
	11/18/2022			11/22/2022 11:35	Beverly Y. Sanders	2370923
	11/18/2022			11/22/2022 11:36	Beverly Y. Sanders	2370924
EPA 365.1 Rev. 2.0	11/18/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 15:44	James L Waggeberby	2370923
	11/18/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 17:46	James L Waggeberby	2370922
	11/18/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 17:47	James L Waggeberby	2370921
	11/18/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 17:48	James L Waggeberby	2370924
SM 2320 B-2011	11/18/2022			11/30/2022 03:41	Dale L. Simmons	2370917
	11/18/2022			11/30/2022 03:49	Dale L. Simmons	2370918
	11/18/2022			11/30/2022 04:01	Dale L. Simmons	2370919
	11/18/2022			11/30/2022 04:09	Dale L. Simmons	2370920
SM 2340 B-2011	11/18/2022			11/29/2022 22:13	McKinley C Carter	2370934
	11/18/2022			11/29/2022 22:21	McKinley C Carter	2370935
	11/18/2022			11/29/2022 22:29	McKinley C Carter	2370936
	11/18/2022			11/29/2022 23:04	McKinley C Carter	2370937
	11/18/2022			11/29/2022 23:12	McKinley C Carter	2370938
SM 2540 C-2015	11/18/2022			11/22/2022 16:06	Yijie Li	2370917, 2370918, 2370919, 2370920
SM 2540 D-2015	11/18/2022			11/22/2022 16:06	Yijie Li	2370917, 2370918, 2370919, 2370920
SM 4500-F- C-2011	11/18/2022			11/30/2022 03:41	Dale L. Simmons	2370917
	11/18/2022			11/30/2022 03:49	Dale L. Simmons	2370918
	11/18/2022			11/30/2022 04:01	Dale L. Simmons	2370919
	11/18/2022			11/30/2022 04:09	Dale L. Simmons	2370920
SM 5310 B-2011	11/18/2022			11/29/2022 23:52	Khloe J Berg	2370921
	11/18/2022			11/30/2022 00:06	Khloe J Berg	2370922
	11/18/2022			11/30/2022 00:20	Khloe J Berg	2370923
	11/18/2022			11/30/2022 01:03	Khloe J Berg	2370924